From Silos to Synthesis: How Transparency Bridges Nudging and Persuasion – A Consumer Behavior Perspective on Mechanisms and Effects

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Vorgelegt von

Jannike Celina Harnischmacher

aus Wickede (Ruhr)

Dekan:	Prof. Dr. Claas Christian Germelmann
Erstberichterstatter:	Prof. Dr. Claas Christian Germelmann
Zweitberichterstatter:	Prof. Dr. Jean-Luc Herrmann
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Foreword

When you ask scholars working in marketing what they think of nudging, you will often encounter a familiar set of reactions: a raised eyebrow, a slight turn away, and comments ranging from “we have always done this—just under a different label” to “this is merely a fashionable hype that will not hold up in meta-analyses.” Conversely, when you ask researchers rooted in the more classical nudging tradition what they think of marketing, you may hear the uncomfortable suspicion that marketing is, at its core, a somewhat *schmuddelkind* type of science—one that seeks to influence people rather than to nudge them towards what is good for them.

With her dissertation, Doctor Harnischmacher overcomes precisely these demarcation lines. She builds bridges and connects research traditions in marketing and nudging, making genuinely new and fertile insights possible. Her work achieves what is unusually rare at the doctoral level: it does not merely “apply” ideas across domains but conceptually interlocks two large and theoretically mature traditions. The key to this synthesis is her triad of nudging, transparency, and persuasion knowledge—a combination that opens new pathways for research by reframing transparency as a mechanism that links rather than separates nudging and persuasion research.

This intellectual ambition is matched by the rigour of her empirical work. Doctor Harnischmacher has not spared effort in pursuing her ideas, as is particularly evident in the demanding fieldwork underpinning key parts of the dissertation, as well as in the careful development and testing of process models. At the same time, she has faced the predictable—and often intense—disciplinary frictions that arise in review processes when one community evaluates work that is openly conversant with another. It is all the more commendable that she has remained resilient and intellectually focused, resulting in a dissertation that is not only coherent and persuasive but also genuinely enjoyable to read.

Beyond these strengths, I would like to highlight one further aspect that deserves special recognition. Doctor Harnischmacher demonstrates an exceptional sense of scholarly positioning: she anticipates the most demanding objections from both adjacent research communities and addresses them with remarkable precision and fairness. Rather than sidestepping tensions between nudging and marketing, she makes them analytically productive. This ability to engage critically with competing perspectives while maintaining a clear, independent intellectual stance is a hallmark of mature scholarship—and it is rare at this stage of an academic career.

The strongest praise I can offer—and the central message of my evaluation—is this: Doctor Harnischmacher's dissertation goes far beyond what is typically expected of a solid doctoral thesis. Its conceptual ambition, theoretical depth, and methodological sophistication clearly exceed standard requirements. Most notably, she demonstrates with great analytical clarity that transparency is not an ethical afterthought or a mere normative add-on, but a psychological and conceptual mechanism that reveals deep structural similarities between nudging and persuasion research. In doing so, she provides not only empirical findings but also guidance on how scholars can productively move from silos to synthesis in future research.

A further hallmark of this dissertation is Doctor Harnischmacher's ability to generate genuinely new insights in research areas that are often considered theoretically mature, where meaningful gaps have become increasingly difficult to identify. She repeatedly uncovers underexplored questions and shows that they can be addressed through carefully designed empirical work.

It has been a great honour to accompany this work on its path to publication. I am fully convinced that this dissertation will be read as an exemplary piece of scholarship by those interested in behavioural influence—within marketing, within nudging, and far beyond. Doctor Harnischmacher has presented an outstanding doctoral dissertation, the reading of which is recommended not only to scholars in marketing and nudging, but to all who seek to build bridges within a discipline between two fields that are often only apparently very different.

Bayreuth, February 2026

Prof. Dr. Claas Christian Germelmann

Acknowledgments

A PhD journey is rarely a solitary one. Mine has been a time of profound intellectual and personal growth, shaped not only by the research itself, but by the people who accompanied me along the way. I am deeply grateful to all of them.

My sincerest thanks go to my supervisor, *Prof. Dr. Claas Christian Germelmann*. In his foreword to this dissertation, he describes how both marketing and nudging researchers tend to greet the other's field with a raised eyebrow. I hope I have managed to raise their second eyebrow too, transforming that initial skepticism into genuine surprise and curiosity through the kind of ambitious, cross-boundary thinking he encouraged from the very beginning. What made this possible was the environment he created: one with clear intellectual guardrails, but with genuine freedom to push against them, reshape them, and pursue the questions that truly interested me. I especially appreciated his openness to new research ideas and his ability to bring in a complementary perspective that consistently strengthened my work. Knowing that he stood behind me gave me the confidence to be bold. I am immensely grateful for that trust and for the space to grow.

I would also like to express my deep gratitude to *Prof. Dr. Jean-Luc Herrmann*, my second supervisor, for his continuous support, invaluable input, and constructive feedback throughout my entire PhD journey. His thoughtful engagement with my research and his motivating words helped me navigate the challenges of this path. Many thanks also to *Prof. Dr. Daniel Baier* for kindly serving as chairperson of my dissertation committee and for conducting the defense with great care and collegiality.

My deep gratitude goes to my colleagues at the chair: *Timo Koch, Lisa Ross, Helen Bommel, Dr. Jonas Föhr, Dr. Andreas Winter, Dr. Lisa-Marie Arnold*, and *Larissa Lange*. Their critical questions in doctoral seminars, the spontaneous exchanges over coffee, and their genuine interest in my research provided important impulses throughout this work. I could not have wished for a better team. A special thank you to *Dr. Franziska Kullak*, whose detailed knowledge of my research and whose willingness to engage deeply with my ideas and questions made her an invaluable companion on this journey.

To my *friends* and *family*: thank you for your patience, your unwavering support, and your genuine interest in my research over all these years. Your curiosity about my work and your willingness to listen, time and again, meant more to me than you know. I am especially grateful that you were there on the day of my dissertation defense, celebrated with me, and made it one of the most memorable days of my life.

To my *parents* and my *brother* in particular: your unconditional belief in me and your emotional support carried me through every stage of this journey. Seeing the pride in your eyes on that day was one of the greatest gifts of this entire journey. I could not have done this without you.

Bayreuth, May 2026

Jannike Harnischmacher

Abstract

This dissertation develops a transparency-centered account of behavioral influence and advances the interdisciplinary dialogue between behavioral economics and consumer behavior research. It integrates a systematic literature review with seven empirical studies, organized around two questions: how marketing has engaged with nudging, and through which psychological mechanisms transparent persuasion shapes consumer outcomes. A systematic review of nudging in the marketing literature reveals partial and inconsistent conceptual adoption. It argues for sustained interdisciplinary exchange and positions nudging and persuasion along a shared influence continuum, with transparency as the key bridging construct translating an agent's disclosure into transparency, the consumer's understanding of what is proposed, how it operates, and why. Three articles test this experimentally. Transparent defaults increase persuasion knowledge activation and perceived threat to freedom without reducing compliance, indicating deliberative coping rather than inertia. In a digital advertising context, persuasion knowledge consistently activates anger as a mediating pathway to attitudes, though persuasion transparency does not differentially attenuate this reactance process across conditions. A measurement chapter specifies nonoverlapping scales for transparency, persuasion knowledge, and reactance to enable valid tests of these process mechanisms. Two field studies address temporal dynamics. A transparent salience nudge in a retail setting outperformed standard cues but wore out significantly over time. In a campus mobility study, both a social identity nudge and a salience nudge produced spillover to subsequent, unnudged choices. These findings establish that transparency is a psychologically active design variable that enhances the legitimacy of behavioral influence without compromising effectiveness, and that nudging effects are temporally bounded and context-sensitive. Together, they point toward a richer, process-oriented understanding of how consumers respond to behavioral influence, and position artificial intelligence as a promising yet complex new co-architect within this framework.

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AI	Artificial Intelligence
BE	Behavioral Economics
BI	Behavioral Intentions
CB	Consumer Behavior
IBMPM	Identity-Based Motivation Process Model
IMI	Inference of Manipulation Intent
NC	Negative Cognitions
PK	Persuasion Knowledge
PKM	Persuasion Knowledge Model
SI	Social Identity
ST	Sponsorship Transparency
TtF	Threat to freedom

1. Introduction

Behavioral influence is central to achieving public goals ranging from healthier lives to sustainable consumption. International organizations such as the OECD and WHO call on governments, academia, and the private sector to build and apply behavioral and cultural insights, documenting their use across consumer protection, health, and environmental policy (OECD, 2017; WHO, 2022). The United Nations extends this agenda by situating behavioral science within the Sustainable Development Goals and emphasizing transparency and interdisciplinary collaboration as preconditions for legitimate action (UN, 2021). This emphasis heightens the need for approaches that are both effective and ethically robust. Yet there is no single behavioral science to consult, and the body of research remains organized in disciplinary silos. Meeting these institutional expectations therefore requires synthesis: a scientifically grounded integration that draws on the strengths of neighboring traditions so that behaviorally informed policies and market interventions can be designed, evaluated, and communicated on common terms.

Two influential concepts dominate the research landscape of behavioral change: nudging, the most visible and institutionalized concept in behavioral economics (BE), and persuasion, rooted in marketing and consumer behavior (CB). Nudging has moved from research to practice through government behavioral-insights teams (so-called 'nudge units') around the world (Thaler and Sunstein, 2008; OECD, n.d.). Persuasion, by contrast, has long been a core focus of marketing and CB, developed through models such as the Persuasion Knowledge Model (PKM; Friestad and Wright, 1994) and extensive work on consumer coping with influence. Because the BE tradition examines how architects design choice environments, whereas the CB tradition explains how consumers interpret and resist influence, each leaves a blind spot when taken alone. As policy and platform rules increasingly mandate transparency, effective and legitimate behavior change requires a bridge from agent disclosure to consumer understanding. Taken together, these points imply the need for conceptual and methodological integration across disciplinary boundaries, aligning BE and CB perspectives.

Calls for such interdisciplinary exchange in marketing are both longstanding and growing (e.g., MacInnis, 2011; Madan et al., 2023). However, despite their complementarity, BE and CB have rarely engaged in sustained dialogue. This dissertation pursues that agenda by addressing the following first research question:

How has marketing engaged with the concept of nudging, and what does this reveal about the opportunities for and obstacles to interdisciplinary exchange between behavioral economics and consumer behavior?

Although international bodies call for behavior change in the service of public goals, influence must remain ethically defensible and respectful of autonomy. This is why transparency has become a focal topic across both nudging and persuasion research and why it is increasingly mandated by law. In digital advertising and influencer contexts, for example, the U.S. Federal Trade Commission's Endorsement Guides require sponsorship disclosure so that consumers are not misled, and EU frameworks regulate influencer and native-advertising disclosures in a similar spirit (Campbell et al., 2013; Karagür et al., 2022). Yet disclosure denotes an agent act, not a consumer state. Accordingly, this dissertation advances a conceptual distinction between disclosure and transparency: disclosure is the agent's act, whereas transparency is the consumer's understanding of what is proposed, how it operates in the present context, and why it is used.

Placing transparency at the center shifts attention from whether an intervention is labeled to how people comprehend and cope with it. CB offers the relevant process theories. The PKM explains how consumers interpret and evaluate attempts to influence them, while reactance theory specifies motivational and emotional resistance when freedom is perceived to be threatened (Friestad and Wright, 1994; Brehm, 1966). In the policy discourse, this consumer-side lens is also valued for bridging research and practice: De Jonge, Zeelenberg, and Verlegh (2018) argue that the PKM not only accounts for public reactions but also facilitates communication between scholars and practitioners. Accordingly, a transparency-centered view posits that the mechanisms linking influence to outcomes operate through PK and reactance, which in turn shape downstream attitudes and behavior.

Policy relevance further depends on understanding where and for how long influence operates. The long-term consequences of behavioral interventions remain underexamined. Despite extensive debate about limitations and potential harms, evidence is still limited on whether people continue to choose a nudged option relative to a comparable non-nudged option over time, and whether effects propagate into subsequent choices (Panzone et al., 2021; Polman and Maglio, 2024). These considerations underscore the need to evaluate transparent influence not only on immediate outcomes but also on durability and diffusion. Against this backdrop, the second research question addressed in this dissertation is:

To what extent, and through which psychological mechanisms, does transparent persuasion shape consumers' attitudinal and behavioral outcomes?

2. Structure of this Dissertation

Chapter 3 lays out the conceptual basis on which the dissertation builds and serves as a literature-mapping review that answers the first research question. It introduces a triadic view of the nudging concept that incorporates choice architects, the choice architectures they design, and the consumer who is influenced. It then maps how marketing has engaged with nudging and shows both promise and fragmentation. While attention to mechanisms and ethics is growing, much of the literature still treats nudging in a broad, undifferentiated way that blurs types, mechanisms, and contexts. The chapter clarifies how neighboring disciplines position themselves within the triad, with BE foregrounding the architect, whereas CB centers the consumer's understanding and coping. It argues that progress requires exchange across these vantage points and frames nudging and persuasion on a single influence continuum organized by the degree of deliberation and explicitness. On this continuum, transparency operates as the bridging construct: it translates the architect's disclosure into the consumer's understanding of what is proposed, how it works in the present context, and why it is used. This finding suggests that, under transparent conditions, consumers are more likely to engage in deliberative coping—activating PK and, where relevant, reactance—which in turn shapes attitudinal and behavioral outcomes. This interdisciplinary exchange is then perused in the following chapters.

Building directly on Chapter 3, the empirical chapters address the second research question. Chapter 4 enacts this consumer-centered lens by introducing consumer coping to the nudging framework. It investigates the psychological processes of PK activation and reactance as underlying consumer responses for the most effective nudge, the default. Two studies compare free choice, a standard default, and a transparent default that briefly explains what is preselected, how the default works, and why it is offered. Study 1, conducted in a commonly used online choice context, establishes the effectiveness of both standard and transparent defaults. Study 2 extends the analysis to a real-stakes field setting and shows that transparency increases PK and perceived threat to freedom. Crucially, this heightened threat does not undermine effectiveness: default compliance remains higher under transparency than under standard or no-default conditions. The pattern is consistent with deliberative coping rather than inertia. The chapter thus introduces the consumer's perspective into nudging research by demonstrating that transparency can make influence intelligible without negating impact and by positioning transparency as a psychologically active component that shapes consumer behavior.

Chapter 5 extends this consumer-centered lens to digital persuasion by distinguishing agent-side disclosure from consumer-side transparency and by introducing persuasion

transparency, defined as consumers' understanding of both the persuasive mechanism and intent, as a psychologically active element in persuasion effects. Two experiments, set in a blog and Instagram context, compare standard disclosure with persuasion transparency while tracing how attitudinal PK exerts its effects via the three components of reactance (threat to freedom, negative cognitions, and anger) to shape attitudes and behavioral intentions. Across both studies, persuasion transparency attenuates the negative downstream impact of PK on evaluations and intentions. Among the reactance components, anger emerges as a consistent mediating pathway, though persuasion transparency does not differentially attenuate this reactance process across conditions. The chapter thus advances the consumer perspective in digital advertising by demonstrating that making both mechanism and intent clear can fulfill legal and ethical expectations without compromising persuasive impact and by positioning persuasion transparency as a design choice that improves legitimacy while safeguarding effectiveness.

Chapter 6 consolidates the measurements of the central constructs used in Chapters 4 and 5. It shifts attention from disclosure as an agent act to transparency as a consumer understanding and specifies how transparency is operationalized in studies as a perception rather than a label. The chapter then delineates attitudinal PK and psychological reactance as distinct coping constructs and explains their use across contexts: PK as consumers' evaluation of the persuasive attempt and reactance as a multicomponent response comprising perceived threat to freedom, negative cognitions, and anger. To prevent construct conflation and enable valid tests of process mechanisms, it provides nonoverlapping, conceptually aligned measures for transparency, PK, and each reactance component.

Chapter 7 investigates the role of transparency emphasis within a naturalistic retail setting during the COVID-19 pandemic by testing transparent salience nudges for physical distancing in two field studies. Study 1 compares three in-store cues—duct-taped lines, footprints, and footprints with explicit distance information as the transparent variant—and observes distancing behavior. Footprints outperform lines, and the transparent footprints are the strongest, yielding 3.3 times greater odds of compliant spacing than lines. Study 2 follows the transparent nudge longitudinally in the same setting and documents a sharp wear-out after one year of continuous exposure. Together, the studies show that embedding transparency in salience cues can enhance immediate effectiveness in the field while also revealing temporal decay, implying that managers and policymakers should plan for maintenance, refreshing, and rotation rather than treating installation as a one-off intervention.

Chapter 8 investigates temporal spillover in a naturalistic campus mobility setting, asking whether nudges influence not only the focal decision but also a subsequent, unnudged choice. Synthesizing the nudging framework with Oyserman's (2009) identity-based motivation process model, this chapter develops a social identity nudge designed to carry effects forward in time. A quasi-experimental field study records N = 13,186 walking choices by students and compares the behavior-altering effects of a salience nudge and a social identity nudge. As predicted, the identity nudge produces a temporal spillover effect; unexpectedly, the salience nudge also exhibits spillover. These results extend the dissertation's time-aware perspective by showing that well-designed interventions can propagate beyond the initial choice, with implications for sequencing and staging influence across contexts in cost-efficient ways for marketers and policymakers.

Chapter 9 synthesizes the dissertation's findings and translates them into contributions for theory and practice. It integrates the mechanism evidence with the temporal results, articulates what this implies for marketing, CB, and nudging research, and derives guidance for managers and policymakers. It then sets out a future research agenda centered on AI as a bi-directional co-architect within the architect–architecture–consumer triad and closes with the overall conclusion.

Taken together, the chapters articulate and examine a coherent set of claims that structure the remainder of the dissertation, anchored in Chapter 3's conceptual mapping, which motivates a transparency-centered, consumer-process account of influence: if transparency is a consumer understanding (not just disclosure), then (1) it should activate PK and perceived threat to freedom without reducing nudge effectiveness (Chapter 4); (2) when mechanism and intent are made explicit in persuasion, the downstream harm of PK can be reduced (Chapter 5); (3) valid tests of these claims require nonoverlapping measures of transparency, PK, and reactance (Chapter 6); and (4) under transparency, influence changes over time: it can wear out (Chapter 7) and spill over to subsequent decisions (Chapter 8).

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3. Behavioral Influence Across Disciplines: Toward a Conceptual Integration of Nudging in Marketing

Author: Jannike Harnischmacher

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The manuscript was formally adjusted to the remaining part of this dissertation; form errors were corrected; the reference style remained in its original form.

CRediT author statement

Jannike Harnischmacher: Conceptualization, Methodology, Formal analysis, Investigation, Data Curation, Writing - Original Draft, Writing - Review & Editing, Visualization, Project administration

Behavioral Influence across Disciplines: Toward a Conceptual Integration of Nudging in Marketing Research

ABSTRACT

Nudging has become one of the most prominent behavioral concepts in economics and public policy, yet its integration into marketing and consumer behavior research remains partial and inconsistent. This paper presents a review of 78 articles across 21 journals to examine how marketing scholarship has engaged with nudging, and what this reveals about interdisciplinary exchange with behavioral economics. The review identifies both the promise and the fragility of nudging in marketing: while publication activity has risen across diverse contexts such as food, health, and sustainability, conceptual engagement has often been superficial, with inconsistent terminology and limited attention to architects and choice architectures. Building on these findings, this paper develops seven propositions that clarify the need to adopt the full nudging framework, to position nudging and persuasion along a shared continuum moderated by transparency, and to address how rhetorical flexibility has sustained both diffusion and ambiguity. Finally, this paper argues for a more relational, dialogical account of influence, integrating architect- and consumer-centered perspectives. Beyond these conceptual contributions, the paper also offers practical guidance for researchers, outlining steps for a more precise use of the nudging concept in future marketing and consumer behavior scholarship.

Keywords: interdisciplinarity, consumer behavior, behavioral economics, nudging, persuasion

INTRODUCTION

International organizations increasingly stress that behavioral science is indispensable for addressing urgent global challenges. The OECD documents its institutionalization across domains from consumer protection to health and environmental policy, raising questions of effectiveness and ethics (OECD, 2017). The WHO calls for the embedding of behavioral science into health policy to promote healthier lifestyles and pandemic resilience (WHO, 2022), while the UN highlights its role in achieving the Sustainable Development Goals, emphasizing transparency and interdisciplinarity (UN, 2021). These calls underscore that behavioral science is no longer an optional add-on but a core tool of governance—one whose promise depends on sustained dialog between disciplines (MacInnis, 2011; Madan et al. 2023).

Consumer behavior (CB) research and behavioral economics (BE) represent particularly complementary perspectives within this broader landscape. CB focuses on how individuals perceive, interpret, and respond to influence attempts (Friestad and Wright, 1994), whereas BE emphasizes the design choices of agents who structure decision environments. Nudging—arguably the most visible and institutionalized concept in BE (Thaler and Sunstein, 2008)—has spread outside of academia through the establishment of "nudge units" that advise governments worldwide (for an overview, see the OECD Observatory of Public Sector Innovation, n.d.). Bringing these perspectives together is critical: only by integrating both the agent's design intentions and the consumer's psychological reactions can behavioral change efforts be both effective and ethically grounded. Early voices from consumer psychology even envisioned such integration as a pathway to evidence-based policy (Roberto, Pomeranz, and Fisher, 2014), yet this potential remains underrealized.

Despite this potential complementarity, sustained dialog between the two fields remains rare. While nudging has been debated extensively in BE, law, and public policy, its reception in marketing and CB has been partial and limited in scope. Some studies treat nudging as a technical toolkit for behavioral influence (e.g. Dibb, 2014), others treat it as a broader "theory" (e.g., Schmidtke et al., 2019), whereas many apply the term loosely to established effects such as defaults, framing, or social norms (e.g., Pittarello et al. 2023; Zheng, Chen, and Ma, 2023). At the same time, nudging has occasionally been positioned in sharp contrast to marketing—particularly in Sunstein's (2016a; 2016b) writings, which cast commercial persuasion as manipulative and nudging as autonomy preserving. These tensions raise fundamental questions about how marketing has adopted, framed, and interpreted nudging and what this means for both disciplines moving forward.

This paper addresses these issues through the following research question: *How has marketing engaged with the concept of nudging, and what does this reveal about the opportunities for—and obstacles to—interdisciplinary exchange between consumer behavior and behavioral economics?* To address these questions, this paper presents a systematic review of marketing and CB research that explicitly engages with nudging. The review examines how nudging has been adopted, the extent to which research has engaged with its broader framework, how consumers, choice architects, and choice architectures are positioned, and how marketing has participated in cross-disciplinary debates.

This review makes four contributions. First, it maps and assesses how nudging has been integrated into marketing, highlighting both its growing visibility and its conceptual ambiguity. Second, it develops a set of propositions that clarify nudging's position relative to persuasion and situates it within a continuum of influence strategies. Third, it advances the interdisciplinary dialog between marketing and BE by showing how conceptual flexibility across fields can be critically harnessed to build a more relational and dialogical account of consumer influence. Fourth, it provides practical guidance for marketing researchers by outlining reflective steps for defining, designing, and reporting nudging interventions with conceptual precision.

THEORETICAL BACKGROUND

Theoretical Foundations of Nudging

Since its introduction, nudging has become one of the most prominent behavioral concepts in public policy and beyond. Thaler and Sunstein (2008) define a nudge as "any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives" (p. 6). This definition has been cited thousands of times and has provided a concise, memorable anchor for both scholarly and applied work. However, it is also a source of considerable confusion. On its own, the definition specifies what a nudge is but not how it is supposed to be applied. It allows nudges that are unintentional, morally ambiguous, or even aligned with the interests of the architect rather than the chooser. As a result, the definition has invited both critique and refinement (e.g., Camilleri et al. 2019; Hansen and Jespersen, 2013; Hausman and Welch, 2010) and selective interpretations across disciplines.

To understand not only the nudge definition but also the nudging framework in its entirety, it is essential to look beyond the widely cited nudge definition and recognize its embedding in the broader philosophy of libertarian paternalism (Thaler and Sunstein, 2003; 2008).

Thaler and Sunstein conceptualized nudges as tools in the hands of a choice architect—an actor, public or private, who organizes the decision context. Crucially, not every architect automatically qualifies as a libertarian paternalist. Only when the architect acts self-consciously to preserve freedom of choice while steering people in directions that make their lives better does the use of nudges become legitimate. Figure 1 illustrates this framework: the choice architects design choice architectures, which may contain nudges, and these influenced humans, who predictably err, have bounded rationality, and limited self-control. The concept of choice architecture itself was inspired by Norman's (1990) notion of affordances in design, emphasizing that environments can be intentionally structured to shape human behavior. The framework is not value neutral—nudges acquire their ethical legitimacy only when embedded in libertarian paternalism and deployed for good, a principle Thaler himself has popularized by signing copies of Nudge with the inscription "Nudge for Good" (Thaler and Sunstein, 2021). To ensure transparency, Appendix A documents the direct quotations from Nudge (Thaler and Sunstein, 2008, updated in 2021) that underpin each element in Figure 1.

The confusion between definition and framework partly stems from the book's publication history. As Halpern (2015) noted, the intended title was *Libertarian Paternalism*, which directly signals the normative stance behind the concept. At the publisher's suggestion, it became *Nudge*—a brilliant act of marketing that turned the book into a bestseller (Thaler and Sunstein, 2021). However, the gain in reach came at a conceptual cost: scholars often focused on the narrow definition while overlooking the broader libertarian paternalistic orientation, leaving nudges to be treated as stand-alone behavioral tools rather than as part of a relational and ethically constrained framework.

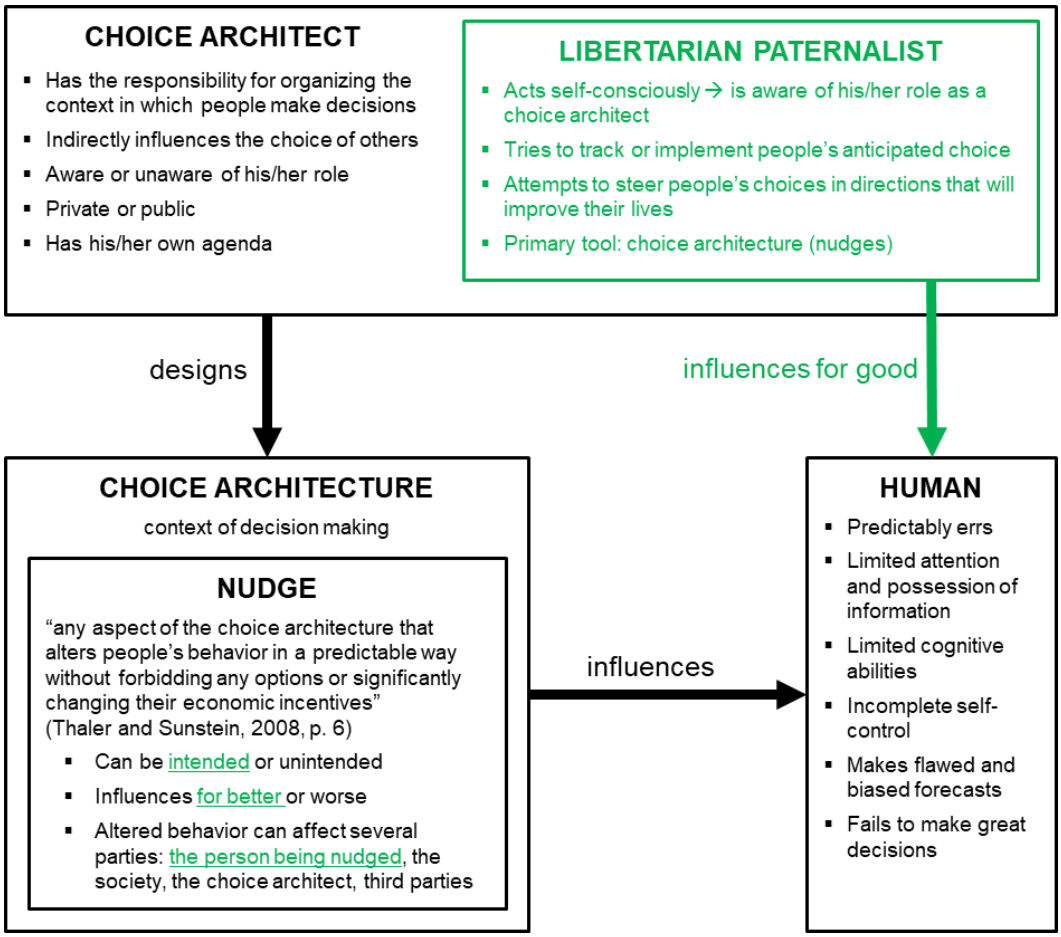

Figure 1: The nudging framework as described by Thaler and Sunstein (2008; 2021). Elements and definitions adapted directly from their text (see Appendix A for supporting quotations)

For marketing and CB research, this history helps explain why many studies use the nudge definition mainly as a topical marker for behavioral effects—such as defaults, framing, or social norms—while neglecting the role of the architect or the paternalistic aims. Revisiting the full framework thus clarifies nudging's conceptual foundations and provides a stronger basis for assessing its integration into marketing scholarship.

Disciplinary Perspectives on Influence: Behavioral Economics and Marketing

The uneven integration of nudging in marketing can be better understood by considering the disciplinary roots of BE and CB. Both are behavioral sciences, yet they have evolved with distinct intellectual priorities. BE grew out of the rational-choice paradigm in economics, incorporating psychological insights into bounded rationality and heuristics and biases (Simon, 1955; Kahneman and Tversky, 1979). Within this tradition, the nudging

concept reflects the libertarian paternalistic philosophy of Thaler and Sunstein (2008), which seeks to improve individual and/or societal welfare by structuring decision environments while preserving freedom of choice.

CB research, in contrast, developed as a multidisciplinary field that was historically anchored in psychology but enriched by contributions from sociology, anthropology, economics, and related disciplines (MacInnis and Folkes, 2010). Within CB, advertising and persuasion research have been particularly influential subfields, examining how consumers interpret and respond to persuasion attempts (Cialdini, 2001; Friestad and Wright, 1994). Advertising research illustrates this duality well: it is simultaneously a design science, developing knowledge about how to create and orchestrate communication instruments, and a behavioral science, explaining how consumers perceive and react to advertising effects (Carlson, 2015; Henseler, 2017; Reid, 2014). This dual focus reflects the broader orientation of CB toward the consumer as a person—pursuing goals, negotiating persuasion, and engaging with marketplace realities. Moreover, CB scholars also highlight consumers' vulnerability in these contexts, noting that marketers often possess more information and greater power than consumers themselves do. Kennedy and Laczniak (2016) capture this duality in their description of marketing's 'grand vision' as an authentic consumer orientation: keeping the individual consumer at the center of marketing thought and practice while recognizing the asymmetries that make protection and responsibility necessary.

Taken together, these differences mean that while BE emphasizes the role of the architect and the design of choice environments, CB emphasizes the interpretive agency of consumers in context. However, both traditions converge in recognizing that consumers are vulnerable to contextual and informational influences—a parallel between libertarian paternalism's focus on bounded rationality and CB's emphasis on asymmetries in consumer–firm relationships. This complementarity makes the two disciplines well suited for dialog: nudging highlights how environments shape behavior, whereas persuasion research illuminates how consumers perceive, interpret, and respond to influence.

This divergence also reflects broader disciplinary dynamics. Marketing has often drawn heavily on theories imported from other fields while producing fewer indigenous theoretical frameworks of its own (Varadarajan, 2020). Moreover, the field has grown increasingly fragmented, with CB evolving into a semiautonomous subfield that sometimes distances itself from marketing's institutional and managerial concerns (Hunt, Madhavaram, and Hatfield, 2022). These tendencies help explain why nudging is typically adopted in marketing through the lens of consumer response—who can be nudged and

under what conditions—rather than as part of a broader architect-centered framework. While not identical in scope, both disciplines engage centrally with the study of influence. BE highlights how architects and incentive structures shape decisions, whereas CB emphasizes how consumers interpret, negotiate, and respond to influence in context. This complementarity makes them particularly well suited for interdisciplinary dialog.

Positioning Nudging and Persuasion on a Continuum

Research across disciplines has long debated the relationship between nudging and persuasion. Some scholars argue for a strict categorical distinction: persuasion appeals to deliberation, reasoning, and belief change, whereas nudging bypasses reflection and guides behavior through automatic processes (Mols et al., 2015). Others blur the boundary, labeling strategies such as scarcity or social persuasion as "nudges" (Ghose et al., 2023) or describing advertising as "nudging" consumer thought, even when practices like personalized banner ads align more closely with persuasion (Abedi and Koslow, 2022). These examples illustrate that the boundary between nudging and persuasion is conceptually ambiguous and inconsistently applied.

For policymakers and behavioral economists, however, the distinction has carried significant weight. Ethically, nudges have been positioned as autonomy-preserving, while persuasion—particularly in commercial contexts—has often been cast as potentially manipulative (Sunstein, 2016a). Theoretically, nudging has been presented as a novel alternative to persuasion because it works by structuring choice environments rather than altering beliefs or attitudes (Thaler and Sunstein, 2008). Practically, drawing a line around what *counts* as a nudge helps organizations and governments decide which interventions to evaluate and implement through behavioral insight teams. In short, the distinction has been central to legitimizing nudging as both an ethical and policy-relevant innovation. Yet in practice, it collapses: marketing research often treats persuasion and nudging as overlapping, and empirical studies reveal that even supposedly automatic nudges can elicit reflection.

Accordingly, this review adopts a continuum perspective: nudging and persuasion are treated as related influence strategies that differ by degree of invited deliberation, not by kind. Persuasion typically emphasizes reflective processing, whereas nudges often target heuristics embedded in choice architecture; however, the distinction is not absolute. Individual differences in need for cognition can moderate nudge effectiveness (Ingendahl et al., 2021), and dual-process models show that persuasion can rely on heuristic shortcuts

alongside reasoning (Petty and Cacioppo, 1986). This working premise guides the analysis that follows.

Transparency provides a critical bridge across this continuum. Hansen and Jespersen (2013) distinguish between Type 1 (automatic) and Type 2 (deliberative) nudges, and between transparent and nontransparent ones, emphasizing that legitimacy depends not only on cognitive systems but also on whether nudges are visible and interpretable. This view is echoed in research on transparent defaults and disclosures in behavioral public policy, which suggests that making nudges explicit does not necessarily undermine their effectiveness and can enhance perceived legitimacy (e.g., Paunov et al., 2019; Steffel, Williams, and Pogacar, 2016). Building on this idea, I argue that transparency provides the connective tissue between nudging and persuasion. Research on disclosure and transparency in advertising demonstrates that when influence attempts are made explicit—for example, through sponsorship disclosures—consumers are able to interpret them, activate persuasion knowledge, and cope with the attempt rather than remain passive targets (e.g., Boerman, van Reijmersdal, and Neijens, 2014; Campbell and Evans, 2018). In other words, transparency enables deliberation, thereby reducing the conceptual distance between nudging and persuasion.

Recent empirical work further supports this convergence. Sullivan et al. (2025) show that defaults are effective not because they exploit inertia but because they prompt reflection on the choice set, challenging the notion that nudges are purely automatic. Similarly, Taltekin Guzel (2023) argues that influence is embedded in consumer practices that evolve over time as individuals adapt and reflect. These findings underscore that both nudging and persuasion involve varying blends of automaticity and reflection, depending on design, disclosure, and consumer characteristics.

Positioning nudging and persuasion on a continuum thus reframes the debate. Rather than treating them as fundamentally different in kind, it highlights their shared reliance on both cognitive shortcuts and reflective processes, with transparency serving as a key moderator of how consumers experience and evaluate influence. Importantly, both BE and marketing have investigated disclosure effects—whether in the form of transparent defaults or sponsorship disclosures—but largely in parallel. Viewing them through a continuum lens underscores how much these traditions could gain by overcoming disciplinary boundaries: insights from advertising disclosure research can enrich the study of transparent nudges, whereas findings on transparency in nudging can refine theories of persuasion. This perspective not only clarifies conceptual boundaries but also motivates the present review:

if nudging and persuasion are interconnected, then marketing scholarship—traditionally more focused on persuasion—plays a distinctive role in advancing the nudging framework.

Bridging Disciplines: Prior Attempts and Their Limits

If nudging and persuasion are best seen along a continuum of influence, the next question is how the disciplines that study them—BE and CB—can learn from one another. Previous attempts at dialog show both the potential and the fragility of such interdisciplinary engagement. For example, a special issue on "The Behavioural Economics of Consumer Decision-Making" was announced in the Journal of Consumer Behaviour (Chuah, Hoffmann, and Kock, 2021) but never realized, despite the topical overlap. Similarly, the Journal of Marketing Behavior hosted a cross-disciplinary exchange on manipulation in 2016 (Wertenbroch, 2016), explicitly inviting perspectives from psychology, consumer research, and economics. However, the journal itself ceased operations shortly thereafter. Taken together, these cases highlight not only that dialog has been initiated but also that it has repeatedly stalled—leaving the integration of BE and CB an unfinished project.

These initiatives emphasize that the need for integration has long been recognized, but institutional and structural obstacles may have hindered its consolidation. Early contributions in consumer psychology even envisioned nudging as a vehicle for "evidence-based policy," with behavioral economists and marketers partnering to address public health and social issues (Roberto, Pomeranz, and Fisher, 2014). However, a decade later, such interdisciplinary promise has proven difficult to realize. What is missing is not recognition of the need but a sustained, concept-level bridge. By examining nudging as such a bridge, this review explores how the two disciplines can inform each other—bringing architect-centered and consumer-centered perspectives into dialog.

METHOD

Building on these theoretical foundations, the following section reviews how nudging has been taken up in marketing and CB research. The review considers both the scope of application—across journals, domains, and contexts—and the conceptual engagement with the nudging framework. An analysis of publication trends, keyword usage, and definitional choices provides an overview of how the concept has traveled into marketing scholarship and how it has been positioned relative to adjacent ideas such as persuasion. This step sets the stage for identifying key patterns in the literature and for assessing the implications of nudging's integration into marketing.

Data Collection

To capture the relevant literature, a systematic search was conducted using the terms: nudge, nudges, nudging, choice architecture, and libertarian paternalism. These keywords are conceptually central to the nudging framework and are frequently used interchangeably in applied and theoretical discussions. My search targeted article titles and keywords across the marketing literature. The journal selection was based on the classification by Clark and Key (2021), who distinguished between marketing core journals and sectional journals. Consistent with this distinction, all core marketing journals (Appendix B) were searched, along with sectional journals with a clear CB focus (Appendix C) and additional CB journals deemed highly relevant (Appendix D). Searches were performed either on the journals' own websites or, where applicable, on publisher platforms. No additional inclusion or exclusion criteria were applied.

Articles were systematically coded along the following dimensions: literature category (empirical vs. conceptual), keywords, type of paper and methodological approach, nudging-related terms used, and stated understanding of the nudging concept. This procedure enables both a quantitative analysis of nudging's presence in marketing and CB outlets and a qualitative assessment of the depth of theoretical and empirical engagement with the concept.

FINDINGS

Where and When Marketing Engaged with Nudging

I identified 78 publications in 21 journals (Table 1). Core marketing journals account for just over half of these (n = 40), with the Journal of Marketing Research (n = 10), the Journal of Consumer Research (n = 6), and Marketing Letters (n = 6) as leading outlets in terms of the number of publications. Nudging also appears in sectional journals (n = 22) and consumer behavior outlets (n = 16), as do more applied venues such as the Journal of Retailing and Consumer Services (n = 5) and the Journal of Behavioral Decision Making (n = 7). While this shows that nudging has found its way into various areas of marketing scholarship, the overall number remains relatively low given the widespread attention and popularity the concept has gained since its introduction by Thaler and Sunstein (2008). At the same time, the spread across core, sectional, and applied outlets illustrates its conceptual integrative potential within the field.

Table 1: Number of Nudging Publications in Marketing Literature

Literature	Journal	Articles
Marketing Core (n = 40)	Journal of Marketing Research	10
	Journal of Consumer Research	6
	Marketing Letters	6
	Journal of Marketing	5
	Marketing Science	5
	Psychology & Marketing	4
	Australasian Marketing Journal	2
	European Journal of Marketing	1
	Journal of Marketing Management	1
Marketing Sectional (n = 22)	Journal of Retailing and Consumer Services	5
	Journal of Consumer Psychology	4
	Journal of Public Policy & Marketing	4
	International Journal of Consumer Studies	4
	Social Marketing Quarterly	2
	Journal of Advertising	1
	The International Review of Retail, Distribution and Consumer Research	1
	Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior	1
Consumer Behavior Sectional (n = 16)	Journal of Behavioral Decision Making	7
	Journal of Consumer Behaviour	4
	Journal of Marketing Behavior	3
	International Journal of Research in Marketing	2
Total		**78**

Publication activity has risen steadily over the past decade (Figure 2), with two distinct spikes in 2016 and 2022. The 2016 peak stems largely from a thematic issue of the Journal of Marketing Behavior, which clustered conceptual debates around manipulation in marketing (Sunstein, 2016a; 2016b; Alba and Zheng, 2016). More broadly, the period up to 2016 marked the primary phase of conceptual engagement with nudging in marketing: 10 out of the 12 conceptual papers in this review were published during this time. In contrast, the 2022 peak reflects a broad range of empirical contributions across diverse contexts, such as green consumption, insurance decisions, charitable giving, and customer feedback. Together, these trends show a clear trajectory: nudging first entered marketing scholarship through conceptual debates but is now firmly embedded as an applied empirical topic.

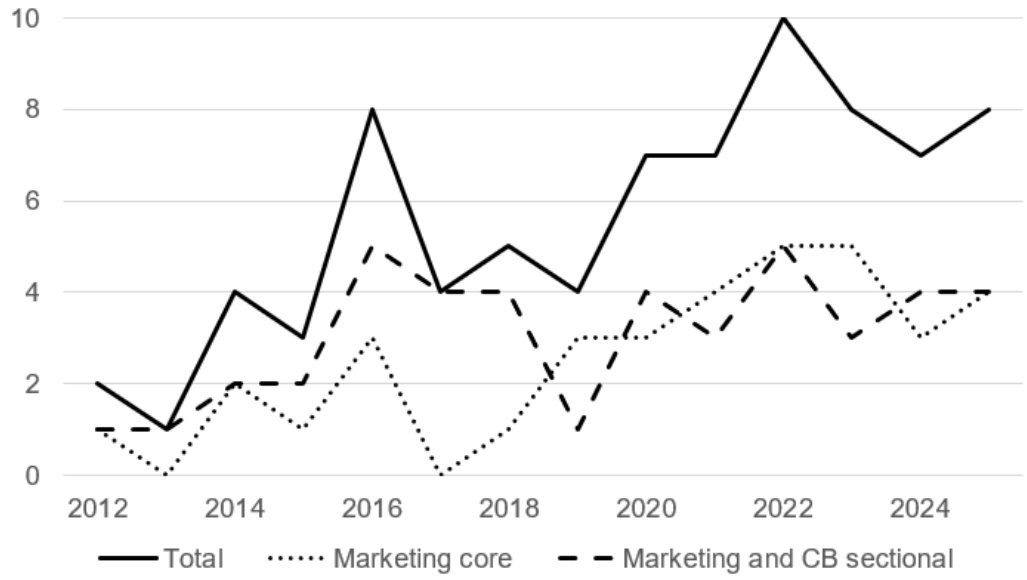

Figure 2: Number of nudging publications in the marketing literature from 2012–2025 (July)

For marketing research, this shift from conceptual to empirical engagement has two implications. First, the concept of nudging has moved from the margins to a regular feature of marketing scholarship, signaling its legitimacy and adaptability. Second, the relative scarcity of conceptual contributions after 2016 suggests that theoretical consolidation has lagged behind empirical adoption. Without intensified conceptual work, marketing risks positioning itself primarily as a discipline adopting rather than a shaping the nudging framework. At the same time, this gap offers an opportunity: by advancing the conceptual foundations of nudging, marketing can both sharpen its own theoretical tools and play a more influential role in interdisciplinary debates.

How Deeply Marketing Engages with Nudging Concepts

The analysis shows that marketing research engages unevenly with the conceptual foundations of nudging. Approximately 60% of the reviewed papers explicitly refer to Thaler and Sunstein's (2008) definition of nudging or choice architecture. Within this group, terminology use varies considerably (Table 2). Most papers relied on the term nudge as the dominant label (n = 33), whereas others adopted choice architecture (n = 8). Notably, seven of these eight papers were published in core marketing journals, suggesting a tendency in these outlets to favor more technical terminology. Two other papers primarily

used libertarian paternalism, and 19 employed multiple terms interchangeably, underscoring blurred boundaries between nudge, choice architecture, and related concepts.

Table 2: Nudging Terminology Use in Marketing Literature

Terminology Category	Number of Papers
Nudge: The term *nudge* appears substantially more frequently than any other key term, and is used as the dominant label throughout the text.	33
Choice architecture: The term *choice architecture* appears substantially more frequently than other key terms, serving as the main label in the text.	8
Libertarian paternalism: The term *libertarian paternalism* is used more frequently than any other key term; across the full dataset, only four papers mention the term at all.	2
Multiple terms: Two or more key terms (*nudge*, *choice architecture*, *choice architect*) are used repeatedly in the text, with no single term dominating.	19
Minimal terminology use: One or more key terms appear only once or twice in the main text, typically in the title or keyword list.	14
Keyword-only presence: None of the key terms appear in the main text, but *nudge* is listed as a keyword.	2

In addition, some articles explicitly framed nudging as a "theory" (e.g., Dibb, 2014; Schmidtke et al., 2019), although this stance has been contested. Schmidtke et al. (2019) acknowledge nudging's practical potential but argue that the lack of definitional clarity in Thaler and Sunstein (2008) has limited its academic expansion and encouraged a proliferation of loosely related interventions to be labeled as nudges. Other scholars, including Kahneman (Nelson, 2015) and Ölander and Thøgersen (2014), similarly stress that nudging is not a coherent theory but rather a set of applied interventions or an empirical application of behavioral decision research. This ambivalence is reflected in how many marketing papers focus on specific effects—such as omission bias (Hallsworth et al., 2024), assortment structures (Lamberton and Diehl, 2013), or shelf placement (Romero and Biswas, 2016)—and retroactively frame them as nudges, underscoring the blurred boundaries and lack of theoretical consolidation.

In contrast, approximately 40% of the reviewed papers did not reference Thaler and Sunstein (2008). Instead, some authors have cited alternative sources, such as Johnson et al. (2012), a paper included in this review that outlined choice architecture and nudging

(e.g., Panzone et al., 2021; Tavassoli and Visentin, 2022), whereas others have misattributed the nudge definition (e.g., Bala Subramanian, Thakur, and Manjula, 2022). Within this group, engagement with terminology was often minimal: eight papers used nudge-related terms only once or twice in the text, whereas two relied on nudge as a keyword without mentioning it in the article body. Importantly, this pattern is not unique to papers without citations: across the entire sample, 14 papers display such minimal use. This overlap indicates that limited terminology engagement can coincide both with the proper referencing of Thaler and Sunstein and with its absence, although in the latter case, it reinforces the impression of superficial engagement.

As previously noted, Thaler and Sunstein's (2008) influential nudge definition has frequently narrowed scholarly attention to the definitional level at the expense of the broader underlying framework of libertarian paternalism. The analysis shows how this plays out in marketing: terminology is used inconsistently, definitions are sometimes misattributed, and behavioral effects are often retroactively framed as nudges. While this reflects the conceptual looseness of the original framework as much as its reception within marketing research, the result is a fragmented and sometimes superficial engagement with nudging. For marketing research, this creates both a challenge and an opportunity: without stronger conceptual clarity, nudging risks becoming a diffuse label within the field, undermining cumulative knowledge-building. At the same time, engaging more carefully with the theoretical foundations of nudging would not only improve marketing's own use of the concept but also enable the field to position itself more effectively within the broader interdisciplinary dialog.

How Keywords Shape the Thematic Scope of Nudging Research

To map how nudging is positioned and framed in the marketing and CB literature, the author-selected keywords of all identified papers were and organized into a morphological box (Figure 3). This method is particularly suited to exploratory reviews where dimensions may overlap, as it captures the breadth of thematic associations without imposing rigid categories (Nickerson, Varshney, and Muntermann, 2013; Hummel and Maedche, 2019). The categories were developed iteratively and inductively, guided by thematic patterns in the data, familiarity with the field, and the conceptual goals of the review.

Dimension	Characteristics		
Terminology (62)	Nudge (37)	Choice Architecture (23)	Libertarian Paternalism (2)
Nudge (17)	Defaults (9)	Nudge Categories (8)	
Classification (40)	Behavior (12)	Choice/ Decision (21)	Intervention (7)
Discipline (10)	Marketing Subdiscipline (6)	Behavioral Economics (3)	Social Psychology (1)
Methodology (15)	Experiment (12)	Eye Tracking (3)	
Application Context (88)	Food/ Nutrition (27)	Health (12)	Environment (12)
	Finance (24)	Public Policy (7)	Retail (6)
Psychological Mechanism (54)	Ethical Reactance (18)	Heuristic/ Bias (9)	Goal Activation (8)
	Social Influence (8)	Autonomy/ Free Will (6)	Self-Control (5)

Figure 3: Morphological Box of Nudging Keywords

The analysis shows that the terminology dimension mirrors the patterns already discussed: the nudge cluster (nudge, nudges, nudging) is by far the dominant keyword, whereas choice architecture and libertarian paternalism appear less frequently. This finding indicates that nudging enters the field mainly under its most popular label, whereas its contextual and normative dimensions remain less visible. In terms of nudge types, defaults dominate the broader nudging literature (Hummel and Maedche, 2019; Mertens et al., 2022), and keyword analysis reveals that defaults are also the most frequently applied types in marketing, with several studies explicitly examining their effects (e.g., Sullivan et al., 2025). In this dimension, keywords range from individual nudges such as defaults to broader categories such as green nudges (Bharti and Suneja, 2024) or reactive nudges (Fonseca and Grimshaw, 2017). However, the majority of papers rely on the generic keyword ‘nudge,’ even when the research focuses on a specific effect such as social norms (e.g., Pittarello et al., 2023) or framing (Zheng, Chen, and Ma, 2023). This pattern suggests that authors use nudging as an umbrella keyword to position their work within the wider behavioral intervention literature, whereas distinctions between specific nudge types are less frequently emphasized at the level of keywords.

The classification and discipline dimensions further reinforce this picture. Keywords such as behavioral change (e.g., Hallsworth et al., 2024) or consumer choice (e.g., Brough, 2020) frame nudging in pragmatic, outcome-oriented terms, whereas only a handful of papers connect it explicitly to its origins in BE (Hershfield, Shu, and Benartzi, 2020; Sunstein, 2016a; 2016b) or social psychology (Buchanan et al., 2023). Most instead anchor nudging

in marketing subfields such as sensory marketing (e.g., Romero and Biswas, 2016) or CB (e.g., Malter et al., 2020), highlighting applied relevance but downplaying its theoretical origins.

Methodologically, keywords are dominated by experiments, underscoring the field's strong orientation toward testing whether nudges *work*. Only a few studies signal interest in process-tracing approaches such as eye tracking (e.g., Sullivan et al., 2025), although these point toward promising opportunities for more mechanism-oriented work.

The application contexts are highly diverse, spanning food and nutrition, finance, health, sustainability, and retail. This diversity largely mirrors the application of nudging in other research disciplines (Hummel and Maedche, 2019). The presence of retail is especially notable, as it highlights nudging's integration into core marketing settings and underscores its potential to advance both theory and practice in areas central to CB.

Finally, the psychological mechanism dimension shows a growing recognition that nudges are not only behavioral triggers but also psychological interventions. Keywords such as heuristics and biases (e.g., Lin, and Strulov-Shlain, 2025), goal activation (e.g., Lembregts and Pena-Marin, 2020), reactance, and autonomy (e.g., Weijers, Wachner, and de Koning, 2024) signal increased attention to the *why* of nudging. Particularly encouraging is the presence of ethical and autonomy-related mechanisms, which align with wider debates on manipulation, transparency, and consumer agency.

Taken together, the keyword analysis highlights a paradox: nudging is increasingly invoked in marketing research but is often more as a popular label than a theoretically grounded concept. On the one hand, the diversity of application contexts and mechanisms—including domains central to marketing, such as retail—shows that nudging is being integrated into a wide range of research agendas, often framed in pragmatic, outcome-oriented terms that emphasize applied relevance. Encouragingly, there are also signs of a shift toward greater explanatory depth, with growing attention to underlying mechanisms and to ethical concerns such as manipulation, fairness, and freedom, which link marketing research to ongoing societal debates. On the other hand, the limited use of subtype specific, structural, or disciplinary keywords suggests that the concept is still often employed in a broad, undifferentiated way. For marketing scholarship, this points to a clear opportunity: by more systematically engaging with the different types, mechanisms, and contexts of nudges, the field could move beyond generic applications and contribute to a more nuanced understanding of how nudging operates in consumer decision-making.

How Marketing Frames Nudging: Consumers, Architects, and Contexts

An additional layer of the review analysis concerns how the reviewed literature positions the actors and environments behind nudging interventions. Only ten papers in this review employed the term choice architect, a central element in Thaler and Sunstein's (2008) framework. In their original conceptualization, nudging is not only about the intervention but also about the agent who designs the choice environment and acts as a libertarian paternalist. From this perspective, the concept of the choice architect is pivotal: it anchors nudging in questions of responsibility, intentionality, and the ethics of steering.

In contrast, most papers in marketing and CB shift the focus away from architects and toward consumers as the primary unit of analysis. Research in this vein investigates who can be nudged and under what conditions interventions are effective. For example, Ingendahl et al. (2021) examine individual differences in the need for cognition and uniqueness, Mrkva et al. (2021) explore whether nudges benefit some consumers more than others do, Sands et al. (2021) analyze how social norms nudge participation in the sharing economy, and Polman and Maglio (2024) distinguish between choice and post choice consumption. Together, these studies demonstrate how the nudging concept has been adapted to core marketing and CB questions, but largely through a consumer-oriented lens.

Social marketing illustrates an early domain of the adoption of nudging. Building on Kotler and Zaltman's (1971) vision of marketing for social change and Andreasen's (1995) emphasis on voluntary behavioral influence, scholars in this field integrated nudging into their frameworks early on. For instance, Tapp and Spotswood (2013) incorporated nudges into their COM-SM model as one of five "design clusters," describing them as techniques that operate through "cognitive bypass" to shape behavior. Later work similarly positioned nudges as tools within the domain of social marketing (Dibb, 2014; Barea-Arruyo et al., 2025). This trajectory shows that social marketing embraced nudging early and explicitly but mostly as an instrumental addition to its intervention repertoire rather than as a relational framework for understanding architect–consumer interactions. While effective for integrating behavioral tools into campaigns, this instrumental framing limits interdisciplinary exchange: it neglects nudging's normative foundations in libertarian paternalism and its emphasis on the responsibility of the choice architect. As a result, marketers are positioned primarily as tacticians deploying behavioral techniques rather than as architects tasked with aligning influence strategies with consumer welfare—an orientation that is more consistent with social marketing's own vision of voluntary, consumer-centered change.

Another, often overlooked, element is the choice architecture itself—the contextual features of decisions that nudging emphasizes from the outset. Some contributions highlight that BE has broadened CB by underscoring the role of context (e.g., Bharti and Suneja, 2024). Camilleri and Larrick (2014), for example, define choice architecture as the full set of task and contextual features that shape decision processes, from information displays to time pressure. This aligns with what Braun and Clarke (2006) term a contextualist epistemology: an approach that acknowledges both how individuals construct meaning in their choices and how these meanings are constrained or enabled by the broader social and material environment.

Taken together, these findings reveal a disciplinary gap. Marketing research has successfully integrated nudging when studying consumers but has largely overlooked the role of the choice architect and the structuring power of choice architecture. While the term choice architecture appears relatively often, especially in core marketing journals, it is frequently used as a synonym for nudge rather than to analyze the broader contextual features of decisions. This imbalance contributes to the conceptual blurring observed in terminology and definitions. For marketing, embracing a more contextualist lens would mean moving beyond "who can be nudged" toward also asking "who nudges, with what intentions, and in what environments." Such a shift would not only align more closely with Thaler and Sunstein's original framework but also open new avenues for theorizing the responsibilities and ethics of market actors as architects of consumer choice.

How Marketing Debated Nudging and Manipulation in 2016

The 2016 peak in nudging publications is partly explained by a thematic double issue of the Journal of Marketing Behavior, which hosted a rare cross-disciplinary exchange between Sunstein (2016a; 2016b) and Alba and Zheng (2016). In his lead article Fifty Shades of Manipulation (2016a), Sunstein proposed that influence strategies should be judged by the extent to which they engage people's capacity for reflective choice. Marketing—particularly when relying on subliminal advertising—is portrayed as bypassing deliberation and thus as manipulative. Nudges, by contrast, are positioned as generally nonmanipulative because, according to Sunstein, they sufficiently engage in deliberative thinking, especially when designed within the libertarian paternalist philosophy to promote the chooser's welfare.

Alba and Zheng (2016) challenged both the breadth and the implications of this framing. They argued that Sunstein's criterion risks labeling much of marketing as manipulative and oversimplifies how consumers make decisions. They noted that many legitimate marketing practices do not invite deep reflection yet are not unethical, while some deliberation-based

appeals can still be manipulative. Their critique also highlighted BEs' tendency to portray consumers primarily as flawed decision-makers, calling instead for a more nuanced account that reflects marketplace realities, including the role of heuristics, affect, and context.

Sunstein's reply (2016b) defended his deliberation criterion and the ethical distinction between nudging and manipulative marketing while conceding some definitional ambiguity. This revealed how the debate was framed across disciplinary lines: Sunstein emphasized deliberation and consumer protection as the ethical boundary, whereas Alba and Zheng countered that such a criterion unfairly pathologizes marketing practices and fails to capture the contextual complexity of consumer influence, where many nondeliberative processes can be legitimate. This debate illustrates not only conceptual tensions but also the rhetorical distance between the fields. For marketing, the episode underscores the need to articulate how its practices relate to nudging in ways that move beyond disciplinary stereotypes and toward a shared framework of influence that integrates deliberation, heuristics, and contextual factors.

What Contradictions and Strategic Framings Reveal About Nudging Research

Sunstein's (2016b) defense of nudging rested on a deliberation-based ethical boundary: practices that bypass reflection, such as subliminal advertising, were deemed manipulative, whereas nudges were positioned as autonomy preserving because they were said to engage in reflective choice. This stance, however, sits uneasily with the original nudge concept (Thaler and Sunstein, 2008), which is grounded in the BE insight that "Humans" rely on heuristics and biases. Nudges work precisely because they harness such nonreflective processes, not because they extend deliberation. By Sunstein's own criterion, many classic nudges qualify as manipulative, revealing an inconsistency that reflects rhetorical positioning in relation to marketing rather than a principled redefinition of the concept.

A second tension concerns the agent–target relationship. Sunstein (2016b) warned about influences that principally serve the influencer's purposes, treating such cases as ethically problematic. However, *Nudge* (Thaler and Sunstein, 2008) adopts a broader view of paternalism, drawing directly on Van de Veer (1986). Van de Veer defines paternalistic behavior as action taken "with the primary or sole aim of promoting a benefit for [the subject]" (p. 22). This formulation requires that the intervention primarily aims at the chooser's welfare but does not exclude the possibility that others—such as the architect or society—also benefit. Thaler and Sunstein apply this reasoning in their claim that it is "legitimate for choice architects to try to influence people's behavior in order to make their lives longer, healthier, and better" (2008, p. 5). In marketing contexts, this maps naturally

onto dual-benefit designs (e.g., segment-tailored defaults) that improve consumer outcomes while also supporting firm performance, provided that the welfare of the chooser remains the primary justification (Mrkva et al., 2021). Moreover, some famous nudges highlight the limits of the "chooser's welfare" test. Consider the etched fly in the urinals at Schiphol Airport, which Thaler and Sunstein (2008, p. 3–4) celebrate as reducing spillage by 80%. While amusing and attention-grabbing, it is hard to argue that men's lives are substantially improved by this intervention; the primary beneficiary is clearly the airport, which reduces cleaning costs. This example underscores how the line between consumer benefit and architect benefit can be ambiguous in practice, raising questions about how strictly paternalism should be interpreted in applied contexts such as marketing.

Taken together, these contradictions highlight how nudging's ethical framing can shift strategically depending on context: Sunstein repositions it as deliberative and consumer-protective when contrasted with marketing, whereas the original framework is more accommodating and acknowledges that architects may also benefit as long as chooser welfare remains primary. For marketing scholarship, this inconsistency underscores two lessons: first, that nudging is rhetorically flexible and subject to disciplinary framing, which makes it essential for marketing to critically reflect on how it adopts and defines the concept. Second, this very flexibility opens an opportunity: marketing can advance a more relational account of nudging, one that acknowledges the legitimacy of mutual benefit between architects and consumers while situating interventions in real marketplace contexts.

How Disciplinary Framing Shaped Marketing's Engagement with Nudging

The 2016 debate in the Journal of Marketing Behavior illustrates how disciplinary boundary work shaped the way marketing encountered nudging. In this exchange, Sunstein repeatedly used subliminal advertising as an emblematic case of manipulative marketing. By contrasting this with nudging—framed as autonomy-preserving because it engaged reflection and deliberation—he casts marketing as the problematic "other" against which nudging defined itself. While rhetorically sharp, this characterization reflects a narrow and somewhat outdated view of marketing practice. Decades of research in CB and communication have shown that subliminal advertising is neither prevalent nor reliably effective and that most marketing influence operates through a mixture of cognitive and emotional processes rather than simple covert triggers (for an overview, see Alba and Zheng, 2016).

For marketing scholars, this portrayal created a disciplinary challenge. On the one hand, it reinforced the stereotype that marketing manipulates while nudging respects autonomy. On

the other hand, it opened a space for marketing research to demonstrate that its own frameworks could account for the complexity of influence more accurately than Sunstein's dichotomy. Alba and Zheng's (2016) response made precisely this point, emphasizing that nondeliberative influences are not necessarily unethical and that heuristics, affect, and context play legitimate roles in decision-making.

In this context, the 2016 exchange did not advance nudging theory, but it did shape how marketing positioned itself in relation to nudging. It exemplifies how nudging's conceptual identity is rhetorically flexible—able to appear consumer-protective when set against marketing—while marketing itself was invited, implicitly, to push back against this narrow framing. For marketing research, this moment underscores the importance of engaging in nudging not only as a set of tools but also as a contested concept shaped by disciplinary perspectives. A more balanced view would acknowledge that both fields grapple with similar mechanisms of influence and that marketing research, when recognized for its full complexity, could contribute substantially to a richer account of how nudging operates in real-world contexts.

DISCUSSION AND CONTRIBUTION

Following Ulaga et al.'s (2021) guidelines for crafting research propositions in conceptual work, this review develops a set of propositions that articulate how nudging and persuasion interrelate and how marketing can advance the nudging framework. These propositions build directly on the insights derived from the systematic review and highlight pathways for future research in marketing and beyond.

Key Insights

This review shows that nudging has become an increasingly visible topic in marketing and CB research, yet its integration remains partial and uneven. Publication activity has risen sharply, with nudging now appearing across leading journals and diverse domains such as food, health, finance, and retail. Moreover, the conceptual foundations of nudging remain blurred in the marketing literature: terminology is inconsistent, definitions are sometimes misattributed, and keywords are often used as umbrella labels rather than as differentiated conceptual categories. Most research concentrates on consumer responses—who can be nudged and under what conditions—while largely overlooking the role of the choice architect and the structuring features of the choice environment. Finally, disciplinary exchanges, such as the 2016 debate between Sunstein and marketing scholars, reveal both rhetorical contrasts and conceptual inconsistencies that sustain distance between fields.

From Definition to Framework: Gaps in Marketing's Use of Nudging

The first contribution of this review is to highlight the need for greater conceptual clarity. As outlined in the theoretical background (Figure 1), Thaler and Sunstein (2008) framed nudging not only through a definition but also as part of a broader framework of libertarian paternalism that links three elements: the choice architect, the choice architecture, and the consumer. This analysis shows that marketing research has engaged most strongly with the consumer side of this triad, often asking who can be nudged and under what conditions. Attention to the choice architect and the choice architecture has been much more limited. Even when the term choice architecture is used, it is commonly treated as a synonym for nudge rather than as a reference to the structuring features of decision environments.

Proposition 1: Marketing research will advance more robust theory on nudging if it consistently incorporates the triad of consumer, choice architect, and choice architecture rather than focusing predominantly on consumer responses.

This imbalance reflects a broader disciplinary pattern: BE emphasizes the role and responsibility of the architect, whereas marketing emphasizes consumer responses, with the architecture itself often caught in between but conceptually flattened. The frequent reliance of marketing on the nudge definition as a topical label—for defaults, framing, or social norms—reinforces this partial uptake. Moreover, the keyword analysis reveals encouraging signs of growing interest in process-related topics, including mechanisms and ethical concerns such as autonomy, fairness, and perceived manipulation. This trend indicates that marketing scholarship is beginning to move beyond asking whether nudges 'work' toward investigating how and why they operate. This shift creates natural bridges to established research traditions that examine consumers' responses to influence, including persuasion knowledge, psychological reactance, and related work on transparency, fairness, and trust. These traditions provide theoretical and methodological tools to unpack how consumers perceive, evaluate, and cope with nudges.

We propose that adopting the full nudging framework would not only sharpen conceptual boundaries but also open new research avenues. For marketing specifically, shifting toward an architect-centered lens would focus on issues of responsibility, intentionality, and ethical trade-offs—topics that connect directly to research on persuasion knowledge, reactance, and transparency. At the same time, it positions marketing to make stronger contributions to interdisciplinary conversation since these traditions offer precisely consumer-side insights that complement BEs' architectural focus.

Proposition 2: Attention to the role of the choice architect will enable marketing scholars to better address ethical trade-offs and align with debates in persuasion knowledge and reactance research.

A Continuum Perspective: Nudging and Persuasion as Related Forms of Influence

The second contribution of this review is to clarify how nudging and persuasion are related. The analysis reveals considerable inconsistency: some papers cast them as categorical opposites, with persuasion linked to reasoned deliberation and nudging to automaticity, whereas others conflated the terms, labeling persuasion strategies such as scarcity or social proof as nudges. This inconsistency reflects the absence of a shared conceptual boundary.

Instead, I propose that nudging and persuasion are best understood as points on a continuum of influence, differentiated not by kind but by degree. Deliberation is one dimension of this continuum, yet this review also underscores the importance of transparency: across both disciplines, disclosure research shows that making influence attempts explicit can shift consumer responses, activating persuasion knowledge and coping. Transparency thus reduces the conceptual distance between nudging and persuasion and highlights a shared research frontier.

Proposition 3: Nudging and persuasion operate along a continuum differentiated by the degree of deliberation and transparency rather than as categorical opposites.

Proposition 4: Transparency moderates consumer responses along this continuum, reducing perceptions of manipulation and fostering trust in both nudges and persuasive attempts.

By positioning nudging within a continuum of influence, marketing scholars can avoid definitional drift, link nudging directly to established literature on persuasion knowledge and reactance, and engage more systematically with ethical concerns around manipulation and autonomy. For nudging research, this perspective highlights how consumer insights from marketing can deepen the understanding of acceptance, resistance, and coping, thereby connecting two previously siloed conversations.

Conceptual Flexibility: Nudging Diffusion across Disciplines

A third contribution of this review is to situate nudging within the broader dynamics of interdisciplinary diffusion. This analysis shows that nudging's prominence in marketing cannot be understood in isolation: its trajectory reflects how the concept has been framed and reframed across economics, psychology, law, and public policy. This flexibility has

been instrumental to its rapid spread. By presenting nudges as small, low-cost interventions that preserve autonomy while improving welfare, Thaler and Sunstein (2008) crafted a concept that could be appropriated by different audiences, from policymakers seeking healthier lifestyles to marketers searching for subtle influence tools.

At the same time, the very malleability that enabled wide uptake has sustained conceptual ambiguity. The concise definition helped nudging travel across fields but obscured its normative grounding in libertarian paternalism, leaving it open to selective interpretation. In marketing, this often meant adopting nudging as a topical marker for behavioral interventions such as defaults, scarcity, or framing, without engaging its broader philosophical underpinnings. This pattern mirrors what I observed in prior cross-disciplinary exchanges, where enthusiasm for nudging's practical appeal coexisted with uncertainty about its conceptual boundaries.

An illustrative example comes from a public discussion in which Sunstein noted that when he entered the White House, it would not have been effective to speak about "nudges" or "behavioral insights." Instead, he framed the issue problem first—"less diabetes" rather than "more nudging" (Sunstein, 2023). This problem-driven rhetoric underscores that nudging is presented differently in policy, legislation, and academic domains. For marketing and CB research, the lesson is twofold: some of the ambiguity surrounding nudging is inherited from its rhetorical flexibility rather than generated by marketing alone, and greater theoretical precision is required if nudging is to function as more than a topical label.

Proposition 5: The framing of nudging adapts strategically to disciplinary contexts, which sustains conceptual ambiguity but also facilitates diffusion across fields.

More broadly, this adaptability underscores how concepts change as they move across disciplinary boundaries. In the case of nudging, different fields emphasize different dimensions—BE highlights architect-centered and ethical aspects, whereas marketing stresses consumer-level applications. Such selective uptake helps explain both the rapid diffusion of nudging and its uneven conceptual integration. For marketing research, the implication is that interdisciplinary exchange is essential: only by engaging with nudging's full theoretical scope can marketing move beyond treating it as a generic label. Moreover, BE can benefit from marketing's deep insights into consumer psychology, persuasion knowledge, and transparency. Building these bridges would stabilize the meaning of nudging across disciplines and open new avenues for cumulative theorizing.

Proposition 6: Greater theoretical precision in marketing's use of nudging will emerge from acknowledging and critically engaging with this cross-disciplinary flexibility.

Moreover, both marketing and BE share a common ambition: to understand and shape CB in ways that are both effective and welfare-enhancing. Recognizing this shared purpose provides a natural foundation for interdisciplinary exchange and clarifies why bridging the two traditions is both timely and necessary.

Toward Interdisciplinary Exchange: Nudging as Relational Communication

A final contribution of this review is to address the asymmetries in how disciplines engage with the nudging framework. Marketing scholarship has concentrated on the consumer side of the triad, whereas BE has emphasized the architect's role and the normative stance of autonomy and welfare. These imbalances have sustained partial views and reinforce disciplinary distance.

Moving forward, integration offers a way to overcome these silos. Marketing can learn from nudging's explicit engagement with welfare and autonomy, whereas nudging can benefit from marketing's well-developed theories of persuasion, transparency, and consumer–firm relationships. Rather than treating nudging as either a behavioral tool or a marketing tactic, scholars should recognize it as a form of communication between agents and consumers, in which influence arises through the interplay of design intentions, contextual architectures, and consumer coping responses.

Proposition 7: Interdisciplinary integration of marketing's consumer-side theories with behavioral economics' architect-side focus yields a more relational account of influence, positioning nudging as a dynamic form of interaction between agents and consumers.

This relational perspective aligns with the persuasion knowledge model and provides a foundation for cumulative theorizing that moves beyond disciplinary divides. By framing nudging as dialogical rather than unilateral, marketing and BE together can advance a more complete and ethically grounded understanding of behavioral influence.

Practical Guidance for Marketing Researchers

Greater clarity is needed in how marketing and CB researchers apply the nudging concept. To support this, Table 3 provides a structured decision guide. Rather than prescribing rigid rules, it sets out key considerations for researchers to follow when reporting nudging research. The value of the table is twofold. First, it offers a transparent logic for classification, helping scholars determine whether an intervention qualifies as a nudge,

aligns more closely with persuasion, or lies in between. Second, it translates the conceptual propositions of this review into actionable research practices—operationalizing the continuum perspective (Propositions 3 and 4) and managing cross-disciplinary flexibility (Propositions 5 and 6) without conceptual drift.

Table 3: Practical Guide for Conducting and Reporting Nudging Research in Marketing

Step	**Recommendation**	**Key Consideration**
1. Definition	Clearly define what qualifies as a "nudge" in the study.	Anchor in Thaler and Sunstein's (2008) framework: an intervention that preserves freedom of choice while steering behavior in predictable ways. Distinguish nudges from general behavioral interventions or persuasion tactics.
2. Architect's Role	State how the architect's role is conceived.	Reflect explicitly on libertarian paternalism: Does the intervention aim to make choosers better off as judged by themselves? Clarify responsibility and intent, not just consumer outcomes.
3. Transparency	Report whether the intervention is transparent and test it.	Treat transparency as a design dimension. Include manipulation checks: Do participants notice, understand, and interpret the nudge or disclosure? Transparency strengthens legitimacy and consumer trust. It allows the consumer to judge for themselves.
4. Mechanism / Continuum	Identify how the intervention works and locate it on the continuum between nudging and persuasion.	Specify the mechanism (heuristic, affective, deliberative). Acknowledge that nudges may combine automatic and reflective elements, depending on design and disclosure.
5. Reporting for Cumulative Science	Provide sufficient detail for comparison and replication.	Explicitly report: (a) type of nudge, (b) underlying mechanism, (c) transparency/disclosure, (d) alignment with libertarian paternalism. Enables clarity across studies and reduces conceptual ambiguity.

Future Research

For scholars, this review points to several promising directions. First, future research should engage more systematically with the full nudging framework, incorporating the roles of architect, architecture, and consumer. Doing so will clarify how responsibility, intentionality, and ethical trade-offs shape consumer responses. Rather than treating nudges as an applied "toolkit," researchers should draw on established analytic lenses in consumer psychology—most notably PK and psychological reactance—to examine how consumers interpret, evaluate, and cope with architect-centered interventions. Integrating these perspectives would move the field beyond outcome measures and toward a richer account of how nudges are evaluated in practice.

Second, scholars should explore transparency not only as a boundary condition but as an active design variable. Different forms of disclosure—ranging from minimal cues to explicit explanations—may influence whether consumers perceive nudges as legitimate, autonomy-preserving, or manipulative. Linking this line of inquiry to insights from persuasion research can illuminate how transparency enables coping, fosters trust, and alters the balance between acceptance and resistance.

Third, the continuum perspective invites integrative work that bridges persuasion and nudging, examining how varying degrees of deliberation and transparency influence both behavioral and attitudinal outcomes. This calls for research that links consumer psychology constructs—such as persuasion knowledge and reactance—to the study of nudges in applied contexts.

Finally, cross-disciplinary collaboration remains essential. Marketing can contribute consumer-centered insights to debates in BE and public policy, while benefiting from nudging's explicit focus on welfare and autonomy. Future work should build comparative designs across domains (e.g., health, finance, retail) to test how nudging and persuasion interact, adapt, and evolve in practice.

Conclusion

This review highlights both the promise and the fragility of nudging in marketing scholarship. Its promise lies in its growing visibility across journals and domains and in its potential to enrich theories of consumer influence. Its fragility lies in conceptual looseness and disciplinary divides that have limited integration. Advancing requires moving beyond boundary defense and toward dialog—acknowledging the full nudging framework,

positioning nudging and persuasion along a shared continuum, and critically engaging with cross-disciplinary flexibility.

For marketing in particular, adopting the full triad of consumer, architect, and architecture means reflecting more directly on responsibility, intentionality, and welfare. This aligns with Kennedy and Laczniak's (2016) call for authentic consumer orientation as the discipline's guiding vision. Strikingly, they describe their own article as an attempt to "nudge marketing academics" (p. 166) toward such reflection. In the same spirit, this review nudges both marketing and BE toward a more dialogical, relational account of influence—one that integrates design intentions with consumer responses and advances a more complete and ethically grounded understanding of behavioral change.

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APPENDIX A

Development of the nudging framework from Thaler and Sunstein (2008; 2021)

Nudging Element	Thaler and Sunstein (2008) "Nudge: Improving Decisions About Health, Wealth, and Happiness“	Thaler and Sunstein (2021) "Nudge: The final edition”
Choice Architect	“A choice architect has the responsibility for organizing the context in which people make decisions.” (p. 3; 3) “many real people turn out to be choice architects, most without realizing it.” (p. 3; 3)	
	“The first misconception is that it is possible to avoid influencing people’s choices. In many situations, some organization or agent *must* make a choice that will affect the behavior of some other people. There is, in those situations, no way of avoiding nudging in some direction, and whether intended or not, these nudges will affect what people choose.” (p. 10)	“The first misconception is that it is possible to avoid influencing people’s choices. In countless situations, some organization or agent *must* make a choice that will affect the behavior of some other people. There is, in those situations, no way of avoiding nudging in some direction, and these nudges will affect what people choose.” (p. 14)
	“In offering supposedly helpful nudges, choice architects may have their own agendas. [...] choice architects in all walks of life have incentives to nudge people in directions that benefit the architects (or their employers) rather than the users.” (p. 239)	
Libertarian Paternalist	“The paternalistic aspect lies in the claim that it is legitimate for choice architects to try to influence people’s behavior in order to make their lives longer, healthier, and better. In other words, we argue for self-conscious efforts, by institutions in the private sector and also by government, to steer people’s choices in directions that will improve their lives. In our understanding, a policy is “paternalistic” if it tries to influence choices in a way that will make choosers better off, *as judged by themselves*.” (p. 5)	“The paternalistic aspect lies in the claim that it is legitimate for choice architects to try to influence people’s behavior in order to make their lives longer, healthier, and better. In other words, we argue for self-conscious efforts, by institutions in the private sector and by government, to steer people’s choices in directions that will improve their lives. We are aware that many people, including many philosophers, have devoted a lot of effort to defining the term *paternalism*, and to exploring what might be right or wrong with it. The paternalistic policies that we favor aim to influence choices in a way that will make choosers better off, *as judged by the chooser themselves*. This is a paternalism of means, not of ends; those policies help people reach their own preferred destinations.” (p. 7)
	“the approach we recommend does count as paternalistic, because private and public choice architects are not merely trying to track or to implement people’s anticipated choices. Rather, they are self-consciously attempting to move people in directions that will make their lives better. They nudge.” (p. 5-6)	“the approach we recommend does count as paternalistic, because in important contexts, private and public choice architects should not merely track or implement people’s anticipated choices. Rather, they should attempt to move people in directions that will make their lives better. They should nudge.” (p. 7-8)
	“the golden rule of libertarian paternalism: offer nudges that are most likely to help and least likely to inflict harm.” (p. 72; 91)	
	“Choice architecture and its effects can not be avoided” (p. 72; 91)	

Choice Architecture	Choice architecture is the primary tool of libertarian paternalists: "as libertarian paternalists we prefer to nudge—and we are keenly aware that governments are populated by Humans. What can be done to help? In the next chapter we describe our primary tool: choice architecture." (p. 80)	
Nudge Definition	"A nudge, as we will use the term, any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives." (p. 6; 8)	
Nudge Characteristics	"But unintentional nudges can have major effects" (p. 10; 14) "It is true, of course, that some nudges are unintentional" (p. 10; 14)	
	"school children, like adults, can be greatly influenced by small changes in context. The influence can be exercised for better or for worse." (p. 1-2).	"small changes in context can greatly influence schoolchildren, just as they can greatly influence adults. The influence can be exercised for better or worse." (p. 2)
	"As alternatives become more numerous and more complex, choice architects have more to think about and more work to do, and are much more likely to influence choices (for better or for worse)." (p. 95)	"As alternatives become more numerous and more complex, choice architects have more to work to do, and are much more likely to influence choices (for better or for worse)." (p. 122)
Human	"Humans predictably err." (p. 7)	"Humans make predictable mistakes". (p.10)
	"Drawing on some well-established findings in social science, we show that in many cases, individuals make pretty bad decisions—decisions they would not have made if they had paid full attention and possessed complete information, unlimited cognitive abilities, and complete self-control." (p. 5)	"We know from decades of behavioral science research that people often make poor decisions in laboratory experiments. People also make plenty of mistakes in real life […]. Our goal, in short, is to help people make the choices that they would have made if they had paid full attention and possessed complete information, unlimited cognitive ability, and complete self-control." (p. 5)
	"Hundreds of studies confirm that human forecasts are flawed and biased. Human decision making is not so great either." (p. 7)	"Thousands of studies confirm that humans forecasts are flawed and biased." (p.10)

APPENDIX B

Marketing core journals (Clark and Key, 2021)

1936 Journal of Marketing
1961 Marketing Science
1964 Journal of Marketing Research
1967 European Journal of Marketing
1972 Journal of the Academy of Marketing Science
1979 Marketing, Zeitschrift fur Forschung und Praxis
1979 Marketing Research
1981 Journal of Macromarketing
1983 Journal of Consumer Research
1984 International Journal of Research in Marketing
1984 Psychology and Marketing
1984 Journal of Strategic Marketing
1985 Journal of Marketing Management
1988 Journal of Consumer Marketing
1989 Marketing Letters
1992 Journal of Marketing Theory and Practice
1993 Asia Pacific Journal of Marketing and Logistics
1996 International Journal of Market Research
1996 Journal of Empirical Generalisations in Marketing Science
1998 Qualitative Market Research
2001 Marketing Theory
2003 Quantitative Marketing and Economics
2003 Australasian Marketing Journal
2006 Foundations and Trends in Marketing
2008 Academy of Marketing Studies Journal (discontinued)
2010 Journal of Islamic Marketing
2011 Trziste
2011 AMS Review
2013 Indian Journal of Marketing
2014 Recherche et Applications en Marketing
2016 Spanish Journal of Marketing—ESIC

APPENDIX C

Marketing sectional journals adapted from Clark and Key (2021)

1925 Journal of Retailing
1960 Journal of Advertising Research
1972 Journal of Advertising
1979 Journal of Marketing Education
1981 International Journal of Advertising
1983 Journal of International Marketing
1983 Health Marketing Quarterly
1988 Journal of International Consumer Marketing
1990 Journal of Consumer Psychology
1990 International Journal of Retail and Distribution Management
1990 International Review of Retail, Distribution and Consumer Research
1992 Journal of Current Issues and Research in Advertising
1994 Journal of Retailing and Consumer Services
1994 Social Marketing Quarterly
1996 Journal of Public Policy and Marketing
1997 Journal of Interactive Marketing
2001 Journal of Consumer Culture
2001 International Journal of Consumer Studies
2018 Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior

APPENDIX D

Consumer Behavior Journals

1917 Journal of Applied Psychology
1980 Journal of Behavioral Decision Making
1980 Journal of Product Innovation Management
1985 Decision Support System
1998 Journal of Service Research
2000 Journal of Consumer Behavior
2016 Journal of Marketing Behavior

4. From Darkness to Dialogue: How Transparency Enhances Coping and Default Compliance

Authors: Jannike Harnischmacher, Prof. Dr. Claas Christian Germelmann (University of Bayreuth)

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The manuscript was formally adjusted to the remaining part of this dissertation; form errors were corrected; the reference style remained in its original form.

CRediT author statement

Jannike Harnischmacher: Conceptualization, Methodology, Formal analysis, Investigation, Resources, Data Curation, Writing - Original Draft, Writing - Review & Editing, Visualization, Project administration | **Claas Christian Germelmann**: Conceptualization, Methodology, Writing - Review & Editing, Supervision

From Darkness to Dialogue: How Transparency Enhances Coping and Default Compliance

ABSTRACT

Default nudges are among the most effective behavioral interventions, yet their success raises concerns about manipulation and transparency. While prior research has focused largely on main effects, little is known about the psychological processes underlying consumer responses. We address this gap through a consumer-centered, theory-driven approach that integrates the Persuasion Knowledge Model (PKM) and reactance theory. We propose that transparency activates both persuasion knowledge (PK) and perceived threat to freedom, shaping behavioral and attitudinal outcomes. Across two studies, we compare free choice, standard default, and transparent default conditions. Study 1 establishes the effectiveness of both standard and transparent defaults in a commonly used online choice context. Study 2 extends these findings in a real-stakes field setting, revealing that transparency increases both PK and perceived threat. However, this increased threat does not undermine effectiveness: default compliance remains higher under transparency than under standard or no default conditions. These results suggest that consumers engage more deliberately with transparent nudges and that disclosure can enhance rather than impair their influence—even when it makes persuasive intent more visible. Our findings reframe transparency as a psychologically active component and underscore the importance of a consumer-centered lens in nudging research.

Keywords: nudging, choice architect, persuasion knowledge, reactance, transparency, consumer behavior

INTRODUCTION

Behavioral interventions—popularly known as "nudges"—are widely used to influence decisions without restricting choice in domains ranging from public health to finance. Extant research agrees that defaults are particularly effective (Johnson & Goldstein, 2003; Steffel, Williams & Pogacar, 2016). However, their power also invites critique: Are consumers aware of the influence? Do they agree with it? What happens when that influence is made transparent?

Transparency is often seen as an ethical safeguard, especially in contexts where nudges guide behavior without overt notice, such as opt out organ donation policies where individuals are enrolled by default unless they actively choose otherwise. Disclosing the presence, mechanism, and intent of a default is assumed to protect autonomy and foster trust (Paunov et al., 2019a; Gold et al., 2023). However, its actual effects on behavior and perception remain controversial. While some studies report unchanged or even enhanced compliance under transparency (Paunov et al., 2019a; 2019b; 2020; Steffel, Williams & Pogacar, 2016), others raise concerns about potential backlash (Bovens, 2009; Bruns et al., 2018). These mixed findings highlight a critical gap in our understanding of the psychological processes triggered by transparency in nudging.

In a comprehensive review, Michaelsen (2024) identified six methodological limitations that undermine transparency research—from inconsistent operationalizations to insufficient ecological validity. We address each of these challenges and add a seventh: the lack of theory-driven, consumer-centered process models.

While nudges have traditionally been conceptualized from the perspective of the choice architect, we propose a complementary consumer-centered lens. Much of the foundational work in behavioral policy has focused on how interventions are designed to shape behavior (Thaler & Sunstein, 2008), with less emphasis on how individuals understand, process, and respond to these interventions. To address this gap, we draw on the Persuasion Knowledge Model (PKM; Friestad & Wright, 1994), a well-established consumer psychology framework that explains how people recognize, interpret, and cope with persuasion attempts. Applied to transparent defaults, the PKM suggests that transparency does not merely disclose intent—it activates a consumer coping process that may involve skepticism but also deliberation and goal alignment (Kirmani & Campbell, 2004). By making the default's presence, mechanism, and intent explicit, transparency can foster a more reflective and potentially accepting response. This approach reconceptualizes transparent

nudges not as failed manipulations but as ethical interventions that encourage consumers to engage with the recommendation rather than resist it.

To examine these ideas, we conducted two studies. Study 1 establishes the behavioral effectiveness of transparent defaults by comparing them to both standard defaults and a free-choice baseline. Study 2 extends this by testing the underlying psychological mechanisms through a sequential mediation model, focusing on the activation of persuasion knowledge (PK) and perceived threat to freedom. Together, these studies develop a more consumer-centered framework for understanding nudging, offering both theoretical insight and methodological tools for evaluating its ethical and behavioral impact.

THEORETICAL BACKGROUND

Defaults and Transparency: From Behavioral Impact to Ethical Concerns

Nudges aim to shape decisions in ways that promote individual and societal well-being without restricting freedom of choice (Thaler & Sunstein, 2008). Defaults are among the most powerful tools within this framework (Hummel & Maedche, 2019; Mertens et al., 2022). Because they require minimal effort from both the choice architect and the consumer, defaults are efficient and widely used across public policy and consumer contexts.

The effectiveness of defaults can be explained through three interrelated psychological mechanisms (Smith, Goldstein, and Johnson, 2013). First, individuals often stick with preselected options due to inertia or cognitive effort avoidance, meaning that they avoid the mental cost of actively opting out (Johnson & Goldstein, 2013). Second, loss aversion implies that the default is perceived as the status quo and that giving it up feels like a loss (Thaler, Kahneman & Knetsch 1992). Third, defaults can act as recommendations: they signal the option endorsed by the architect, leading individuals to infer that the default is likely beneficial (McKenzie, Liersch & Finkelstein, 2006). These mechanisms are widely used to explain the behavioral power of defaults, and their combined effect has been confirmed in meta-analyses (e.g., Jachimowicz et al., 2019).

However, recent theoretical and empirical developments challenge this understanding. Grüne-Yanoff (2016) argues that claims about the effectiveness of nudges cannot be considered evidence-based unless they are grounded in mechanistic explanations. That is, researchers must go beyond showing that an intervention “works” and instead clarify how it works. In line with this view, Sullivan et al. (2025) re-evaluate the mechanism of inertia

and find no evidence to support it. Across multiple studies, they have shown that default effects are not driven by a starting bias or cognitive laziness. In fact, they observe that defaults tend to induce "a slower, more cautious, and deliberative decision process," (Sullivan et al., 2025, p. 399), challenging the notion that they work through mental shortcuts. Sullivan et al.'s (2025) key finding is the "golden halo" effect: defaults gain perceived value because they signal endorsement, leading people to view them as better options. This finding supports the endorsement mechanism but undermines inertia or status quo bias-based explanations.

However, this very influence—precisely because it operates subtly and powerfully—raises ethical concerns. Critics argue that individuals often remain unaware of the influence defaults exert, raising concerns about manipulation and fairness (Smith, Goldstein & Johnson, 2013). Especially when defaults are used to serve the interests of the choice architect rather than the individual or society, the asymmetry of knowledge and power between the default-setter and the consumer becomes problematic. A lack of transparency can undermine trust, autonomy, and informed consent—prompting calls for interventions that are not only effective but also ethically justified.

Transparency has been proposed as a key solution to these concerns, aiming to preserve the effectiveness of defaults while increasing ethical legitimacy. In contrast to Bovens' (2009, p. 13) claim that nudges "work best in the dark," recent studies suggest otherwise (for a review, see Michaelsen, 2024). While many experiments find no reduction in effectiveness when defaults are made transparent, some studies even report increased default choice (Paunov et al., 2019a; 2019b; 2020). Paunov et al. (2022) show that proactive, voluntary disclosures lead to both higher compliance and more positive attitudes toward the agent compared to mandated transparency.

These findings challenge the assumption that disclosure inherently weakens default effects. Nevertheless, the empirical results remain inconsistent. Michaelsen (2024) attributed this to six methodological problems: (1) operationalizations of transparency lack correspondence, (2) nudge disclosures confound transparency with message features, (3) differences in transparency are rarely established, (4) common study characteristics invite demand effects, (5) survey studies confound transparency and nudge type, and (6) method invariance limits generalizability. We directly build on these insights, address each of the six issues, and add a seventh concern: a lack of theoretical grounding and the predominance of exploratory rather than hypothesis-driven research.

Transparency and Disclosure: Conceptual Clarification and Measurement

Transparency is often discussed alongside disclosure, but the two are not synonymous. While disclosure is an agent-driven act of making information public, transparency centers on the recipient's experience and is defined as "the quality of something, such as a situation or an argument, that makes it easy to understand" (Oxford University Press n.d.). In public policy research, Gold et al. (2023, p.28) define transparency as the "ease of identification of the mechanism underpinning the BI [behavioral intervention]". This definition aligns with the understanding of Hansen and Jespersen (2013, p.17), who specify that "a transparent nudge is defined as a nudge provided in such a way that the intention behind it, as well as the means by which behavioural change is pursued, could reasonably be expected to be transparent to the agent being nudged."

In this sense, disclosure is agent-centered, whereas transparency is consumer-centered. This distinction is echoed in Michaelsen's (2024) critique, where transparency is described either in terms of its objective implementation or its subjective reception (Problem 3). Importantly, disclosure alone does not ensure transparency; it depends on whether the consumer grasps the presence, mechanism and intent of the default. These elements are grounded in empirical findings: disclosing the mechanism has been shown to enhance compliance (Bruns & Paunov, 2021), and revealing intent increases effectiveness and trust (Paunov et al., 2019b). To reflect this perspective, we align with the most widely accepted conceptualizations and follow a multistep disclosure strategy that clarifies what the nudge is, how it works, and why it is applied.

In doing so, we address definitional inconsistencies and reject the interpretation of the disclosure message as a separate "message feature" (Michaelsen, 2024, Problems 1-2). Instead, we follow the argument that transparency is not a separate element added to a nudge but rather an inherent quality of the nudge—provided through explanatory disclosure that clarifies how and why the default works. As such, the disclosure message cannot be separated from the nudge itself without losing its meaning. Therefore, our conceptualization does not "double nudge" but rather constitutes a transparent nudge by design.

To assess whether our intervention is perceived as transparent, we measure transparency on the consumer side. Specifically, we ask participants to rate how easily they understand (1) what the nudge influences them to do, (2) how it influences them, and (3) why the choice architect influences them. These items, used as manipulation checks in our studies,

allow us to test whether our transparency intervention is successful and help establish perceptual differences.

It signals a broader shift in perspective—from constructing nudges from the architect's point of view to anticipating how they will be perceived and experienced by the consumer. While the nudging literature has traditionally focused on the architect's role, transparency brings the consumer's experience into focus. This raises questions such as the following: do consumers notice the nudge? Do they understand how it works, why it exists, and what the underlying intent is? In addition, critically, do they feel respected or manipulated?

Studies have begun addressing these questions. Research on perceived autonomy, pressure, and satisfaction (Wachner et al., 2020; 2021), as well as evaluations of fairness and ethicality (Steffel, Williams & Pogacar, 2016), highlights the relevance of consumer responses to nudging. However, such work remains scattered. Building on this foundation, we argue that evaluating nudges—especially transparent ones—requires a psychological lens that considers not only behavioral outcomes but also the attitudes, emotions, and coping strategies of the consumer. A consumer behavior perspective on nudging can accomplish this.

A Consumer Behavior Perspective on Nudging

Nudging research is predominantly grounded in the definition offered by Thaler and Sunstein (2008), who describe a nudge as "any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives" (p. 6). Since its introduction, this definition has been widely discussed and refined (e.g., Hansen & Jespersen, 2013; Hausman & Welch, 2010; Hansen, 2016; Camilleri et al., 2019). Across these contributions, a dominant perspective prevails: the choice architect is at the center of the nudging concept, as the one who designs, provides, and implements nudges.

This architect-centered view helps explain why the original definition, when considered in isolation, allows for considerable conceptual flexibility. It permits nudges that (1) are unintentional or architect-free (e.g., the weather) (Hansen, 2013), (2) serve competing interests—including those of the individual, the society, or the architect (Hausman & Welch, 2010), and (3) are morally ambiguous—hence Thaler's frequent inscription "Nudge for good!" when signing copies of the book (Thaler & Sunstein, 2021).

Importantly, we argue that these definitional ambiguities are not oversights but reflect the authors' broader concern with nudging as a framework in which choice architects act as

libertarian paternalists. Indeed, the book was originally meant to be titled *Libertarian Paternalism* (Halpern, 2015), emphasizing how choice architects should steer people in beneficial ways while preserving freedom of choice. The shift to the more accessible title *Nudge* helped broaden the book's reach and ignite public debate—although it also shifted attention toward defining nudges themselves (Thaler & Sunstein, 2021).

However, as our discussion of transparency has shown, the consumer's role in the nudging process becomes particularly salient when interventions are made visible. We propose that understanding nudging as a social interaction, not merely a design principle that needs appropriate affordance (Norman, 1990), requires us to incorporate the human side of the equation. Particularly when nudges become visible or transparent, consumers are not passive recipients but active agents who interpret, resist, or accept influence by engaging in cognitive processes such as reactance (Brehm, 1966).

In line with Thaler and Sunstein's broader thinking, we thus understand nudging as a framework. Within this framework, the choice architect designs the choice architecture and may incorporate nudges as tools to indirectly influence human behavior. If the choice architect operates in the spirit of libertarian paternalism, the definition of a nudge becomes more narrowly focused: it refers to a deliberate intervention designed to steer behavior in a predictable direction while preserving freedom of choice, with the aim of influencing the individual and/or society for good. However, this process does not end with the design of a nudge. As visualized in Figure 4, nudging is not a one-directional influence from architects to humans. Instead, the human, or consumer, plays an active role: In this way, nudging becomes a dynamic interaction, in which consumers may activate PK, experience psychological reactance, or engage in goal-aligned deliberation. To fully understand the effects of nudges, both behavioral and attitudinal, we must therefore move beyond a tool-centric definition and adopt a relational perspective that accounts for the psychological dynamics between the choice architect and the consumer. This includes how consumers actively cope with and evaluate both the nudge and its initiator, taking into account their own goals as well as the perceived intentions of the choice architect.

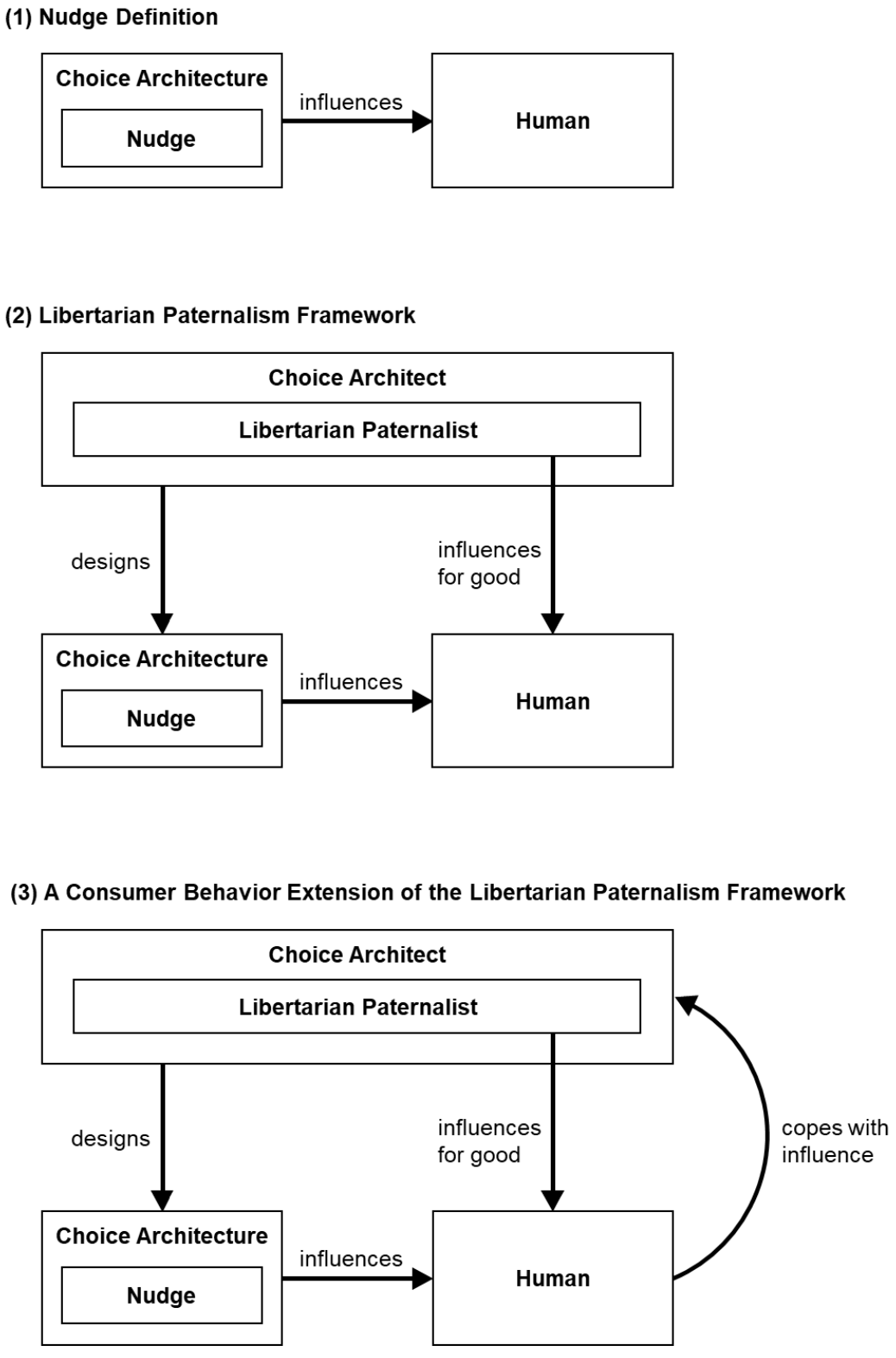

Figure 4: Integrating a Consumer Behavior Perspective into the Libertarian Paternalism Framework

The Persuasion Knowledge Model: Understanding Transparency Effects

The PKM by Friestad and Wright (1994) offers a valuable lens for understanding how transparency shapes consumer responses to default nudges. The model posits that consumers are not passive targets but develop PK, which "helps [consumers] identify how, when, and why marketers try to influence them" (p. 1). Transparency supports this process by revealing the presence, mechanism, and intent of a default—three components that activate PK and initiate coping strategies.

Prior research, particularly in consumer behavior, suggests that the activation of PK often triggers resistance, especially in the form of psychological reactance (Eisend & Tarrahi, 2022). In public policy research, similar concerns are raised: transparency is assumed to increase reactance because it makes the persuasive nature of the nudge more visible (Bruns et al., 2018; Paunov et al., 2019a; 2019b; 2020; Steffel, Williams & Pogacar, 2016). However, surprisingly few studies have actually measured reactance—despite its conceptual centrality. This is particularly noteworthy given that reactance is driven primarily by perceived threats to freedom (Brehm, 1966), whereas nudges are explicitly defined as freedom preserving. From a consumer-centered perspective, we argue that it is essential to directly assess whether transparency threatens perceived freedom of choice. Only then can we evaluate whether nudges truly live up to their normative claim of preserving freedom.

The few studies that do investigate reactance in the context of transparent defaults paint a more optimistic picture. Bruns et al. (2018), for instance, reported no evidence that transparency increases reactance. We view this as a theoretically meaningful finding. Drawing on the PKM, we argue that transparency—when it clarifies the presence, mechanism, and intent of the nudge—activates coping but not necessarily resistance. When consumers understand the rationale behind the default and recognize alignment with their own goals (Kirmani & Campbell, 2004), transparency can reduce ambiguity and suspicion. In doing so, it preserves freedom rather than threatens it and fosters a more deliberate and accepting response.

Recent evidence supports this interpretation. Sullivan et al. (2025) disprove the widely held assumption that default effects arise due to cognitive effort avoidance or inertia. Instead, they show that defaults are evaluated more favorably because they are perceived as endorsements. These findings suggest that defaults are not blindly accepted but rather cognitively processed—providing fertile ground for transparency to strengthen their impact. Because defaults are already interpreted as containing information about the

intentions of the default-setter (Brown & Krishna, 2004), transparency simply makes this inference explicit. Through disclosure of intent and mechanisms, consumers can understand why a certain choice is suggested and how it works, which further legitimizes the intervention and builds trust.

The PKM also helps clarify why positive effects can emerge: consumers are not simply resisting influence; they are actively engaging with it. Kirmani and Campbell (2004) describe consumers as goal seekers who "accept assistance" when the agent's recommendation aligns with their goals. In the case of transparent defaults, the disclosed intent reveals that the default is designed to be beneficial, making it easier for consumers to integrate the recommendation into their own decision-making strategy. This explains why transparency can enhance choice—especially when the recommendation is interpreted as thoughtful, credible, and goal-aligned.

In addition to influencing behavior, we expect transparency to shape how consumers evaluate both the default and the choice architect behind it. Prior work has shown that persuasive attempts perceived as sincere and aligned with the consumer's goals can enhance attitudes toward both the message and its source (e.g., Steffel, Williams & Pogacar, 2016). Steffel, Williams, and Pogacar (2016) also demonstrate that transparency about how a choice format influences decisions increases consumers' willingness to work with the default-setter again—particularly when the agent's intentions are prosocial but even when they are self-interested. These findings highlight that transparency about the mechanism, not just the intent, can improve consumers' fairness and ethicality perceptions and shape long-term evaluations of the agent. By activating PK without inducing threat, transparent defaults may not only increase choice but also foster more favorable attitudes toward the intervention and its choice architect. Taken together, these insights explain how transparency enables consumers to view a default not as a covert influence attempt but as an informed and acceptable suggestion—strengthening both behavioral and attitudinal outcomes.

On this basis, we propose the following hypotheses:

H1: A default (vs. free choice) increases the choice for the default option.

H2: A transparent default (vs. standard default) increases the choice for the default option more strongly.

H3: A transparent default (vs. standard default) increases

(a) the activation of persuasion knowledge, and therefore also

(b) the choice for the default option,

(c) the intention to work with the default-setter again,

(d) attitude toward the default-setter, and

(e) attitude toward the default.

Empirical Overview

We conducted two studies based on the scenario introduced by Paunov et al. (2019a, Study 3; 2019b; 2020), which is commonly used in nudging research (e.g., Wachner et al., 2020). Both studies include three conditions—free choice, standard default, and transparent default—allowing us to isolate the effect of transparency from the default itself and address the common confound between transparency and nudge type (Michaelsen, 2024, Problem 5).

Study 1 replicates the original online setup (a survey portal with varying durations) to test the behavioral effects of defaults and transparent defaults, testing H1 and H2. Study 2 adapts the design to a field setting with real, consequential choices, improving external validity and addressing the issue of method invariance (Problem 6). In addition, Study 2 extends the investigation by incorporating the proposed psychological mechanisms, thereby testing H3.

STUDY 1

Procedure and Participants

We conducted an online experiment (N = 86) via Qualtrics. The participants were informed that the study would take approximately 5–7 minutes to complete and were then presented with a hypothetical scenario of a survey portal, in which they could choose to participate in one of several studies. Importantly, only the estimated study durations were provided, with no additional information about the content of the studies. The available options were as follows: Category A (<5 minutes), Category B (5–7 minutes), Category C (7–9 minutes), Category D (9–11 minutes), and Category E (>11 minutes). To ensure that the choice was

not incentivized by the reward structure, participants were told that they could win a voucher regardless of the study category they selected.

The participants were randomly assigned to one of three experimental conditions: (1) free choice, (2) default, or (3) transparent default. In both default conditions, Category C (7–9 minutes) was preselected as the default option. In the transparent default condition, a disclosure message with a yellow background highlights the mechanism and intent of the default: "Please note the following: Based on the results from a large body of research we know that in decision situations, people often stick with a choice option, which is preselected for them. Therefore, I have preselected a category for you, since I would want you to choose a study from this category. By choosing Category C (7–9 min), you guarantee that I will be able to accomplish my research objectives." After making a choice, the participants completed a questionnaire with demographic questions.

We excluded 11 participants from the initial sample because of failed attention checks. Our sample for the analysis consisted of n = 75 participants (M_{age} = 31.72, 54.7% female, 44% male, free choice n = 28, default n = 24, transparent default n = 23). All participants provided informed consent prior to the study.

Results

A chi-square test of independence revealed a significant association between condition and default choice, χ^2 (2) = 38.53, p < .001. The percentage of participants choosing the default option increased from 3.6% in the free-choice condition to 29.2% in the default condition and 87.0% in the transparent default condition. Pairwise z-tests of proportions (Table 4) revealed that the default significantly increased the likelihood of choosing the preselected option compared with free choice (z = 2.58, p = .01, OR = 11.13), thus supporting H1. The transparent default had greater effects than the standard default (z = 4.97, p < .001, OR = 16.19), thus supporting H2. All comparisons remained significant after Bonferroni correction (adjusted α = .017).

Table 4: Pairwise z-Test results for default choice

Condition	z	p	Relative change	OR	95% CI
Free Choice vs. Default	2.58	< .05	+ 716.67%	11.13	[1.25, 98.49]
Default vs. Transparent Default	4.97	< .001	+ 198.14%	16.19	[3.62, 72.50]

Note. CI = confidence interval for odds ratio (OR).

Discussion

The findings provide initial support for our hypotheses: defaults influence choice (H1), and transparency further enhances this effect (H2). This study replicates previous work by Paunov et al. (2019a; 2019b; 2020) using the same scenario while addressing concerns about potential confounding factors between transparency and nudge type by including all three experimental conditions. Although conducted in a hypothetical context, the clear pattern of results suggests that transparency can reinforce the behavioral impact of defaults. However, this setting leaves open questions about how defaults and transparency function in real decision-making contexts involving personal trade-offs and experienced incentives. Study 2 builds on these findings by introducing real stakes and testing the psychological mechanisms behind the observed effects.

STUDY 2 – FIELD EXPERIMENT

Procedure and Participants

We conducted an online experiment (N = 341) via Qualtrics, recruiting participants through SurveyCircle—a German participant pool primarily composed of university students. On this platform, participants can browse a list of studies with fixed time/reward ratios. Since researchers do not approve individual submissions and panelist identities remain hidden, this setup increases anonymity and minimizes experimenter demand effects (Problem 4).

The participants were informed that the study would take approximately 6–8 minutes, which reflected the actual completion time. As in Study 1, they were then presented with a hypothetical scenario involving a survey portal. Five survey categories differing only in estimated duration were displayed: Category A (<6 minutes), Category B (6–8 minutes), Category C (8–10 minutes), Category D (10–12 minutes), and Category E (>12 minutes).

The participants were randomly assigned to one of three experimental conditions: (1) free choice, (2) default, or (3) transparent default. In both default conditions, Category C (8–10 minutes) was preselected as the default option. In the transparent default condition, a disclosure message with a yellow background highlights the mechanism and intent of the default: “Note: I have already pre-selected a category for you. Scientific studies, such as the one by Johnson and Goldstein (2003), have shown that people in a decision-making situation often stick with an option that has been pre-selected for them. I have pre-selected this category because by answering a study from this category you can help me to better achieve my research objectives.”

To ensure that participants' choices were not influenced by the platform's reward structure, they were informed that they would only receive points corresponding to the stated duration of 6–8 minutes, regardless of the category they ultimately chose. This ensured that selecting a longer study category (C–E) reflected a real willingness to forgo personal benefit. After making their choice, the participants completed a questionnaire and were debriefed about the hypothetical nature of the scenario.

We excluded 17 participants from the initial sample because of failed attention checks. Our sample for the analysis consisted of n = 324 participants (M_{age} = 27.51, 67.60% female, 31.30% male, 0.30% nonbinary, free choice n = 111, default n = 103, transparent default n = 110). All participants provided informed consent prior to the study.

Measures

PK activation was assessed via a thought protocol by asking participants "Did you notice anything when selecting a category? Please briefly name some spontaneous thoughts, conspicuous features, impressions or feelings that went through your mind when reading the introductory text." We individually coded the number of thoughts for PK, including recognition of default and persuasion intent (Germelmann et al., 2020; Kirmani & Zhu, 2007).

Reactance (M = 2.982, SD = 1.308, α = .802) was measured using the freedom threat scale adopted from Dillard and Shen (2005). It consists of four items measured on a seven-point Likert scale with the following items: "The researcher tried to make a decision for me.", "The researcher tried to pressure me.", "The researcher threatened my freedom to choose.", and "The researcher tried to manipulate me."

The intention to work with the default-setter again (M = 66.161, SD = 25.293) was assessed by asking "How likely would you be to participate in another study by the same researcher?" (Steffel, Williams & Pogacar 2016). The participants indicated their response using a continuous slider scale ranging from 0 (extremely unlikely) to 100 (extremely likely), with the slider initially positioned at the midpoint (50).

Attitude toward the agent (M = 4.653, SD = 1.129, α = .938) was measured with the following items on a seven-point semantic differential adapted from Spears and Singh (2004): Negative/ Positive, Unconvincing/ Convincing, Dislike/ Like, Unlikeable/ Likeable, Insincere/ Sincere, Incredible/ Credible, Unethical /Ethical.

Attitude toward the default ($M = 4.519$, $SD = 1.011$, $\alpha = .832$) was measured with the following items on a seven-point semantic differential adapted from Spears and Singh (2004): Negative/ Positive, Unconvincing/ Convincing, Dislike/ Like, Unlikeable/ Likeable, Boring/ Interesting, Useless/ Useful.

Manipulation Checks

We measured disclosure ($M = 4.90$, $SD = 1.548$) on a 1 (Strongly disagree) to 7 (Strongly agree) scale with the item "The researcher disclosed the pre-selection transparently." An independent sample t-test (default $n = 103$; transparent default $n = 110$) confirmed the low vs. high perception of disclosure of the default ($M_{low} = 4.60$ vs. $M_{high} = 5.17$, t (204.525) = –2.721, $p < .01$).

We measured transparency ($M = 4.466$, $SD = 1.337$, $\alpha = .795$) using three items: "I could easily understand what the presentation of the categories influences me to do.", "I could easily understand how the presentation of the categories influences me.", "I could easily understand why the researcher influences me." An independent sample t-test (default $n = 103$; transparent default $n = 110$) confirmed the low vs. high transparency of the default ($M_{low} = 4.175$ vs. $M_{high} = 4.739$, t (211) = –3.144, $p < .001$).

Results

We ran mediation analyses using PROCESS Model 6 with condition (free choice, default, transparent default) as the independent variable, PK activation and threat to freedom as sequential mediators, and choice of the default option as the dependent variable (Figure 5) (Hayes 2018). We conducted the same analysis for each further dependent variable, that is, the intention to work with the default setter again (Figure 6), the attitude toward the default-setter (Figure 7), and the attitude toward the default (Figure 8). The multicategorical independent variable was dummy-coded using indicator coding with the default condition as the reference group. This allowed us to examine two specific contrasts: (X1) free choice vs. default and (X2) default vs. transparent default.

Default choice. The results (Figure 5) show that participants were significantly more likely to choose the default option in the transparent default condition than in the default condition (X2: $c' = 1.51$, $p < .001$), supporting H2. In contrast, the effect of the default condition compared with the free choice condition (X1: $c' = .13$, $p = .78$) was not significant, indicating no support for H1. With respect to H3a, transparency significantly increased PK activation (X2: $a_1 = .42$, $p < .001$), which in turn predicted default choice ($b_1 = .96$, $p < .001$). This indirect effect was positive and significant (X2: $a_1b_1 = .40$, 95% CI [0.19,

0.68]), supporting H3b. Transparency also significantly increased the perceived threat to freedom (X2: $a_2 = .69$, $p < .001$), yet this did not reduce default choice ($b_2 = .03$, $p = .80$). No significant indirect effect was found for the free choice vs. default contrast (X1: $a_1b_1 = -.06$, 95% CI [–0.21, 0.05]), which aligns with the absence of a behavioral effect in this contrast.

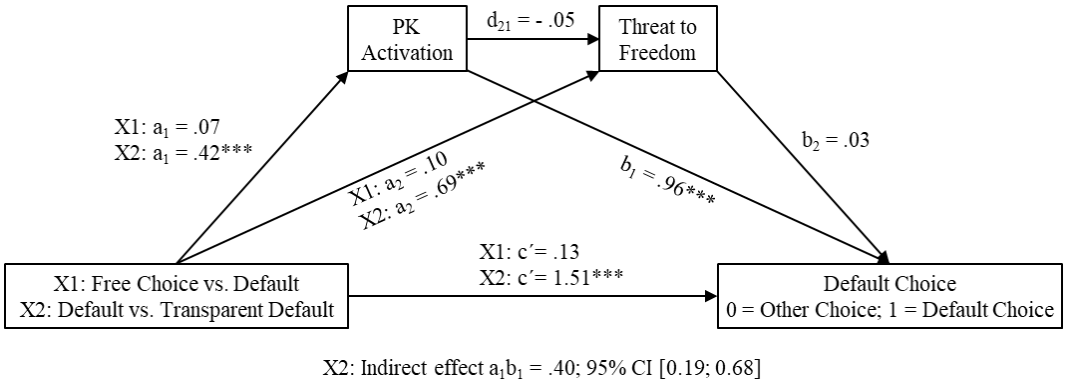

Figure 5: Mediation path model for the effects on default choice. Note: PK = persuasion knowledge; CI = confidence interval; ***p < .001; direct and indirect effects of condition on default choice are in the log-odds metric.

Intention to work with the default-setter again. The results (Figure 6) show that the direct effect of transparency on intention was not significant (X2: $c' = -0.62$, $p = .85$), indicating that there was no total effect. However, significant indirect effects emerged in opposite directions. Transparency increased PK activation ($a_2 = .42$, $p < .001$), which positively predicted intentions via threat to freedom (X2: $a_1b_1 = 1.84$, 95% CI [0.40, 3.53]). At the same time, the results show a significant negative indirect effect via threat to freedom (X2: $a_2b_2 = –5.24$, 95% CI [–8.50, –2.24]).

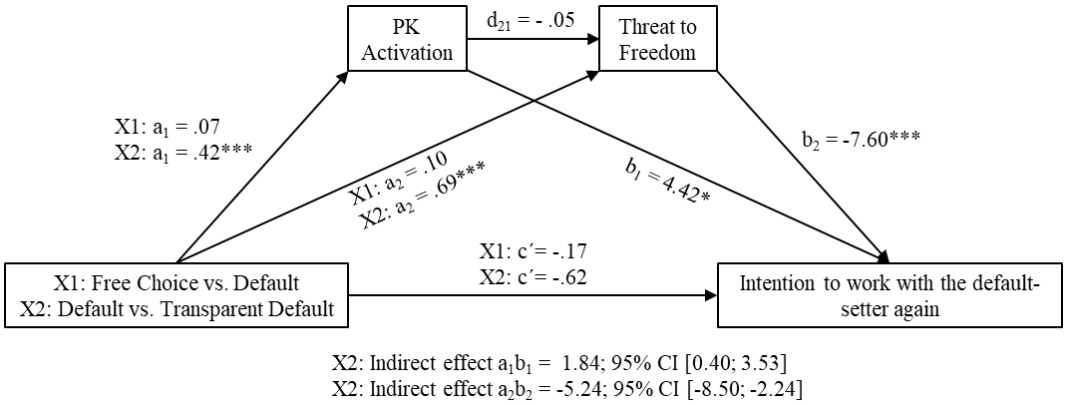

Figure 6: Mediation path model for the effects on the intention to work with the default-setter again. Note: PK = persuasion knowledge; CI = confidence interval; *p < .05, *** p < .001.

Attitude toward the default-setter. The results show (Figure 7) that the direct effect of transparency on attitudes was not significant (X2: c′ = 0.07, *p* = .56), indicating that there was no total effect. However, the mediation model revealed two opposing indirect effects. A positive indirect effect emerged via PK activation (X2: a_1b_1 = .09, 95% CI [0.02, 0.18]). In contrast, a stronger negative indirect effect occurred through increased threat to freedom (X2: a_2b_2 = –.25, 95% CI [–0.41, –0.11]).

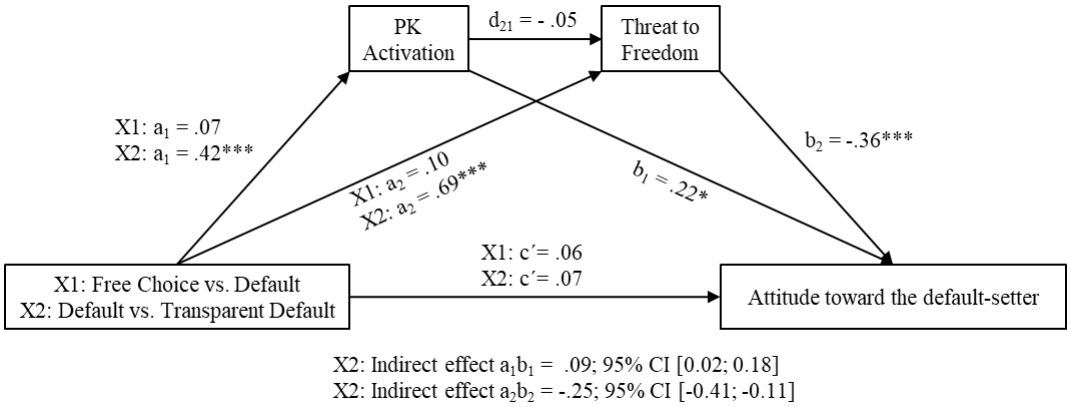

Figure 7: Mediation path model for the effects on attitudes toward the default-setter. Note: PK = persuasion knowledge; CI = confidence interval; *p < .05, ***p < .001.

Attitude toward default. The results (Figure 8) show that, for attitude toward the default, we again find no significant direct effect of transparency compared with the standard

default (X2: c′ = 0.02, *p* = .13). However, an indirect effect emerged: transparency reduced evaluations of the default via increased threat to freedom (X2: a_2b_2 = –.19, 95% CI [–.31, –.08]).

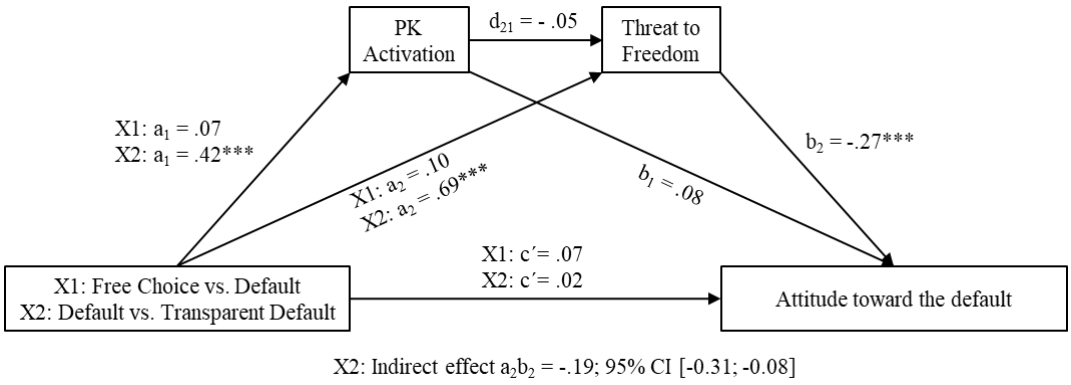

Figure 8: Mediation path model for the effects on attitude toward the default. Note: PK = persuasion knowledge; CI = confidence interval; ***p < .001.

Discussion

The findings of Study 2 replicate and extend those of Study 1 by showing that transparent defaults significantly increase default choice compared with both a standard default and a free choice baseline. However, unlike in Study 1, the default alone did not increase choice relative to free choice. This discrepancy may be explained by the field setting of Study 2, where participants were experienced decision-makers operating under real incentives. In this context, a subtle default may not be sufficient to shift behavior—particularly when the default requires additional time investment, as in our study. In contrast, transparency appeared to legitimize the recommendation and enhance its influence.

In line with our expectations, transparency increased the activation of PK compared with standard default. Interestingly, the default alone, although visible and arguably detectable (Hansen & Jespersen, 2013), did not enhance PK activation. Visibility on its own was insufficient to trigger coping responses. PK was only activated when the default was accompanied by an explanation of how it works and why it was implemented—supporting our argument that all three components (presence, mechanism, intent) must be made salient to enable meaningful engagement. This underscores the ethical concern that standard defaults, although effective, may operate below the threshold of consumer awareness,

limiting opportunities for informed evaluation and reinforcing concerns about covert influence.

Compared with standard default, transparency also led to a greater perceived threat to freedom, which is in line with other research results in the field (Michaelsen, Johansson, and Hedesström, 2024). However, this perceived threat did not reduce default choice. In contrast, the standard default did not increase threat perceptions but also failed to increase choice. This pattern suggests that transparency introduces a tension between greater awareness and perceived influence—but one that does not undermine behavioral effectiveness. Default choice was increased both directly and indirectly through PK activation, whereas threat to freedom did not mediate this relationship. We interpret this through the lens of the goal-seeking strategy proposed by Kirmani and Campbell (2004): when consumers recognize persuasive intent, they may initially feel pressured but ultimately accept the recommendation if it aligns with their goals. In our case, the transparent disclosure emphasized a prosocial motivation behind the default, which may have legitimized the recommendation and encouraged compliance. This aligns with the idea that coping via PK facilitates deliberation and supports acceptance, even in the presence of a perceived threat to freedom.

GENERAL DISCUSSION

This research contributes to the growing literature on transparent nudging by demonstrating that transparency can enhance the effectiveness of default interventions without necessarily undermining behavioral compliance—even when it increases perceived threats to freedom. Across two studies, we show that transparent defaults consistently outperform nontransparent defaults in terms of choice uptake. This effect is particularly noteworthy given that transparency also heightens perceived pressure. While this leads to negative attitudinal consequences, the behavioral impact of the nudge remains robust.

Cognitive Mechanisms and the Consumer Perspective

A key contribution of our work lies in unpacking the underlying psychological mechanisms. Specifically, we show that transparency activates PK, which in turn has positive effects on both the behavior and evaluations of the default-setter. In contrast, threat to freedom—often assumed to explain reactance—only indirectly affects attitudes and intentions and does not reduce behavioral compliance. This dissociation highlights the value of a consumer-centered perspective in nudging research, which considers not only behavioral outcomes but also consumers' psychological experience and coping processes.

Importantly, our findings support the notion that freedom threats and autonomy are not the same. The participants in our study felt that their freedom was threatened under transparency but still made deliberate decisions that aligned with their goals. This suggests that even when consumers recognize influence attempts and feel pressured, they may still retain autonomy through cognitive engagement. As such, transparency does not automatically negate ethical concerns—it may even enable autonomy by fostering informed and intentional decisions.

This interpretation aligns with Kirmani and Campbell's (2004) notion of the accept assistance strategy: when consumers perceive the persuasive intent as credible and goal-aligned, they may willingly accept it. Our findings support this idea: participants showed increased PK and chose the default when it served a mutually beneficial purpose—despite experiencing a heightened threat to freedom.

Beyond Behavior: Divergent Effects on Attitudes and Intentions

In addition to behavioral choice, the other dependent variables revealed a more complex picture. Intentions to work with the default-setter again and attitudes toward the agent were influenced by both PK (positively) and freedom threat (negatively), effectively canceling each other out. However, attitudes toward the default itself were negatively affected via threat to freedom and not significantly improved via PK. This suggests that while transparent communication can legitimize the agent, the intervention itself remains more vulnerable to negative attributions when perceived as coercive.

These findings challenge prior claims that transparency uniformly increases acceptability (e.g., Gold et al., 2023). Instead, we find that consumer evaluations depend on the target of evaluation (intervention vs. agent) and the balance of PK-based trust and freedom-based threat. This again underlines the need for a consumer behavior lens that differentiates among outcome types rather than treating acceptability as a monolithic construct.

Deliberation Within Nudging: The Role of Transparent Communication

Our findings also raise conceptual questions about the nature of nudging. If transparency enhances deliberation and reflective processing, does the intervention still qualify as a nudge? While nudges are often defined by their reliance on heuristics and automaticity, transparent defaults appear to engage system 2-like cognition. This is consistent with recent findings by Sullivan et al. (2025), who demonstrate that even standard defaults are processed more deliberatively than previously assumed—challenging the long-held assumption that default effects arise purely from effort avoidance. Our results suggest that

transparency may further support such deliberative processing. This perspective does not contradict the original concept of nudging but extends it to acknowledge that nudges can vary in the degree to which they invite reflection. From an ethical standpoint, nudges that encourage cognitive engagement—such as transparent defaults—may align particularly well with the spirit of libertarian paternalism, as they preserve freedom of choice while supporting informed decision-making. Moreover, it remains an open question whether these findings can be generalized to other types of nudges. Future research should explore whether transparency also fosters deliberation in domains such as framing, social norms, or reminders.

From Critique to Contribution: Advancing Methodology and Theory in Transparency Research

Our research responds to several methodological shortcomings identified by Michaelsen (2024), including problems of definition, operationalization, demand effects, and generalizability. Throughout both studies, we address these concerns by using a consumer-centered transparency construct, real-stakes field data, and an experimental setup that independently varies the presence and transparency of the default to isolate their effects.

We also identify and address a seventh issue: the lack of theory-driven research in transparency studies. Prior work has focused heavily on whether transparency influences behavioral outcomes, often overlooking the psychological mechanisms behind these effects. To fill this gap, we draw on the PKM (Friestad & Wright, 1994) and test a sequential mediation model that captures how transparency activates coping, shapes perceived threats to freedom, and ultimately affects both behavior and attitudes.

Our findings also speak to broader concerns about nudging failures raised by Sunstein (2017). Nudges may fail when they are undetected, misaligned with people's goals, or provoke reactance. By incorporating transparency as a psychologically active component and clarifying its mechanisms, our transparent defaults avoid these pitfalls—demonstrating that theory-informed design can make nudges more effective, acceptable, and ethically robust.

Ethics Meets Effectiveness: Designing Nudges Consumer Understand and Accept

For policymakers and practitioners, our findings offer an important implication: transparency does not undermine the effectiveness of nudges—in contrast, when it is done thoughtfully, it can enhance them. By disclosing the mechanism and intent behind a default and by aligning it with the consumer's goals, choice architects can foster both ethical

legitimacy and behavioral effectiveness. However, they should be aware that perceived threats to freedom may still arise, potentially undermining attitudes toward the nudge. Therefore, transparency should not be viewed as a neutral feature but rather as a psychologically active component that shapes both trust and resistance.

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5. Stop Hiding – Disclosure Doesn't Hurt: Transparency as a Strategic Tool in Managing Persuasion Knowledge Effects

Authors: Jannike Harnischmacher, Prof. Dr. Claas Christian Germelmann (University of Bayreuth)

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CRediT author statement

Jannike Harnischmacher: Conceptualization, Methodology, Formal analysis, Investigation, Resources, Data Curation, Writing - Original Draft, Writing - Review & Editing, Visualization, Project administration | **Claas Christian Germelmann**: Conceptualization, Methodology, Writing - Review & Editing, Supervision

Stop Hiding – Disclosure Doesn't Hurt: Transparency as a Strategic Tool in Managing Persuasion Knowledge Effects

ABSTRACT

Driven by increasing legal requirements (e.g., FTC), disclosure and transparency have become central to digital advertising. While prior research often equates transparency with agent-driven disclosure, this study introduces persuasion transparency as a consumer-centered perception—defined as understanding both persuasive mechanism and intent—and examines its role in mitigating persuasion knowledge (PK) effects. Across two experiments the research investigates how persuasion transparency moderates the PK–reactance–attitude–behavioral intention pathway. Study 1 (blog) shows that PK activates all three components of psychological reactance—threat to freedom, anger, and negative cognitions—with anger emerging as the strongest mediator. Although transparency does not reduce reactance directly, it weakens PK's negative effects on attitudes and behavioral intentions. In a digital advertising context (Study 2), PK consistently activates anger as a mediating pathway to attitudes, though persuasion transparency does not differentially attenuate this reactance process.

Keywords: persuasion knowledge, reactance, disclosure, transparency, attitude, behavioral intentions, native advertising

INTRODUCTION

Persuasion Knowledge (PK) significantly influences consumer responses to advertising, often reducing its effectiveness. Eisend and Tarrahi (2022) reported that PK accounts for approximately 50% of the explanatory power of advertising effectiveness, underscoring its central role in shaping consumer attitudes and behaviors. When consumers recognize persuasive intent, they often resist the message, resulting in lower evaluations of the advertiser and reduced behavioral intentions. The Persuasion Knowledge Model (PKM) explains how individuals draw on PK to interpret and respond to such attempts, framing persuasion as a dynamic interaction between agent and target. Although Friestad and Wright (1994) describe the term cope as "neutral with respect to the direction of targets' responses" (p. 3), the literature predominantly reports negative coping outcomes. These are frequently driven by psychological reactance—a motivational state triggered by perceived threats to autonomy (Brehm 1966)—which leads consumers to push back against persuasion efforts.

To mitigate such negative outcomes, marketers increasingly rely on native advertising formats such as sponsored blog posts and influencer content. However, growing ethical and legal concerns have led to regulatory measures in both the U.S. and EU requiring the disclosure of sponsored content (Karagür et al. 2022). These regulations aim to promote transparency, but they also raise concerns among practitioners who fear that transparency might undermine advertising effectiveness.

Marketers operate in a tension between regulatory requirements mandating disclosure and the desire to maintain the persuasive effectiveness of their advertising. While transparency is intended to empower consumers, many marketers fear that disclosure could undermine persuasion by triggering negative consumer responses. Hence, this article addresses the question: Does transparency necessarily weaken persuasion, or can it mitigate the negative effects of attitudinal PK and improve attitudes toward the persuasion agent?

Despite extensive research on PK and reactance in advertising, two critical gaps remain. First, although reactance theory suggests that PK activates reactance, which in turn influences consumer responses, most studies measure reactance as a single attitudinal or behavioral outcome (Ratcliff 2021). This outcome-only approach obscures the psychological mechanisms through which PK operates, particularly the roles of emotional (anger), cognitive (negative thoughts), and motivational (threat to freedom) components of reactance. Second, while disclosure is now legally mandated, little is known about how transparency—understood as a consumer's perception of persuasive intent—moderates the

PK–reactance–attitude pathway. Prior work often treats disclosure and transparency as interchangeable, despite growing conceptual distinctions between the two (Campbell and Evans 2018).

This research addresses these gaps in two ways. Conceptually, it introduces the notion of persuasion transparency, defined as consumers' understanding of both the persuasive mechanism and the agent's intent. This expands on basic disclosure, which merely signals the presence of advertising. Empirically, the study investigates how persuasion transparency (versus disclosure) shapes attitudinal PK and its downstream consequences for reactance, attitudes, and behavioral intentions. By separately examining the three core dimensions of psychological reactance—threat to freedom, anger, and negative cognitions—this research offers a more nuanced understanding of how transparency moderates the persuasion process. Two experimental studies in distinct digital contexts (blog and Instagram post) further assess whether the effects of transparency generalize across formats.

THEORETICAL BACKGROUND

The Effect of Persuasion Knowledge on Agent Attitude Mediated by Reactance

PK activation leads consumers to evaluate persuasive attempts more critically, often resulting in lower attitudes toward the persuasion agent and diminished behavioral intentions (Eisend and Tarrahi 2022). While conceptual PK refers to recognizing persuasive intent, attitudinal PK captures consumers' evaluations of the appropriateness of that intent and is thus more closely linked to attitudinal and behavioral outcomes (Van Reijmersdal et al. 2023). This research focuses on attitudinal PK, as it reflects the evaluative responses central to persuasion coping strategies (Friestad and Wright 1994).

These responses are commonly driven by psychological reactance—a motivational state triggered by perceived threats to autonomy (Brehm 1966). Reactance theory suggests that consumers resist persuasion to restore freedom, which can result in boomerang effects such as attitude reversal or message rejection. Within the PKM, coping is conceptually neutral, but in practice, it often manifests in negative responses, especially when the persuasion agent is perceived as manipulative (Campbell and Kirmani 2008).

Reactance is typically conceptualized along three dimensions: threat to freedom, anger, and negative cognitions. Threat to freedom is viewed as the primary trigger, but emotional and cognitive components may operate independently or in parallel (Dillard and Shen 2005; Ratcliff 2021). Investigating these dimensions separately allows for a deeper understanding

of the PK–reactance mechanism. The incorporation of the emotional dimension into this process echoes Campbell and Kirmani's (2008) call to address the lack of research on the emotional consequences of PK. While the PKM emphasizes knowledge, they argue that activating persuasion, agent, and topic knowledge is also likely to influence emotional responses. Despite these early observations, empirical research on the emotional outcomes of PK remains limited.

While disclosure can trigger conceptual PK by making advertising intent visible, it does not guarantee transparency. Transparency requires that consumers not only recognize but also understand the persuasive mechanism and intent. This distinction is critical for identifying how different forms of transparency may moderate the PK–reactance–attitude pathway.

Degrees of Transparency in Persuasion Research

Legally required disclosure aims to establish transparency for consumers, highlighting the need to examine both terms closely. The Oxford dictionary defines disclosure as "the act of making something known or public that was previously secret or private," whereas transparency refers to "the quality of something, such as a situation or an argument, that makes it easy to understand" (Oxford University Press n.d.). These definitions suggest a crucial distinction: disclosure is an agent-driven action, whereas transparency is a consumer-centered outcome. The phrase "the act of making" in the definition of disclosure emphasizes the persuasion agent's role in providing information, whereas "easy to understand" in the definition of transparency highlights the consumer's ability to process it. Additionally, "the quality of something" implies that disclosure alone does not guarantee transparency; instead, the way information is presented determines whether consumers perceive it as clear and meaningful. Thus, while disclosure is a prerequisite for transparency, factors such as clarity, prominence, and contextual relevance influence whether it effectively enhances consumer understanding (Boerman, van Reijmersdal, and Neijens 2012).

Research on persuasion and advertising has increasingly shifted its focus from disclosure to transparency. While most studies have examined the effects of various disclosure types (Boerman, Van Reijmersdal and Neijens 2014, 2015; Evans et al. 2017; Wojdysnki 2016), conclusions about transparency are often drawn on the basis of these findings (e.g. Boerman and Müller 2022; Evans, Wojdynski and Hoy 2019; Lou et al. 2020). However, only a limited number of studies have explicitly investigated and empirically measured transparency. Among them, research has demonstrated that disclosure enhances

transparency (Campbell and Evans 2018; De Cicco et al. 2021; Krouwer, Poels, and Paulussen 2020; Van Reijmersdal et al. 2023). These studies employ the sponsorship transparency scale by Wojdynski, Evans, and Hoy (2018), which defines sponsorship transparency as the extent to which an advertisement makes its commercial nature and sponsor clearly identifiable. This type of disclosure leads to a basic level of transparency that is reflected in ad recognition, often described as conceptual PK (e.g., Van Reijmersdal et al. 2023).

Campbell and Evans (2018) extend the concept of sponsorship transparency, arguing that transparency reflects the perception of advertising elements after an ad has been recognized as such. Thus, transparency encompasses not only the disclosure of information but also the perception and understanding of the underlying persuasive intent. This perspective represents a shift toward the broader definition of transparency found in public discourse. It also aligns with public policy research, where transparency is defined as the ease with which individuals can identify the mechanism behind a behavioral intervention (Gold et al. 2023). Furthermore, research on disclosing commercial intent has shown positive effects on consumer attitudes (Hwang and Jeong 2016; Krouwer et al. 2020) and purchase intentions (De Cicco et al. 2021; Woodroof et al. 2020), reinforcing the importance of transparency in fostering more informed and receptive consumer responses.

Within the PKM framework, transparency implies that persuasion targets should easily recognize that they are being persuaded, understand the methods used, and comprehend the persuader's underlying motives. These three levels of understanding are encapsulated in the concept of PK, which "helps [consumers] identify how, when, and why marketers try to influence them" (Friestad and Wright 1994, p. 1).

Building on this foundation, we define persuasion transparency as consumers' understanding of both the persuasive mechanism and the underlying intent behind the persuasion attempt. We distinguish this concept from disclosure, which refers to the agent's act of signaling the presence of persuasion—for instance, through labels such as "sponsored" or "product placement" (Karagür et al. 2022). Persuasion transparency, by contrast, extends beyond basic disclosure by enabling consumers to infer the how and why of a persuasion attempt, thus activating all three components of PK (Figure 9).

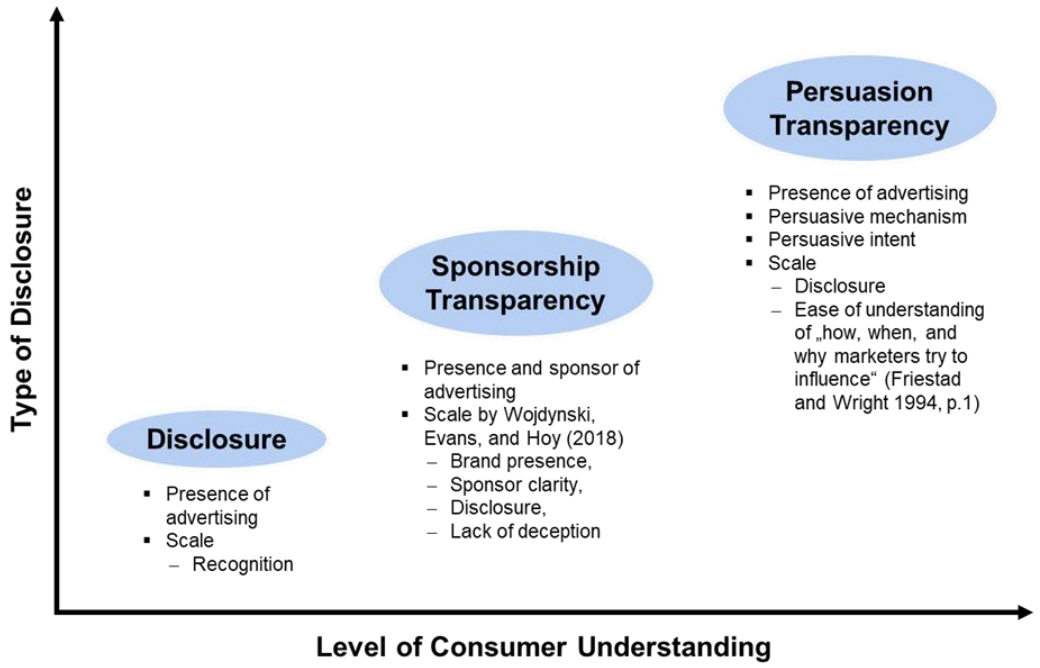

Figure 9: A Conceptual Framework of Disclosure and Transparency in Persuasion Research.

Moderating Role of Transparency in the PK-Reactance Process

Transparency plays a crucial role in reducing negative consumer responses such as reactance (Beckert et al. 2020; Pergelova and Hachey 2023) while fostering positive marketing outcomes. Over time, consumers value transparency because it allows them to recognize and understand persuasive intent, supporting autonomous decision-making (Campbell and Evans 2018; Lou 2022). More specifically, transparency can moderate reactance by legitimizing persuasion attempts, thereby mitigating negative consumer responses triggered by PK (Jung and Heo 2019; Pergelova and Hachey 2023). Brehm (1966) posited that reactance can be reduced through justification and legitimation, which aligns with the function of transparency in clarifying why and how persuasion is used. Transparency supports attitudinal PK use by explicitly disclosing that an advertisement is persuasive, the mechanisms it employs, and the marketer's intent. This form of disclosure prevents consumers from perceiving persuasion as unfair or manipulative, reducing the perceived threat to their freedom of choice and, consequently, their motivation to resist. Thus, we hypothesize the following:

H1: Persuasion transparency (vs. disclosure) mitigates the effect of attitudinal PK on reactance, specifically on (a) threat to freedom, (b) anger, and (c) negative cognitions.

The Effects of Transparency on Attitude and Behavioral Intentions

By reducing reactance, transparency can indirectly improve evaluations of the persuasion agent and strengthen behavioral intentions. This assumption aligns with the core mechanism of the PKM, in which consumer responses are shaped not only by the recognition of persuasive intent but also by how they cope with it. Lower levels of perceived threat, anger, and negative cognitions foster more favorable attitudes toward the persuasion agent, which in turn increase the likelihood of compliant behavior.

This indirect effect is particularly relevant in contexts such as influencer marketing, where transparent communication may reinforce perceptions of authenticity and legitimacy. In such cases, transparency does not necessarily weaken persuasion—it can enhance it by supporting consumer autonomy and reducing resistance. Therefore, we hypothesize the following:

H2: Persuasion transparency (vs. disclosure) weakens the indirect effect of attitudinal PK on attitude toward the persuasion agent via reactance.

H3: Persuasion transparency (vs. disclosure) weakens the indirect effect of attitudinal PK on behavioral intentions via attitude toward the persuasion agent.

Figure 10 illustrates the proposed model, including the moderating role of persuasion transparency.

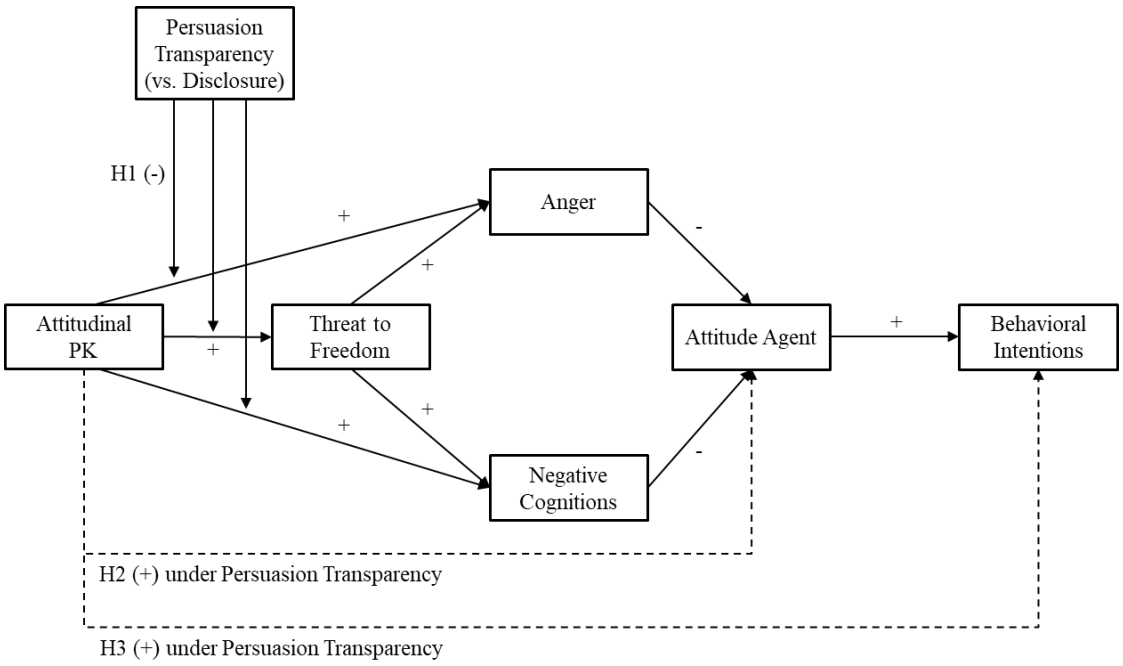

Figure 10: Conceptual Model and Hypotheses

STUDY 1 – BLOG

Procedure and Participants

We conducted an online experiment (N = 185) via Prolific and paid participants USD 1.70 for participation. We required participants to be native German speakers to ensure comprehensibility. Building on Amarnath and Jaidev's (2021) suggestion that reactance should be examined in more diverse samples to enhance generalizability, this study employed a Prolific sample rather than relying solely on university students. By incorporating a broader demographic range, this approach improves the external validity of the findings and accounts for potential differences in consumption patterns and psychological processing across age and gender groups.

In the experiment, participants were introduced to the scenario of using their smartphones to search the web for travel essentials for an upcoming trip. They were then exposed to an article on a travel blog that promoted a power bank via an affiliate link. The between-subjects design included a disclosure and a persuasion transparency condition. Participants were randomly assigned to one of the two conditions via Qualtrics. Due to legal and platform-specific disclosure requirements, we did not include a control condition without any disclosure, as it's complete absence would violate current regulations and reduce ecological validity. A pretest (N = 92) confirmed that the persuasion transparency condition was perceived as significantly more transparent than the disclosure version. After viewing the stimulus for at least fifteen seconds, participants completed a questionnaire on their own device (laptop, tablet, or smartphone).

We excluded participants from the initial sample for two reasons. First, 1 participant failed the attention checks. Second, 5 participants guessed the hypothesis. Specifically, their open-ended responses reflected assumptions about the interaction of transparency and emotional responses on attitudes, which aligned too closely with the proposed mediation process and led to their exclusion. After these exclusions our sample for analysis consisted of n = 174 participants (M_{age} = 37.12, 43.1 % female, 55.2 % male, 1.1 % nonbinary, disclosure n = 86, persuasion transparency n = 88). All participants provided informed consent prior to the study.

Stimulus Material

The blog article in the disclosure condition included the regulatory minimum of disclosure for advertising. The affiliate links in the article were marked with an asterisk that was explained at the bottom of the article stating "* This article contains affiliate links." In the

persuasion transparency condition, participants read the same blog article with a larger and more prominent disclosure element beyond the legal requirements. It included an asterisk after the affiliate link and a note in an orange-colored box in the middle of the article: "Note: This article contains affiliate links. If you click on the links marked with * and buy something, we will receive a small commission. We use this type of product recommendation to finance our travel blog" (Appendix A).

Measures

We measured attitudinal PK (M = 3.764, SD = 1.578, α = .909) as inappropriateness with two items adopted from Campbell (1995). On a 1 (Strongly disagree) to 7 (Strongly agree) scale we asked for the agreement with the statement "The way this blog article tries to persuade people seems acceptable to me" (reverse coded for analysis). On a semantic differential scale from 1 (unfair) to 7 (fair), the participants rated the statement "I think that this blog article is unfair/fair."

The reactance dimensions were adapted from Dillard and Shen (2005) and include a threat-to-freedom scale, an anger scale, and negative cognitions. The freedom threat scale (M = 3.328, SD = 1.218, α = .746) consists of four items measured on a seven-point Likert scale with the following items: "The blog article tried to make a decision for me", "The blog article tried to pressure me", "The blog article threatened my freedom to choose", and "The blog article tried to manipulate me". The anger scale originally consists of four items, of which we used two due to similarities after translation. We asked the participants to rate their agreement with the statements "The blog article made me feel annoyed/angry" on a seven-point Likert scale (M = 3.667, SD = 1.789, α = .895). Negative cognitions were assessed via a thought protocol by asking participants "Did you notice anything while looking at the blog article? Please briefly name some spontaneous thoughts, conspicuous features, impressions or feelings that went through your mind while watching the post" (Dillard and Shen 2005, Quick 2012). Two coders analyzed the responses via a four-step procedure Dillard and Shen (2005). Intercoder reliability for negative thought units was κ = .96 indicating almost perfect strength of agreement (Landis and Koch 1977).

Attitude toward the agent (M = 3.889, SD = 1.605, α = .968) was measured with the following items on a seven-point semantic differential adapted from Spears and Singh (2004): Negative/Positive, Unconvincing/Convincing, Dislike/Like, Unlikeable/Likeable, Insincere/Sincere, Incredible/Credible.

Behavioral intentions (M = 3.218, SD = 1.585, α = .882) were measured with the following items on a seven-point Likert scale adapted from Rodgers (2003): "I would like more

information about the power bank shown in the blog article", "I would like to try out the power bank", "I would probably buy the power bank", and "I would like to read more articles from the bloggers."

Analysis: Partial Least Square and Multigroup Analysis

We employed partial least square structural equation modeling (PLS-SEM) with SmartPLS version 4.1.0.9 (Ringle, Wende, and Becker 2024) to analyze our data, for two main reasons. First, PLS-SEM handles formative measurement models more flexibly than covariance-based SEM does, making it ideal for our study, where all the constructs are conceptualized formatively (Hair et al. 2012). Second, PLS-SEM is robust to deviations from normality, which is relevant given the likely skewed distribution of our data, a common occurrence in marketing studies due to the numerous factors that influence consumer behavior (Cassel, Hackl, and Westlund 1999; Reinartz, Haenlein, and Henseler 2009).

For the analysis of group differences for our disclosure and persuasion transparency conditions, we performed a multigroup analysis (MGA). To ensure valid results, a measurement invariance of composites (MICOM) analysis was conducted following the three-step MICOM procedure of Hair et al. (2022). Configural invariance was assumed because of the identical measurement instruments used across the experimental groups (disclosure vs. persuasion transparency). In Step 2, compositional invariance was supported for all the constructs. Step 3 confirmed equal means and variances across groups for all variables. Therefore, all the variables were included in the MGA analysis.

An independent sample t-Test showed no significant difference for PK means between the transparency conditions ($M_{disclosure} = 3.72$, $SD_{disclosure} = 1.59$, $M_{transparency} = 3.81$, $SD_{transparency} = 1.58$, $t(172) = -.406$, $p = .343$), indicating that any moderation effects observed in the subsequent analysis are unlikely to be confounded by baseline differences in PK.

Pretest Manipulation Check

A pretest with 92 students ($M_{age} = 29.09$, 57.6 % female, 42.4 % male, disclosure $n = 48$; persuasion transparency $n = 44$) confirmed the differences in perceived transparency between both conditions of the blog article ($M_{disclosure} = 4.21$ versus $M_{transparency} = 6.27$, $t(90) = -6.074$, $p < .001$). We measured transparency on a 1 (Strongly disagree) to 7 (Strongly agree) scale with the item "The advertising in the blog article as disclosed.". Additionally, we measured persuasion transparency as the understanding of disclosed information with three items: "I could easily understand what the blog article was

influencing me to do," "I could easily understand how the blog article influences me," and "I could easily understand why the blog article influences me." The scale ranged from 1 (strongly disagree) to 7 (strongly agree). The results confirmed the differences in perceived persuasion transparency of the blog article ($M_{disclosure}$ = 5.18 versus $M_{transparency}$ = 6.00, $t(90)$ = -2.583, p = .006).

These results support our approach of using disclosure variation to elicit different levels of perceived transparency. Rather than treating transparency as a function of the presence or number of disclosures, we conceptualize it as a consumer-centered outcome shaped by how disclosure is presented and understood.

Results: Hypothesis Testing

The PLS results (Table 5 and Figure 11) show that for each of the two conditions, PK significantly increases threat to freedom ($\beta_{disclosure}$ = .600, p < .001, f^2 = .562; $\beta_{transparency}$ = .668, p < .001, f^2 = .804), anger ($\beta_{disclosure}$ = .767, p < .001, f^2 = 1.562; $\beta_{transparency}$ = .706, p < .001, f^2 = .764) and negative cognitions ($\beta_{disclosure}$ = .513, p < .001, f^2 = .255; $\beta_{transparency}$ = .279, p = .043, f^2 = .053). These results confirm the expected positive relationships between PK and reactance components across both conditions. However, the MGA (Table 5) revealed no significant differences in the PK → reactance paths between the two conditions. Thus, H1a–c are not supported.

Regarding H2, we examined the indirect effects of attitudinal PK on attitude toward the persuasion agent via reactance. A significant indirect effect emerged via anger in the persuasion transparency condition ($\beta_{transparency}$ = -.277, p = .005), while other paths via negative cognitions and threat to freedom were nonsignificant. The direct effect of PK on attitude remained significant in the transparency condition ($\beta_{transparency}$ = −.425, p = .004, f^2 = .235), indicating partial mediation. Furthermore, the total effect of PK on attitude was significantly weaker under transparency ($\beta_{disclosure}$ = -.912, p < .001, $\beta_{transparency}$ = -.792, p = .010), supporting H2.

For H3, the model showed that attitude toward the agent positively predicted behavioral intentions in both conditions ($\beta_{disclosure}$ = .790, p < .001, f^2 = 1.657; $\beta_{transparency}$ = .675, p < .001, f^2 = .835). The indirect effect of PK on behavioral intentions via attitude was significantly weaker under transparency ($\beta_{disclosure}$ = -.582, p < .001, $\beta_{transparency}$ = -.287, p = .025) and the negative total effect of PK on behavioral intentions was attenuated under persuasion transparency ($\beta_{disclosure}$ = -.720, p < .001, $\beta_{transparency}$ = -.535, p = .019). These results provide support for H3.

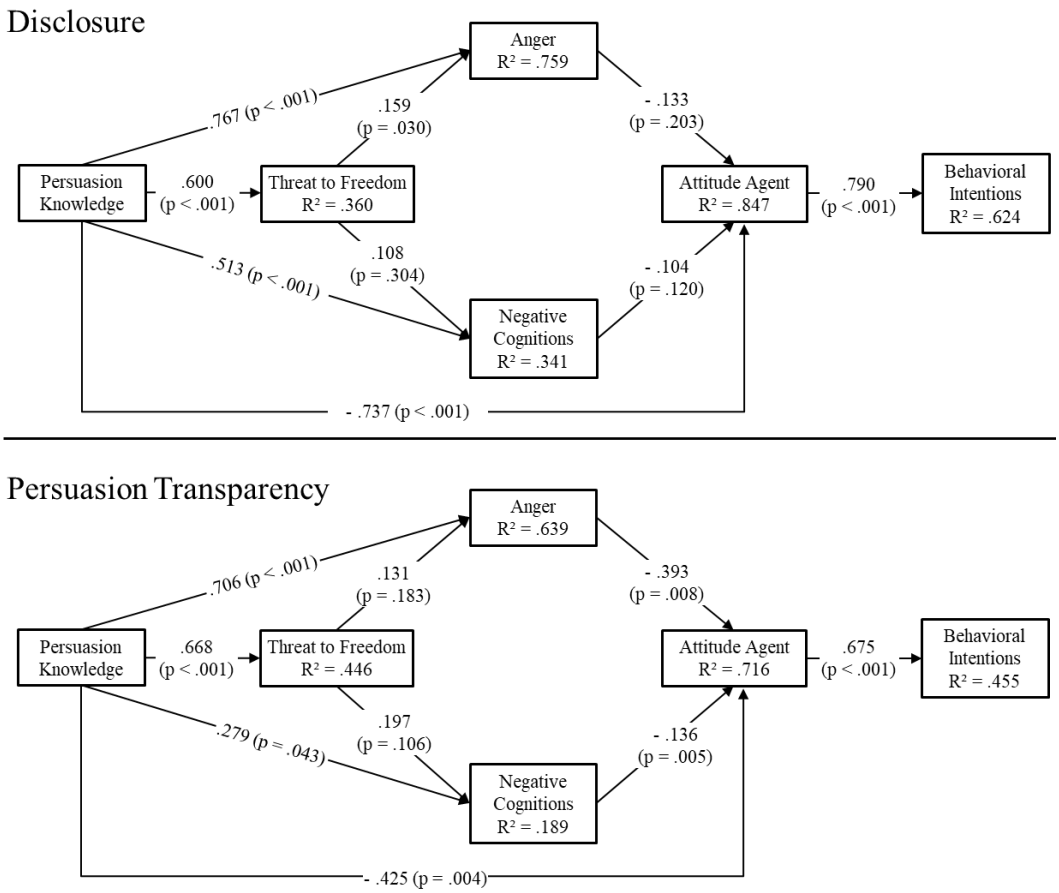

Figure 11: Study 1 PLS Path Model Results for the Multigroup Analysis between Disclosure (n = 86) and Persuasion Transparency Condition (n = 88).

Table 5: Study 1 PLS-SEM Results for the Multigroup Analysis between Disclosure (n = 86) and Persuasion Transparency condition (n = 88).

Hypothesis	Paths	β Disclosure	β Persuasion Transparency	Permutation p Value
H1a (-)	PK → TtF	0.600***	0.668***	0.234
H1b (-)	PK → Anger	0.767***	0.706***	0.242
H1c (-)	PK → NC	0.513***	0.279*	0.091
-	PK → Attitude	-0.737***	-0.425**	0.053
H2 (-)	PK → Anger → Attitude	-0.102	-0.277**	0.122
H2 (-)	PK → NC → Attitude	-0.054	-0.038	0.322
H2 (-)	PK → TtF → Anger → Attitude	-0.013	-0.034	0.263
H2 (-)	PK → TtF → NC → Attitude	-0.007	-0.018	0.229
H2 (-)	Total: PK → Attitude	-0.912***	-0.792***	0.010
H3 (-)	PK → Attitude → BI	-0.582***	-0.287**	0.025
+	Attitude → BI	0.790***	0.675***	0.068
H3 (-)	Total: PK → BI	-0.720***	-0.535***	0.019

Note: PK = persuasion knowledge; NC = negative cognitions; TtF = threat to freedom; BI = behavioral intentions; *p < .05; **p < .01; ***p < .001

DISCUSSION STUDY 1

The results revealed a positive effect of attitudinal PK on all three reactance components. Anger emerged as the most strongly affected dimension, which indicates that emotional responses play a central role in how consumers react to perceived persuasion. Although Reactance Theory typically identifies threat to freedom as the primary trigger of resistance (Dillard and Shen 2005), the present findings suggest that in digital marketing contexts, particularly those in which persuasion is subtly embedded in editorial or personal content, emotional reactance may be more influential than perceived threat. This interpretation is consistent with recent work (e.g., Eisend and Tarrahi 2022) that highlights the importance of affective processes in consumer resistance.

While persuasion transparency did not suppress reactance at the point of activation, it weakened the indirect effect of PK on attitude toward the persuasion agent via reactance, offering partial support for H2. Specifically, anger emerged as the most consistent mediator, suggesting that emotional resistance is a key driver of attitudinal outcomes in contexts involving covert or personalized marketing. Although individual indirect paths

through threat to freedom and negative cognitions were nonsignificant, the total effect of PK on attitudes was significantly weaker under persuasion transparency. This pattern suggests that transparency attenuates the cumulative impact of PK on attitudes, even if it does not do so through a single dominant mediating path. These results point to a reframing effect of transparency: consumers still experience reactance, but its influence on downstream evaluations is softened. In this way, transparency may shift how persuasion is processed rather than eliminating resistance altogether.

Persuasion transparency reduced the total negative effect of PK on behavioral intentions. This effect appears to operate indirectly via attitudes toward the persuasion agent, consistent with previous research that positions attitude as a central driver of behavioral outcomes. The path from attitude to behavioral intention remained strong in both conditions, but the indirect effect of PK on behavioral intentions via attitude was significantly weaker under transparency. These findings reinforce the importance of transparency not only for shaping evaluations of the persuader but also for mitigating resistance-driven avoidance behaviors. In short, while transparency may not stop consumers from recognizing and reacting to persuasive intent, it may help preserve the persuasive impact by buffering against negative behavioral consequences.

STUDY 2 – SOCIAL MEDIA PLATFORM INSTAGRAM

Study 2 was designed to examine whether the findings from Study 1 generalize to a different digital advertising context. Whereas Study 1 used a blog article with editorial characteristics, Study 2 tests the same conceptual model in a social media environment in which persuasion is embedded within personal and parasocial interactions. This design allows us to explore potential boundary conditions of persuasion transparency and to assess whether the dominance of emotional reactance observed in Study 1 also emerges in a platform characterized by influencer–follower relationships. Unlike Study 1, the goal of Study 2 is therefore not strict replication but contextual validation and identification of where transparency effects may vary across formats.

We selected Instagram because it reflects a highly personal and parasocial context in which persuasion is embedded in influencer communication. Unlike blog content, which is more editorial, social media content is often perceived as authentic and relational, making persuasion less overt. Prior research suggests that such contexts may evoke different forms of resistance, particularly when users experience a mismatch between expected authenticity and disclosed commercial intent (Evans et al. 2017).

Procedure and Participants

We conducted an online experiment (N = 300) via Prolific and paid participants USD 1.36 for participation. We required participants to be native German speakers to ensure comprehensibility. The study was pre-registered via AsPredicted and can be found at the following link: https://aspredicted.org/25mw-ny2r.pdf.

In the experiment, participants were introduced to the scenario of scrolling through their Instagram feed and watching a post of an influencer they were following. The between-subjects design of the experiment included a disclosure and persuasion transparency condition. The participants were randomly assigned to one of the two conditions via Qualtrics. After seeing the stimulus for at least twenty seconds, the participants completed the same questionnaire as in Study 1 on their own device.

We excluded participants from the initial sample for two reasons. First, 10 participants failed the attention checks. Second, 8 participants were excluded for guessing the hypothesis. Their responses indicated awareness of differences in the degree of transparency and its potential effects on the perception of the influencer, and behavioral intentions. All participants provided informed consent prior to the study. After these exclusions our sample for analysis consisted of n = 282 participants (M_{age} = 34.61, 57.1 % female, 41.5 % male, 1.4 % nonbinary, disclosure n = 143, persuasion transparency n = 139).

Stimulus Material

We designed two versions of an Instagram screenshot that differ in the level of transparency. The screenshots we created to look realistic and show a post by the fictitious influencer *simply.isa*, who promotes a digital calendar by the fictitious brand *gettingthingsdone* (Beckert et al. 2020). The Instagram post (Figure 12, left) displays a tablet with the calendar app open and some appointments and entries.

In the disclosure condition, the (translated) text below the picture reads: “simply.isa ad I'm starting the new year perfectly organized! I've been planning digitally for several years now & love it because it's so flexible! The calendar offers a lot of space for extensive planning, personal development & creative development. I can now clearly record all my goals, appointments, to-dos, notes, ideas & much more & adjust them at any time. The calendar is easy to use & just looks great! My absolute must-have for structure & organization that I don't want to do without anymore! #digitalplanning #organization

https://gettingthingsdone.com/shop/simplyisa". The only disclosure element is the note "ad" at the beginning of the text, which complies with EU legal requirements.

In the persuasion transparency condition (Figure 12, right), we added eight further disclosure elements that have been effectively instigated by other researchers (Amazeen and Wojdynski 2018; Boerman and Müller 2022; De Cicco, Iacobucci and Pagliaro 2021; De Jans et al. 2018; Wojdynski and Evans 2016): (1) the brand name as a partner next to the influencer's name "simply.isa and gettingthingsdone" at the top of the post and at the beginning g of the text, (2) the note "Advertisement" below the name, (3) a tag to the brand account in the picture, (4) a blue banner at the bottom of the picture that indicated a link and states: "Buy now – Paid partnership with @gettingthingsdone", (5) the note "PAID ADVERTISEMENT" at the beginning of the text, (6) the price of 3,99€ of the digital calendar in the text, and (7) a reference to the affiliate link and its explanation: "(*I will receive a commission on the purchase; there are no additional costs)." (De Veirman and Hudders 2020), (8) the hashtag "#paidpartnership".

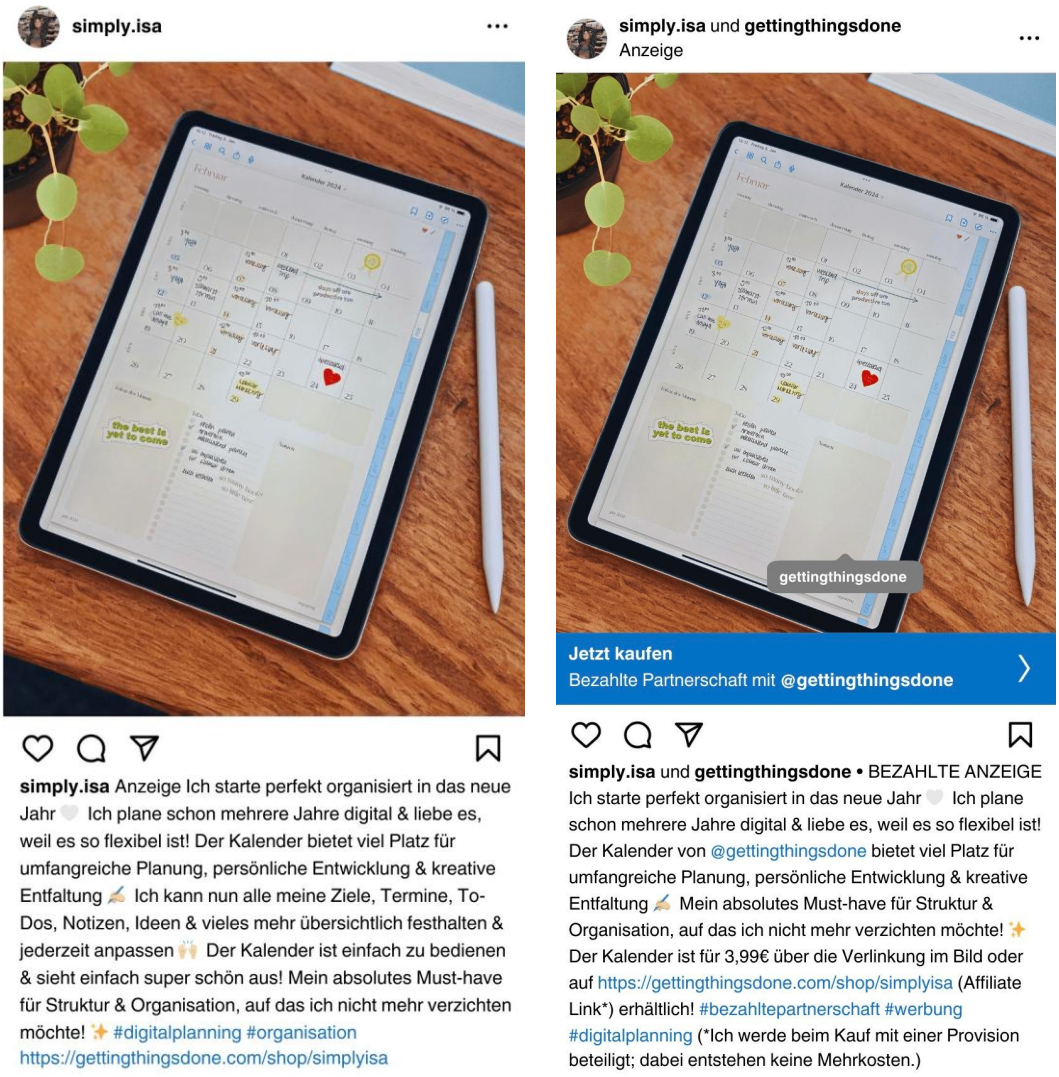

Figure 12: Instagram Screenshots for the Disclosure Condition (Left) and the Persuasion Transparency Condition (Right).

Measures

We used the same measures as in Study 1 for attitudinal PK ($M = 3.31$, $SD = 1.43$, $\alpha = .870$), threat to freedom ($M = 2.76$, $SD = 1.24$, $\alpha = .800$), anger ($M = 3.47$, $SD = 1.69$, $\alpha = .848$), negative cognitions ($\kappa = .97$), attitude toward the persuasion agent ($M = 3.75$, $SD = 1.35$, $\alpha = .940$), and behavioral intentions ($M = 2.49$, $SD = 1.38$, $\alpha = .894$).

Analysis: Partial Least Square and Multigroup Analysis

We employed PLS-SEM with SmartPLS version 4.1.0.9 (Ringle, Wende, and Becker 2024) to analyze our data. We performed an MGA including the MICOM procedure. For Step 1,

we assumed configural invariance due to the identical measures used across conditions. In Step 2, compositional invariance was supported for most constructs, but not for anger, making it unsuitable for group comparisons. To further understand the lack of measurement invariance for anger, we examined variable correlations across conditions. The correlation on anger with behavioral intentions varied significantly between groups ($r_{disclosure}$ = -.415, $r_{transparency}$ = -.530, rΔ = .115). This difference indicate that anger was interpreted differently depending on transparency conditions, explaining its failure in MICOM Step 2. Step 3 confirmed equal means and variances across groups for all remaining variables. Therefore, all the variables, beside anger, were included in the MGA analysis.

An independent sample t-Test showed no significant difference for PK means between the transparency conditions ($M_{disclosure}$ = 3.41, $SD_{disclosure}$= 1.48, $M_{transparency}$ = 3.20, $SD_{transparency}$ = 1.39, $t(180) = 1.224$, $p = .222$), indicating that any moderation effects observed in the subsequent analysis are unlikely to be confounded by baseline differences in PK.

Pretest Manipulation Check

A pretest with 97 students (M_{age} = 21.77, 46.4 % female; disclosure n = 47; persuasion transparency n = 50) confirmed the differences in perceived transparency between conditions of the influencer post ($M_{disclosure}$ = 3.77 versus $M_{transparency}$ = 5.68, $t(95) = -6.145$, $p < .001$). We measured transparency on a 1 (Strongly disagree) to 7 (Strongly agree) scale with the item “The influencer disclosed the advertising transparently.”

Results: Hypothesis Testing

The PLS results (Figure 13 and Table 6) show that for each of the two conditions, PK significantly increases threat to freedom ($\beta_{disclosure}$ = .519, $p < .001$, f^2 = .394; $\beta_{transparency}$ = .638, $p < .001$, f^2 = .688), anger ($\beta_{disclosure}$ = .519, $p < .001$, f^2 = .488; $\beta_{transparency}$ = .601, $p < .001$, f^2 = .523), and negative cognitions ($\beta_{disclosure}$ = .288, $p = .001$, f^2 = .065; $\beta_{transparency}$ = .346, $p < .001$, f^2 = .086). These results confirm the expected positive relationships between PK and reactance components across both conditions. However, the MGA (Table 6) revealed no significant differences in the PK → reactance paths between the two conditions. Thus, H1a–c are not supported.

The results show partial support for H2, because indirect effects for PK on attitude via reactance, were observed via anger in both condition ($\beta_{disclosure}$ = -.192, $p < .001$; $\beta_{transparency}$ = -.287, $p < .001$) and via threat to freedom and anger ($\beta_{disclosure}$ = -.072, $p < .001$; $\beta_{transparency}$ = -.070, $p < .01$). Importantly, the direct effect of PK on attitude remains significant after including the anger mediator ($\beta_{disclosure}$ = -.494, $p < .001$, $\beta_{transparency}$ = -.359,

p = .067), indicating that the mediation via anger under persuasion transparency is partial. Additionally, the total effect of PK on attitude ($\beta_{disclosure}$ = -.783, p < .001, $\beta_{transparency}$ = -.741, p = .230), shows no significant difference, indicating that transparency does not affect the broader impact of PK on attitudinal outcomes. Other indirect paths, including those via NC and threat to freedom, were not significant.

For H3, the model showed that attitude toward the agent positively predicted behavioral intentions in both conditions ($\beta_{disclosure}$ = .643, p < .001, f^2 = .705; $\beta_{transparency}$ = .605, p < .001, f^2 = .577). The results show no support for H3, as the effects of PK on behavioral intentions show no significant difference between both conditions for indirect ($\beta_{disclosure}$ = -.318, p < .001, $\beta_{transparency}$ = -.217, p = .065) or total effects ($\beta_{disclosure}$ = -.503, p < .001, $\beta_{transparency}$ = -.448, p = .243).

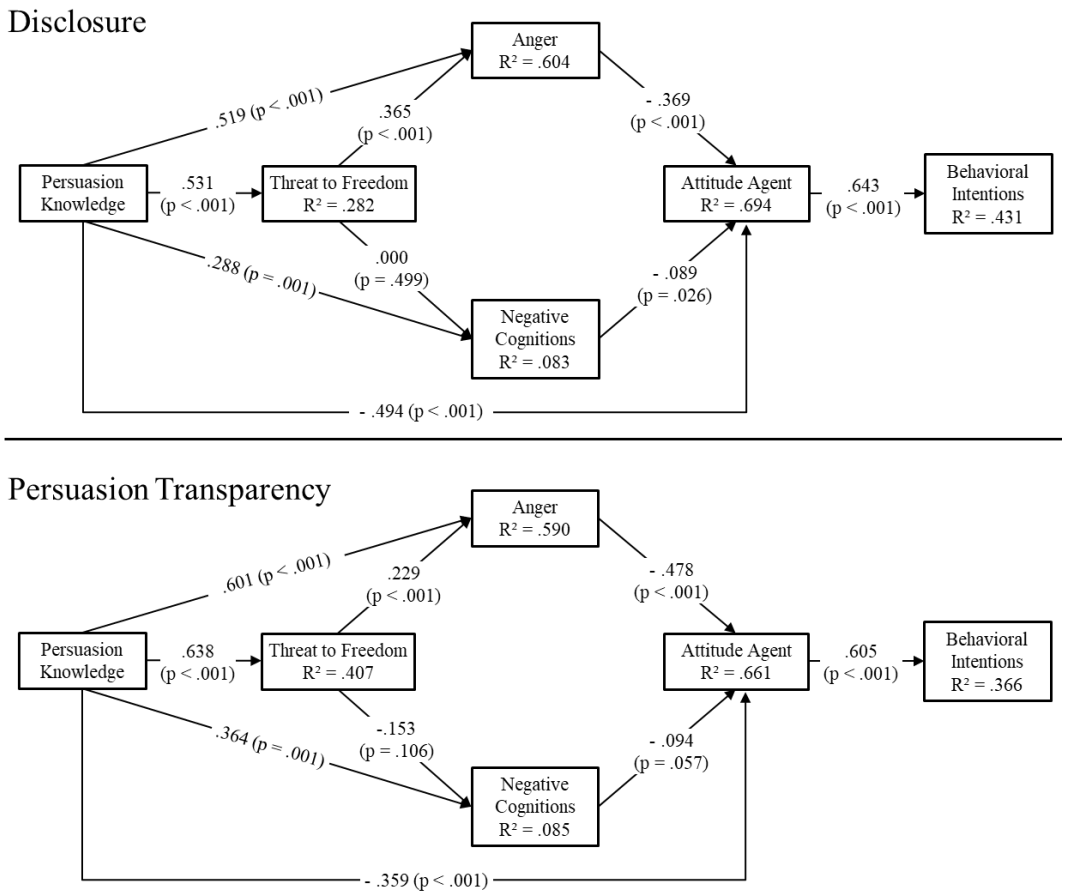

Figure 13: Study 2 PLS Path Model Results for the Multigroup Analysis between Disclosure (n = 143) and Persuasion Transparency Condition (n = 139).

Table 6: Study 2 PLS-SEM Results for the Multigroup Analysis between Disclosure (n = 143) and Persuasion Transparency Condition (n = 139).

Hypothesis	Paths	β Disclosure	β Persuasion Transparency	Permutation p Value
H1a (-)	PK → TtF	0.531***	0.638***	0.114
H1b (-)	PK → Anger	0.519***	0.601***	0.183 !
H1c (-)	PK → NC	0.288***	0.346***	0.274
-	PK → Attitude	-0.494***	-0.359***	0.067
H2 (-)	PK → Anger → Attitude	-0.192***	-0.287***	0.072 !
H2 (-)	PK → NC → Attitude	-0.026	-0.034	0.398
H2 (-)	PK → TtF → Anger → Attitude	-0.072***	-0.070**	0.450 !
H2 (-)	PK → TtF → NC → Attitude	-0.000	-0.009	0.158
H2 (-)	Total: PK → Attitude	-0.783***	-0.741***	0.230
H3 (-)	PK → Attitude → BI	-0.318***	-0.217***	0.065
+	Attitude → BI	0.643***	0.605***	0.310
H3 (-)	Total: PK → BI	-0.503***	-0.448***	0.243

Note: PK = persuasion knowledge; NC = negative cognitions; TtF = threat to freedom; BI = behavioral intentions; **p < .01; ***p < .001; ! = failed MICOM analysis

DISCUSSION STUDY 2

The results show a positive effect of PK on all three reactance elements, replicating the findings of Study 1. PK had the strongest influence on threat to freedom. As in Study 1, PK also exerted direct effects on anger and negative cognitions. In the context of influencer marketing, this may reflect consumers' sensitivity to perceived inauthenticity when persuasion attempts become apparent. Supporting this, the specific indirect effects of PK on attitudes are weaker when threat to freedom is included as a serial mediator, suggesting the presence of additional explanatory mechanisms (e.g., Duffek et al. 2025; Steils, Martin, and Toti 2022).

Furthermore, the results show that the effect of PK on attitude is partially mediated by anger as reactance component. These findings highlight the importance of context-specific reactance mechanisms, particularly in social media marketing environments, where emotional engagement is critical to user interaction. Given that influencer marketing relies

heavily on personalized and trust-based communication, the strong role of anger suggests that inappropriate persuasion attempts in these settings trigger more affect-driven resistance than cognitive resistance. This aligns with prior findings that emotional responses, rather than deliberative processing, frequently drive consumer attitudes toward influencers and social media advertisements (e.g., Youn and Kim 2019).

MICOM analysis is essential for ensuring that differences in MGA reflect substantive effects rather than measurement inconsistencies. In Step 2, measurement invariance was not established for anger, indicating anger functions differently across conditions. Under persuasion transparency, anger had a greater negative relationship with behavioral intentions. Given the failed measurement invariance for anger, these differences should be interpreted with caution and warrant further investigation rather than substantive conclusions about transparency effects on anger.

GENERAL DISCUSSION

The two presented studies contribute to persuasion research in two ways. First, we examined how the negative effects of attitudinal PK on attitudes toward the persuasion agent are transmitted through distinct components of psychological reactance—namely, threat to freedom, anger, and negative cognitions. Second, we investigate how greater transparency of a persuasion attempt influences this effect, especially if persuasion transparency mitigates negative effects on attitudes toward the agent and behavioral intentions.

The findings of Study 2 replicate the reactance effects observed in Study 1, confirming that PK drives all three reactance components. Similar to Study 1, the results indicate that anger is a mediator of the effect of PK on attitudes and that PK also directly influences attitudes, reinforcing the existence of alternative pathways in the reactance process.

Contextual Differences in Digital Advertising Environments

Despite these conceptual similarities, the effects of PK on both anger and negative cognitions were notably weaker in the social media setting than in the blog context in Study 1. These findings are in line with research by Germelmann et al. (2020), who reported that ad-medium incongruency increases negative cognition and evaluation. Although not manipulated, we expect our Study 1 stimulus with a power bank promotion on a travel blog to be less congruent than a digital calendar promoted on Instagram (Study 2).

Moreover, PK levels were descriptively higher in the blog context across both conditions. A direct comparison of PK means across studies revealed no significant difference for disclosure. However, under persuasion transparency, PK was significantly higher in the blog context than in the Instagram context (M_{blog} = 3.81, SD = 1.58 versus $M_{Instagram}$ = 3.20, SD = 1.39), $t(167.75) = 2.97$, $p = 0.003$). This suggests that transparency has different implications across digital formats: while social media users are accustomed to promotional content from influencers and may not expect full transparency, blog readers tend to assume more editorial independence and authenticity in blog content (Amazeen 2021; Hughes et al. 2019). When transparency is introduced in this context, it may disrupt these expectations, activating PK and provoking stronger reactance responses.

These findings underscore the importance of context in digital advertising. While transparency may mitigate negative effects in influencer marketing, its impact can be more complex in blog environments, where it may unintentionally heighten consumer resistance by violating expectations of informational neutrality.

Emotional Reactance in Persuasion Knowledge Processes

Our findings contribute to the PKM and reactance theory by demonstrating that PK triggers emotional reactance (anger) more strongly than cognitive reactance (negative cognitions) in digital marketing settings. This finding supports prior research showing that PK activation leads to resistance strategies that negatively impact attitudes toward the persuasion agent (Eisend and Tarrahi 2022; Van Reijmersdal et al. 2016). Notably, anger emerges as a consistent mediator across both studies, suggesting that consumers not only process persuasion cognitively but also respond affectively, particularly in environments where marketing is embedded in seemingly personal or editorial content.

These results also address the gap regarding the prolonged lack of research on the emotional consequences of PK (Campbell and Kirmani 2008; Eisend and Tarrahi 2022). The consistent mediating role of anger reinforces the need to integrate emotional responses into the PKM to fully capture consumer resistance. The influence of anger across both studies underscores that reactance in PK-driven contexts is substantially emotion driven, distinguishing it from other reactance domains, such as health communication, where threats to freedom play a more central role (Quick 2012).

More broadly, our findings emphasize that PK research should expand its focus beyond cognitive resistance to include emotions as key outcomes. As Friestad and Wright (1994) suggested, emotions constitute a critical component of the interpretive belief system underlying PK, shaping attitudes and behaviors in response to persuasion attempts. A

deeper understanding of anger and other emotional reactions can enhance theoretical models of consumer resistance and inform strategies to mitigate negative responses to persuasive communication.

Persuasion Transparency Mitigates Negative Persuasion Knowledge Outcomes

Across both studies, persuasion transparency mitigated the negative downstream effects of attitudinal PK on attitudes and behavioral intentions, even though it did not suppress the initial activation of reactance. In the blog context (Study 1), persuasion transparency was associated with higher PK and stronger emotional reactance. Yet, despite this heightened reactance, attitudes toward the persuasion agent and behavioral intentions were less negatively affected. This pattern suggests that transparency does not prevent consumers from recognizing or emotionally reacting to persuasion, but rather alters how these reactions translate into evaluative and behavioral outcomes.

Reactance theory posits that resistance is most consequential when persuasion is perceived as an unjustified threat to freedom (Brehm 1966). In our studies, persuasion transparency did not reduce perceived threat to freedom, but it also did not intensify it. This indicates that transparency may legitimize the persuasion attempt by clarifying its intent and mechanism, thereby preserving consumers' sense of autonomy. As a result, emotional responses such as anger may still occur, but they no longer carry the same motivational force to restore freedom through negative evaluations or behavioral avoidance. In other words, transparency appears to interrupt the typical PK–reactance–attitude pathway by weakening the link between emotional reactance and its downstream consequences.

Managerial Implications

This research offers practical insights for marketers, advertisers, and influencers navigating the growing demand for transparency in digital advertising. Across both studies, the results suggest that transparency—when designed to go beyond sponsorship disclosure and include information about both the persuasive mechanism and intent—can be implemented without harming persuasion effectiveness.

In the blog context (Study 1), persuasion transparency significantly reduced the negative impact of PK on consumer attitudes and behavioral intentions, indicating that transparent communication helps maintain credibility even in editorial-style environments. This is particularly valuable where audiences expect independence and authenticity. In contrast, in the influencer marketing context (Study 2), transparency did not significantly alter persuasion outcomes. However, this null effect is equally important: it shows that

transparency does not diminish persuasion effectiveness in social media settings, countering marketers' common concern that disclosure may trigger negative responses.

Importantly, although not directly measured, transparency may foster long-term consumer–influencer relationships by reinforcing perceptions of honesty and authenticity. Given rising consumer expectations and stricter regulations, brands and content creators can embrace more comprehensive forms of transparency—encompassing not only sponsorship but also persuasive intent and tactics—without compromising their strategic objectives. Transparency, if executed thoughtfully, can serve both ethical and persuasive goals.

Limitations and Future Research

While this study provides important insights into the role of transparency in mitigating the negative effects of PK, some limitations offer avenues for future research. First, the MICOM analysis revealed that anger did not meet measurement invariance across transparency conditions, suggesting that transparency may alter the way emotional responses—particularly anger—are formed and expressed. Future research should explore how transparency impacts emotional components of reactance more deeply and examine whether specific features of transparent communication (e.g., tone, format, language) systematically influence affective responses.

Second, although the present research focused on two digital advertising contexts—blogs and social media influencer posts—future studies could test the robustness of these findings in other digital formats such as advertorials, sponsored podcasts, or programmatic display ads. It would also be valuable to examine offline settings, such as point-of-sale promotions or traditional product placements, where disclosure practices may differ and consumer expectations of transparency are less defined.

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Appendix A: Study 1 Stimulus Material

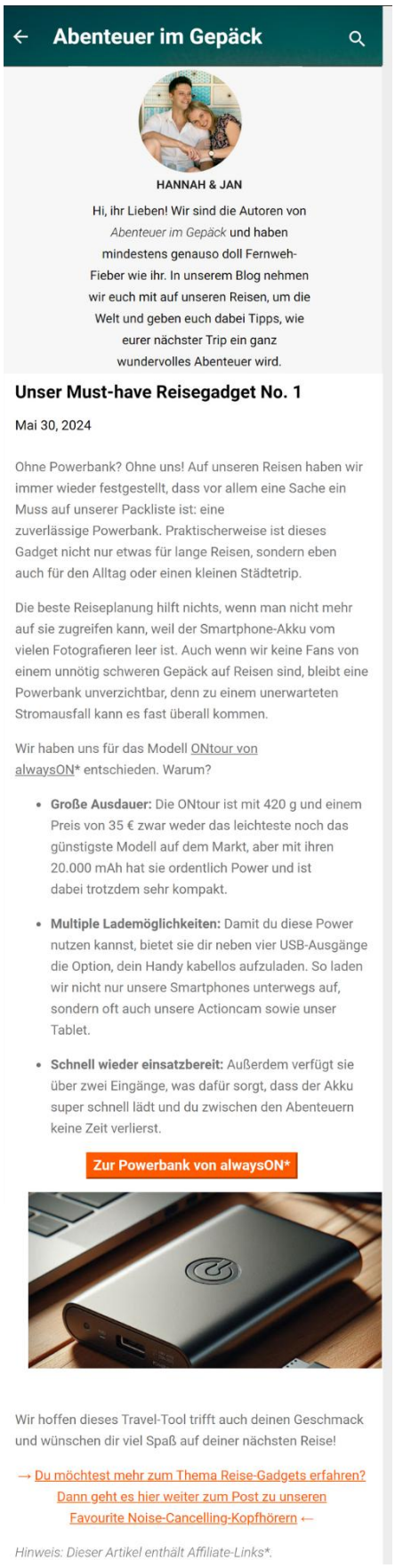
Disclosure:

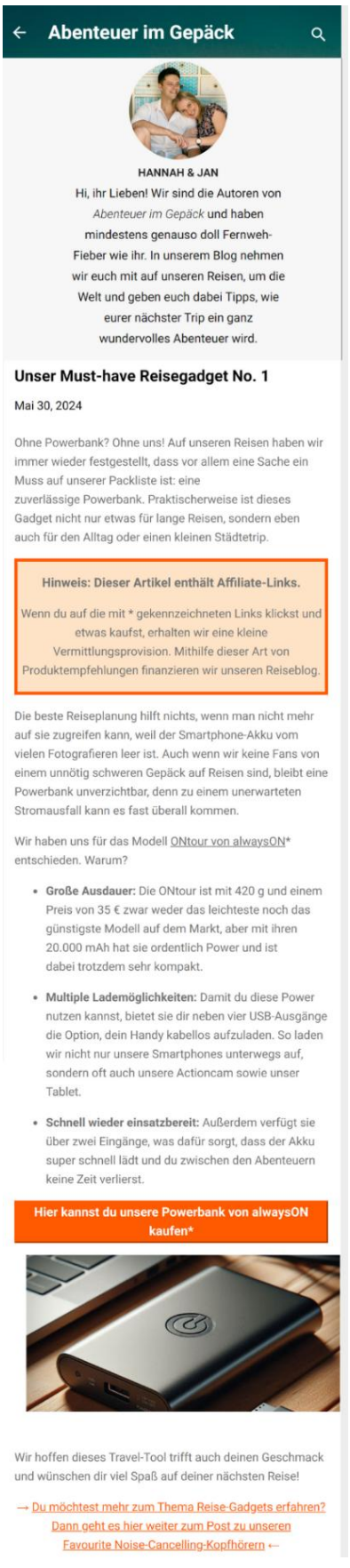
Asterisk after the affiliate link and note on the bottom with the explanation: * This article contains affiliate links.

Persuasion transparency disclosures:

Asterisk after the affiliate link and note in an orange-colored box in the middle of the article: “Note: This article contains affiliate links. If you click on the links marked with * and buy something, we will receive a small commission. We use this type of product recommendation to finance our travel blog.”

Mobile version of the blog with disclosure on the left and persuasion transparency on the right:





6. From Overlap to Clarity: A Context-Sensitive Approach to Measuring Transparency, Persuasion Knowledge, and Reactance

Despite their central role in evaluating the effectiveness and ethics of persuasive and behavioral interventions, key constructs such as transparency, PK, and reactance are often discussed without clear or consistent empirical grounding. While regulatory frameworks in the U.S. and EU emphasize the importance of clear and conspicuous disclosure to ensure transparency (FTC, 2015; Bundesregierung, 2021), this agent-centered approach leaves open the question of whether consumers actually experience persuasive attempts as transparent, fair, or manipulative.

This chapter addresses that gap by shifting attention to the consumer's perspective, asking the following question: How can we empirically capture how consumers perceive and evaluate disclosed persuasive influence?

Drawing on insights from both marketing and behavioral public policy, this chapter focuses on three constructs that appear across the three studies included in this dissertation: (1) transparency, conceptualized as consumer understanding of persuasive or behavioral intent; (2) PK, reflecting consumers' evaluation of persuasion attempts; and (3) reactance, capturing motivational and emotional resistance triggered by perceived threats to autonomy.

These constructs are theoretically intertwined—especially within the frameworks of the PKM (Friestad and Wright, 1994) and Reactance Theory (Brehm, 1966)—and their measurement is critical to testing causal pathways and theorizing consumer coping strategies. However, despite their centrality, they are often measured inconsistently or overlapping scales in existing research. Therefore, this chapter has two goals: (1) to clarify how transparency, PK, and reactance are conceptualized and differentiated within and across disciplines; (2) to explain how these constructs are measured and adapted in the studies presented in this dissertation.

Measuring Transparency: From Disclosure to Consumer Understanding

Transparency is commonly defined as "the quality of something, such as a situation or an argument, that makes it easy to understand" (Oxford Learner's Dictionaries, n.d.). In the context of advertising and persuasion, transparency is a central objective of regulatory frameworks in both the United States and the European Union. The Federal Trade Commission (FTC, 2015, 2019) emphasizes the importance of clear, conspicuous, and comprehensible disclosures to help consumers recognize commercial content. As the FTC (2019, p. 4) states: "Make sure people will see and understand the disclosure."

In Germany, the transposition of EU regulations into national law reflects a similar commitment to enhancing transparency, particularly in the realm of e-commerce (Bundesregierung, 2021). Legislative frameworks such as the Medienstaatsvertrag (MstV), the Gesetz gegen unlauteren Wettbewerb (UWG) and the Telemediengesetz (TMG) mandate disclosure to ensure transparency for consumers (die medienanstalten, 2023; Jäger, 2017; Maatz, 2021). Specifically, § 8 Abs. 3 MStV stipulates that advertising must be easily recognizable as such and distinguishable from editorial content.

Across jurisdictions, these guidelines reflect a shared assumption that the act of disclosure leads to the outcome of transparency. However, this assumption conflates two distinct concepts. Disclosure refers to the agent-driven act of providing information—such as labeling a message as "sponsored"—whereas transparency concerns the consumer's experience of understanding the persuasive or behavioral intent. This distinction is central to the theoretical position developed throughout this dissertation and has important implications for measurement.

As discussed in Chapter 5, disclosure is a prerequisite for transparency, but it is not sufficient. A piece of content can be formally labeled advertising yet still fails to be perceived as transparent by the consumer if the message is too subtle, ambiguous, or contextually obscure. Similarly, in Chapter 4, we show that even when a nudge is made visible (e.g., a default is clearly presented), transparency depends on whether consumers understand what it does, how it works, and why it is used.

This consumer-centered perspective aligns with recent calls in persuasion and nudging research to treat transparency not as an objective feature of communication but as a subjective, psychological outcome (Campbell and Evans, 2018; Gold et al., 2023). This reflects a shift from evaluating disclosure compliance to evaluating consumer comprehension—which Hansen and Jespersen (2013) refer to as the "ease of identifying the mechanism and intention behind a behavioral intervention." In line with this view, this dissertation operationalizes transparency as a perceived understanding of persuasive and behavioral influence, focusing on the clarity, interpretability, and intentionality experienced by consumers.

Operationalizing Disclosure and Transparency across Disciplines

In marketing research, transparency has become an increasingly important topic, particularly in the context of covert advertising formats such as influencer marketing, sponsored reviews or blogs, and product placement (Wojdinski and Evans, 2020; Boerman et al., 2018). These formats require disclosure to clarify the "commercial or persuasive

nature of such content" (Eisend and Tarrahi, 2020, p. 345). While researchers often assert that disclosure leads to transparency, relatively few studies have directly measured transparency. Among those that have (Campbell and Evans, 2018; Evans, Wojdynski, and Hoy, 2018; Krouwer et al., 2020; van Reijmersdal et al., 2023), the sponsorship transparency (ST) scale developed by Wojdynski, Evans, and Hoy (2017) is the most frequently employed. This scale evaluates transparency across four dimensions, with each dimension consisting of three items, as outlined in Table 7.

Table 7: Sponsorship transparency scale (Wojdynski, Evans, and Hoy, 2017).

Factor	Item
1. Brand Presence	• There was a clear presence of a brand in the [article/game/video]. • The [article/game/video] was clearly branded. • The [article/game/video] clearly conveyed the product or service that was being promoted.
2. Sponsor Clarity	• It was unclear who paid for the [article/game/video]. (Reversed) • It was clear who sponsored this [article/game/video]. • The [article/game/video] made the name of the advertiser very obvious.
3. Disclosure	• The [article/game/video] said it was an advertisement. • The [article/game/video] said it was sponsored. • The [article/game/video] was labeled as advertising.
4. Lack of Deception	• This [article/game/video] was trying to fool consumers into thinking it was not advertising. (Reversed) • The advertiser tried to obscure the fact that this was an ad. (Reversed) • The [article/game/video] tried to deceive the viewer about the fact that it was advertising. (Reversed)

The ST scale assesses consumers' agreement with the statements shown in Table 7 on a 7-point Likert scale. It offers a structured way to assess consumers' perceptions of the visibility and clarity of persuasive elements in advertising. As Wojdynski, Evans, and Hoy (2017, p.121) note, ST is defined as "the extent to which a sponsored communication message makes noticeable to the consumer its paid nature and the identity of the sponsor." It is explicitly conceptualized not as a trait of the individual but as an evaluative perception of message features.

Despite its widespread use, the ST scale poses two main challenges when applied in studies that investigate the effects of transparency on PK. The first lies in the agent conceptualization embedded in the scale. The ST scale focuses primarily on the brand as a sponsor. In contexts such as product placement, however, consumers may attribute

persuasive intent not only to the brand but also to actors, directors, or platform providers who "allow" persuasive content. Similarly, in Chapter 5, we highlight that in influencer or blog contexts, the agent may be the content creator, not just the brand. In addition, in nudging scenarios such as those examined in Chapter 4, the persuasive agent is neither an advertiser nor an influencer but rather a researcher who acts as the choice architect. The ST scale does not allow for this flexibility, as its dimensions of brand presence and sponsor clarity do not extend to broader agent roles central to the PKM. The second limitation arises from how Wojdynski, Evans, and Hoy (2017) distinguish ST from PK conceptually. The ST scale includes items accounting for the lack of deception that overlap conceptually with PK and even with reactance. For example, items referring to deception and manipulation often appear in reactance measures (e.g., threat-to-freedom) by Dillard and Shen (2005) or in the widely applied inference of manipulation intent (IMI) scale for PK (Campbell, 1995).

This conceptual overlap creates a risk of construct redundancy and interpretational confounding, particularly in research examining transparency's role in moderating PK or reactance effects. Using the full ST scale in such contexts may inflate correlations due to shared measurement variance. For this reason, studies such as ours, which aim to isolate transparency effects, require a parsimonious and conceptually distinct operationalization. The need for such an approach extends beyond advertising research to the field of nudging, where transparency has only recently begun to be considered more than a design feature. Transparency remains largely unmeasured in nudging research. Most studies still focus on whether disclosures were provided—not whether they were understood.

In Chapter 4, we argue that nudging research continues to operate from an agent-centered disclosure logic. In this context, a nudge is considered transparent if it is designed in a way that makes its presence or intent theoretically observable (Hansen and Jespersen, 2013). However, actual consumer understanding is rarely assessed (see Michaelsen, 2024, Problem 3). To address this limitation, we draw on Gold et al. (2023, p. 28), who define transparency as the "ease of identification of the mechanism underpinning the BI [behavioral intervention]." This definition—also supported by Bruns and Paunov (2021) and Paunov et al. (2019)—suggests that transparency entails more than disclosing the existence of a nudge. This requires clarity about the behavioral target, the mechanism of influence, and the intent of the architect.

In Chapter 4, we operationalize this perspective through a multistep disclosure strategy, which explains what the default is, how it works, and why it was implemented. Importantly, we argue that this information is not a separate message feature but rather an inherent part of the nudge itself. As Michaelsen (2024) noted, any attempt to treat explanatory disclosure

as external to the intervention misrepresents the psychological experience of the nudge and risks "double nudging." Our conceptualization thus positions transparency as an integrated design principle that is best assessed through consumer perception, not assumed from designer intent.

Developing and Applying the Persuasion Transparency Scale

To address the limitations of existing transparency measures in both marketing and nudging research, we introduce the construct of persuasion transparency, which we defined as consumers' understanding of both the persuasive mechanism and the underlying intent behind the persuasion attempt (see Chapter 5). This consumer-centered concept reframes transparency as a subjective cognitive state rather than a message property. It captures the extent to which individuals understand not only that an influence attempt is occurring (disclosure) but also how it operates and why it is being used. This approach allows for a more comprehensive and psychologically grounded measurement than prior frameworks, which often emphasize sponsorship visibility alone or blend transparency with other constructs.

Our definition aligns with Campbell and Evans' (2018) view that transparency includes both recognition and comprehension and is conceptually rooted in the Persuasion Knowledge Model (PKM; Friestad and Wright, 1994). According to the PKM, persuasion knowledge involves awareness of the agent's intent (what), strategy (how), and motivation (why). Persuasion transparency, as we define and operationalize it, directly activates these components from the consumer's perspective.

In three studies (Chapters 4 and 5), we measured persuasion transparency via a newly developed four-item scale. The items were designed to reflect both disclosure and depth of understanding, grounded in public policy definitions of transparency and the PKM. The participants rated their agreement on a 7-point Likert scale with the following statements:

1. The advertising in the [blog article/Instagram post/presentation of categories] was disclosed.
2. I could easily understand what the [blog article/Instagram post/presentation of categories] influenced me to do.
3. I could easily understand how the [blog article/Instagram post/presentation of categories] influences me.
4. I could easily understand why the [blog article/Instagram post/presentation of categories] influences me.

Item 1 captures perceived disclosure, which aligns with the disclosure dimension of the ST scale (Wojdynski, Evans, and Hoy, 2017) but is formulated more directly and flexibly, allowing broader application beyond sponsorship. Notably, this item also functions as a measure of conceptual PK (i.e., ad recognition), which links the transparency scale to our subsequent PK measurement strategy.

Items 2 to 4 assess the consumer's comprehension of the persuasive attempt's structure and intention. Together, these items operationalize persuasion transparency as a multidimensional perception involving both recognition and understanding—consistent with the "ease of identification" criterion from public policy research (Gold et al., 2023; Hansen and Jespersen, 2013). In contrast to approaches that infer transparency from design features, this scale enables direct assessment of how transparent a message is experienced to be by the consumer.

Overlap-Free Operationalization of Persuasion Knowledge and Reactance in Persuasion Research

PK and psychological reactance are central constructs in resistance-to-influence research, yet their measurement remains a persistent challenge. As Kalny and Walter (2024, p. 367) note, "the accumulated body of work has also been criticized for lacking both conceptual and operational clarity," echoing Ratcliff's (2021, p. 1046) observation that "fundamental disagreements about how to conceptualize and measure the construct" of reactance may lead researchers to study diverging phenomena under the same label. These concerns are particularly salient when PK and reactance are examined together, as overlapping items across scales can create measurement artifacts that obscure theoretical distinctions.

To address this, our approach carefully distinguishes between the two constructs. PK is conceptualized and operationalized as a multidimensional construct encompassing both the recognition and the evaluation of persuasion attempts (Boerman, van Reijmersdal, and Neijens, 2012; Ham, Nelson, and Das, 2015). The recognition component—conceptual PK—is typically assessed through measures of advertising or tactic recognition (Amazeen and Muddiman 2020, Beckert et al., 2020; Van Reijmersdal et al. 2016). In our research, this dimension is already captured by the disclosure item on the transparency scale. The second component—attitudinal PK—reflects consumers' evaluations of the persuasion attempt and is commonly measured through assessments of appropriateness (Wei, Fischer, and Main 2008), reasonableness (Germelmann et al. 2020), or inference of manipulation intent (IMI, Campbell 1995). Because transparency manipulations inherently influence ad recognition, our analyses focus on the attitudinal dimension as the more sensitive indicator of shifts in consumer judgment.

Although research suggests negative effects of PK on reactance (see Chapter 5 and Eisend and Tarrahi, 2022), only a few researchers in the field of PK have directly measured reactance as a motivational state (e.g., Beckert et al. 2020; Van Reijmersdal et al. 2016). Often, reactance is assumed to be due to attitudinal or behavioral outcomes. Both reactance theory and the PKM share similarities in their focus on resistance to persuasion, as both address how individuals respond to perceived threats to their freedom caused by manipulative attempts.

We investigate reactance as a motivational state and operationalize it via the approach proposed by Dillard and Shen (2005), which Quick (2010) evaluated as the most valid measurement. The original scale consists of three dimensions: threat to freedom, anger, and negative cognitions. Table 8 presents the original items alongside the adjustments made for use in this dissertation.

To examine the three dimensions separately (see Chapter 5), we retained all the components with minimal modifications. The primary change was the adjustment from a 5-point scale to a 7-point scale to ensure consistency with the other measures used in the questionnaire. In the anger dimension, we omitted items 3 and 4 from the original scale because of strong semantic overlap with items 1 and 2 in German, the language of data collection. Despite this reduction, the anger measure maintained high internal consistency in Chapter 5 ($\alpha_{study1} = .895$; $\alpha_{study2} = .848$).

Table 8: Reactance scale applied in this dissertation on the basis of the reactance scale by Dillard and Shen (2005).

Original scales		**Differences**	**Scales in this Dissertation**	
Scale	**Reactance (Dillard and Shen, 2005)**	**Reason to omit or adjust items**	**Scale**	**Reactance Chapter 5 Study 1: Threat to Freedom (α = .746), Anger (α = .895) Study 2: Threat to Freedom (α = .800), Anger (α = .848)**
5-point scale (1 = strongly disagree; 5 = strongly agree)	1. The message tried to make a decision for me. 2. The message tried to pressure me. 3. The message threatened my freedom to choose. 4. The message tried to manipulate me.	*none*	7-point scale (1 = strongly disagree; 7 = strongly agree)	1. The message tried to make a decision for me. 2. The message tried to pressure me. 3. The message threatened my freedom to choose. 4. The message tried to manipulate me.
Open text box	Negative Cognitions: Participants were asked to write out whatever was in their minds when they finished reading the action component of the message.	*none*	Open text box	Did you notice anything while looking at the [blog article/Instagram post]? Please briefly name some spontaneous thoughts, conspicuous features, impressions or feelings that went through your mind while watching the post.
5-point scale (1 = none of this feelings; 5 = a great deal of it)	Anger Measure: 1. Did you feel angry while viewing this message? 2. Did you feel annoyed while viewing this message?	*none*	7-point scale (1 = strongly disagree; 7 = strongly agree)	Anger Measure: 1. The Instagram post made me feel annoyed. 2. The Instagram post made me feel angry.
	3. Did you feel irritated while viewing this message? 4. Did you feel aggravated while viewing this message?	strong similarities with items 1 and 2 in German		

Given the conceptual proximity between PK and reactance, particular care must be taken to ensure discriminant validity in measurement. Since manipulation intent appears in both the inference of manipulation intent (IMI) scale for PK (Campbell, 1995) and the threat-to-freedom dimension of the reactance scale (Dillard and Shen, 2005), overlapping items could artificially inflate their correlation. To avoid this, we adapted the IMI scale by removing or modifying items that conceptually overlap with reactance, ensuring that PK and reactance are measured as distinct constructs. Table 9 shows both the original and the adjusted versions used in this dissertation.

Table 9: Persuasion knowledge scale applied in this dissertation on the basis of the Inference of Manipulation Intent scale by Campbell (1995).

Original scales		**Differences**	**Scales in this Dissertation**	
Scale	**IMI (Campbell 1995, p. 253-254)**	**Reason to omit or adjust items**	**Scale**	**Inappropriateness Chapter 5 Study 1: (α = .909) Study 2: (α = .870)**
7-point scale (1 = completely agree; 7 = completely disagree)	1. The way this ad tries to persuade people seems acceptable to me.	*none*	7-point scale (1 = strongly disagree; 7 = strongly agree)	The way this Instagram post tries to persuade people seems acceptable to me. (Reverse coded for analysis)
	2. The advertiser tried to manipulate the audience in ways that I don't like.	Manipulation overlaps with reactance scale		
	3. I was annoyed by this ad because the advertiser seemed to be trying to inappropriately manage or control the consumer audience.	Feeling of Anger overlaps with reactance scale		
	4. I didn't mind this ad; the advertiser tried to be persuasive without being excessively manipulative.			
	5. This ad was fair in what was said and shown.	fairness overlaps with item 6		
semantic differential (1 = unfair; 7 = fair)	6. I think that this advertisement is unfair/fair.	*none*	semantic differential (1 = unfair; 7 = fair)	Please indicate to what extent you think this Instagram post is unfair or fair.

Item 2 in the original scale measures manipulation intent, which is already covered in the reactance scale. Items 3 and 4 assess feelings of anger in opposite directions, making them conceptually similar to the anger component of the reactance measure. For this reason, these three items were omitted from our PK measure. Items 5 and 6 both assess fairness, but we retain only item 6, a semantic differential, as it shows lower acquiescence bias and better unidimensionality (Friborg, Martinussen, and Rosenvinge 2006).

In conclusion, attitudinal PK in our studies was operationalized as inappropriateness, consisting of two retained items: nonacceptance (item 1 reverse coded) and unfairness (item 6 reverse coded). This operationalization ensures that PK and reactance are measured as distinct constructs, enabling clearer interpretation of their respective roles in our analyses.

Overlap-Free Operationalization of Persuasion Knowledge and Reactance in Nudging Research

In Chapter 4, PK was measured differently than in Chapter 5, due to the conceptual novelty of PK within the nudging literature. While PK is well established in advertising and persuasion research, it has only recently been introduced into behavioral public policy as a framework for understanding how individuals process nudges. The dominant assumption in nudging research is that nudges operate primarily through System 1 processing—automatic, low-effort decision-making—whereas PK activation requires System 2 processing, involving more deliberate and reflective thought (Thaler and Sunstein, 2021).

To reflect this disciplinary context and to introduce PK measurement gradually, we opted for a foundational, process-oriented approach to PK activation. Specifically, PK was assessed via a thought protocol: "Did you notice anything when selecting a category? Please briefly name some spontaneous thoughts, conspicuous features, impressions or feelings that went through your mind when reading the introductory text." Following Germelmann et al. (2020) and Kirmani and Zhu (2007), we coded the number of PK-related thoughts, including recognition of the default and identification of persuasive intent. This method captures the basic cognitive activation of PK without requiring participants to engage in more complex evaluative judgments, thus serving as a suitable first step in integrating PK measurement into the nudging domain.

Importantly, this approach does not contradict our transparency logic from Chapter 5. In the context of digital advertising, self-reported ad recognition (via the disclosure item) is a valid and established method for capturing conceptual PK because participants are familiar with the advertising format and can consciously recognize its persuasive nature. In contrast, in nudging research, the context does not involve advertising but still constitutes a form of persuasion. The persuasive format is less familiar to participants, and recognition of persuasive intent may occur implicitly during System 1 processing rather than through deliberate reflection. A thought protocol allows us to capture this spontaneous activation without priming participants, thereby ensuring a more accurate assessment of conceptual PK in a setting where the persuasive element is subtler and less explicitly labeled.

In Chapter 4, reactance was measured solely via the threat-to-freedom dimension of the Dillard and Shen (2005) reactance scale. This decision was both conceptually and contextually grounded. In reactance theory, perceived threat to freedom is considered the proximal cause of reactance, initiating the motivational state that drives individuals to restore their threatened autonomy (Brehm, 1981). Empirically, threat to freedom has been

shown to be the strongest and most consistent predictor of reactance-related outcomes (Dillard and Shen, 2005), making it the most relevant measure for assessing whether nudges preserve their defining characteristic of freedom of choice.

From a nudging perspective, the focus on this dimension is especially relevant. By definition, nudges are intended to be freedom-preserving interventions (Thaler and Sunstein, 2008). If transparency in a nudge were to significantly increase perceived threats to freedom, this would directly undermine the normative justification for using nudges in public policy. Measuring threat to freedom thus addresses a core theoretical and ethical question: do transparent nudges truly preserve freedom of choice from the consumer's perspective?

Establishing Clarity: A Measurement Framework for Transparency across Domains

The approach to measuring transparency, PK, and reactance developed in this dissertation advances the literature in four interrelated ways. First, it reframes transparency as a measurable psychological construct rather than an assumed outcome of disclosure. By conceptualizing transparency as persuasion transparency—the consumer's understanding of what a persuasive attempt seeks to achieve, how it works, and why it is used—this work shifts the focus from agent-centered disclosure practices to consumer-centered perceptions. This reframing enables transparency to be measured directly, tested empirically, and integrated into causal models rather than treated as a design feature whose effects are assumed.

Second, it clarifies and operationalizes the distinction between transparency and PK, an issue that is often blurred in the literature. Conceptual PK (ad recognition) overlaps with the recognition component of transparency and is commonly included in disclosure or transparency manipulation checks. If this overlap is not addressed, studies risk inflating effects for PK and/or reactance due to shared measurement variance rather than distinct psychological processes. This dissertation resolves this issue by treating ad recognition as part of the transparency manipulation check rather than as part of the PK measure in studies manipulating disclosure or transparency. In these cases, only attitudinal PK is measured as an outcome, ensuring clearer causal interpretation.

Third, it extends this separation logic to the relationship between PK and reactance. If manipulation intent or anger items appear in both PK and reactance scales, it is unsurprising that PK statistically predicts reactance, yet this may reflect measurement redundancy rather than a true causal relationship. The measurement strategy developed here eliminates such overlaps, enabling a more precise test of whether and how PK generates reactance.

Fourth, it demonstrates the value of context-specific adaptation without sacrificing theoretical consistency. The conceptual definitions of transparency, PK, and reactance are held constant across contexts of digital advertising (Chapter 5) and default nudging (Chapter 4), but the operationalizations are tailored to the domain.

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7. Nudging Physical Distance During COVID-19: Short-Term and Long-Term Wear-Out Effects of Nudges in a Retail Setting

Authors: Jannike Harnischmacher, Lisa-Marie Arnold (neé Merkl), Prof. Dr. Claas Christian Germelmann (University of Bayreuth)

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Jannike Harnischmacher: Conceptualization, Methodology, Formal analysis, Investigation, Resources, Data Curation, Writing - Original Draft, Writing - Review & Editing, Visualization, Project administration | **Lisa-Marie Arnold (neé Merkl)**: Conceptualization, Methodology, Investigation, Resources, Writing - Original Draft, Writing - Review & Editing | **Claas Christian Germelmann**: Conceptualization, Methodology, Writing - Review & Editing, Supervision

Nudging Physical Distance During COVID-19: Short-Term and Long-Term Wear-Out Effects of Nudges in a Retail Setting

ABSTRACT

During the COVID-19 pandemic, customers had to adopt new behavior patterns. Keeping distance from others is a key measure and difficult to achieve in crowded retail settings. We examine the effectiveness of nudges in two field studies. In study 1, we investigate the effectiveness of three salience nudges that support distance keeping in a retail setting: duct-taped lines, footprints, and footprints with distance information as a more transparent nudge. Results show greater nudging effects for footprints in comparison with duct-taped lines. The more transparent nudge proved to be the most effective, with 3.3 times greater odds of nudging customers compared with lines. In study 2, we investigate the long-term effect of the transparent salience nudge. Results show a drastically declined nudging effect after one year of exposure. These findings support managers and public policy makers in designing nudges and draw attention to wear-out effects.

Keywords: COVID-19; Physical distance; Nudge; Transparency; Semiotics

INTRODUCTION

Avoiding crowds and, more specifically, observing an appropriate minimum distance from other people in public is one of the most important protective measures against the coronavirus (World Health Organization, 2020). As in many other countries, the German government requires its citizens to keep a distance of 1.5 meters (approximately 5 feet) from others in public settings (Press and Information Office of the Federal Government, 2020). Nevertheless, grocery shopping and, thus, contact with other shoppers are difficult to avoid. Particularly when customers arrive at checkout counters, supermarkets' spatial bottleneck, they inevitably face the danger of waiting in a queue too close to others. Even though they know they should keep their distance, they often fail to do so. If that is the case, the German government can impose a penalty against the supermarket according to the Infection Protection Act (IfSG, 2000).

Thus, store managers know that they must help their customers maintain a safe distance. Lacking instructions at the beginning of the pandemic, many of them improvised and introduced various makeshift techniques such as informational signs, duct-taped lines on the floor, or in-store announcements. Interestingly, all the interventions that retailers have improvised to date have one thing in common: they are aimed to nudge consumers into performing a behavior that is not only in their own but also in society's and store managers' interest. The way in which mangers intuitively implemented nudges, shows their main advantages in retail settings: nudges are usually cheap, do not need regulations and are not invasive (Panzone et al., 2021).

However, do these nudges really achieve the desired effect of aiding customers to stand on the nudges to maintain a distance of 1.5 meters from one another? Moreover, can these nudges generate long-term effects? Despite the introduction of various nudges to help maintain a safe distance, empirical evidence of their short- and long-term effectiveness is still lacking (Chang, 2021). Research on physical distance keeping behavior during COVID-19 is still surprisingly rare and limited to outdoor settings like greenway and rail-trails (Bias et al., 2021; Christiana et al., 2022; Wynveen et al., 2021). We address this gap by investigating physical distance keeping in a retail setting.

In study 1, we investigate the effectiveness of three interventions intended to help customers maintain a safe distance in a retail setting: lines, footprints, and footprints with additional distance information. These so called salience nudges are attention-grabbing stimuli that remind customers of the known information to maintain a safe distance and thereby nudge customers to perform a certain behavior (Elshiewy & Boztug, 2018; Hagman

et al., 2015; Sunstein, 2014). We suggest that compared with lines—which are also intended to serve as salience nudges—footprints are better perceived due to their anthropogenic design and are easier to understand due to the mental images they create. Furthermore, we propose that adding a sign indicating the distance of 1.5 meters between each pair of footprints increases the transparency of the nudging intervention and helps customers interpret the intention behind it. In study 2, we investigate the long-term effects after a one-year exposure of the most effective nudging intervention from study 1.

THEORETICAL BACKGROUND

To design a specific nudge, we draw on knowledge from semiotics and transparency. We chose semiotics since signs are supposed to have a design that can be easily interpreted, and nudges require the same characteristic. We chose transparency, because transparency concerning the persuasive mechanism and intent of the nudge additionally supports the interpretation. The effects of transparency in nudging are discussed in contrasting ways in theory and practice. Therefore, we investigate transparency in a field study to contribute to nudging research.

Salience Nudges in Retail Settings

A nudge is defined as "any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives" (Thaler & Sunstein, 2008, p. 6). In other words, nudging interventions make use of flaws in human thinking and change the environment in which individuals make decisions. These interventions are aimed to steer decision makers toward a better decision or behavior, as judged by themselves, but are also easy to avoid and thus maintain freedom of choice (Thaler & Sunstein, 2008).

In general, people base their decisions on information that is available or salient in the moment of choice (Hagman et al., 2015). However, when shopping, they are commonly confronted with information overload. We posit that in such a context, the familiar information of the recommendation to maintain distance from other shoppers is not salient, but a salience nudge can help. The idea of salience is to establish a link between a salient stimulus and non-salient "pre-existing cognitive structures" (Guido 2001, p. 21). A salience nudge thus serves as a stimulus and helps establish such a link by changing the accessibility of information in a certain choice architecture (Hagman et al., 2015; Sunstein, 2014).

Therefore, the nudge must stand out and catch customers' attention, even if superficially, in the situation of information overload. We posit that an anthropogenic design meets this

need. Humans have a deeply rooted need to find patterns that help them make sense of the world around them, and "the most important pattern in most contexts is … that of human thought and action" (Guthrie 1995, p. 90). An anthropogenic nudge makes use of this pattern because it represents something that was caused by human action.

Another important factor to establish the link to known information is simplicity: people focus their attention most readily on stimuli that are easy to decode (Dolan et. al., 2012). Signage is an obvious candidate for successful communication. Drawing from the theory of semiotics, we suggest that stimuli with anthropogenic characteristics facilitate interpretation.

Semiotics

Peirce (1960, 8.343, emphasis in original)[1] defines "a *Sign* as anything which on the one hand is so determined by an Object and on the other hand so determines an idea in a person's mind." This idea is called interpretant (Peirce 2.274, 2.228). He distinguishes three main categories of signs: icon, index, and symbol (Peirce 8.368). An icon is a sign that represents the actual object. Indexical signs indicate the relation to the object by which the sign is caused. A symbol does not share a visual similarity with the object it signifies (Peirce 5.73) and thus needs the interpretation of the observer, who can relate the symbol to a common meaning (Peirce 2.304). Peirce (5.484) describes the interplay between a sign, an object, and its interpretant as a triadic relationship and refers to the action between them as "semiosis." Within this interplay, one interpretant is a sign itself with the same object and can evoke another semiosis. We adapt these signs to our studies by using footprints as an indexical sign (Figure 14).

[1] Notation for Peirce (1960) refers to volume and paragraph; for example, 8.343 refers to Volume 8, paragraph 343.

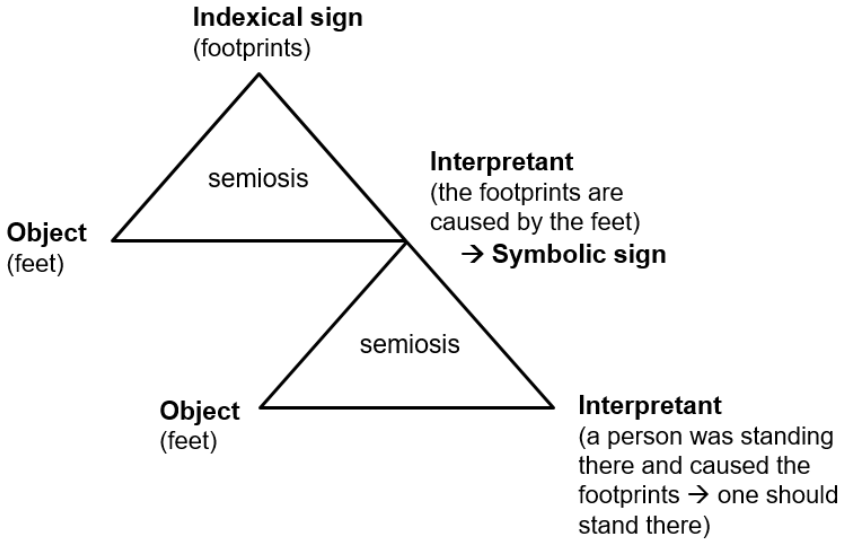

Figure 14: Triadic semiosis applied to the footprints stimuli (own illustration).

In our study, the mental image of a person standing at a certain distance from the next person is a symbol for the recommended behavior. We expect footprints to have a greater impact on customers' distancing behavior than lines due to their attention-grabbing anthropo-genic design, as it facilitates the interpretation of the sign.

H1: Customers are more likely to use footprints on the floor than lines as a position marker when waiting in a queue.

Transparency and Nudging

Thaler and Sunstein (2008) stress the need for transparency when designing nudges, especially politicians as choice architects. To be considered transparent, both the behavior-influencing intention and the means for influencing must be recognizable to the nudged person (Hansen & Jespersen, 2013). Previous studies have investigated the effectiveness of footprints on the floor in combination with additional information to influence behavior and showed promising effects (Marshall et al., 2002; Van Hoecke et al., 2018). Therefore, we introduced a third experimental condition, consisting of the same footprints as described previously (Figure 14), but adding metric distance information between each pair of footprints. Compared with footprints alone, the footprints and distance information could be perceived as more transparent, as they give customers another reference to the safety measures that still apply. In line with Steffel et al. (2016), who investigate transparent default nudges, we assume that transparency does not restrict their effectiveness. Thus, we

suggest that additional distance information can help customers interpret the reason for the behavioral intervention and will not decrease the effect of footprints alone:

Proposition 1: Adding information about the intended behavior to the salience nudge does not attenuate the effect of the salience nudge.

STUDY 1: SHORT-TERM NUDGING EFFECTS

Method

We conducted a field experiment in a German supermarket to test the effectiveness of three nudging interventions: lines, footprints, and footprints with specific distance information in between.

Setting

The field experiment took place in the checkout section of a medium-sized supermarket in Germany during the first week of the first lockdown in March 2020. We observed customers on March 24, 26 and 27, 2020 (Tuesday, Thursday, Friday) between 9 a.m. to 6 p.m. We observed 694 customers in 583 observations (472 single customers, 111 couples; 40.31% female, 40.99% male, 18.70% mixed couples)—with and without shopping carts—during their waiting time in the queue. We assume that participants were not aware of the observation in the context of our study, because we were not standing in their field of vision as they entered the checkout area.

Design

The design for the field study had three conditions, each with a different nudging intervention. The first, which served as the baseline condition, consisted of duct-taped lines on the floor. In the second condition (indexical sign nudge), pairs of footprints, representing positions to stand, replaced the lines. In the third condition (transparent nudge), we supplemented the footprints with red stickers with distance information in the middle of two pairs of footprints. The stickers read “1.5 m distance” and arrows pointed at the footprints ahead and behind the sticker. In all conditions, we placed three lines (condition 1) or pairs of footprints (conditions 2 and 3) with a distance of 1.5 meters between each, beginning at the end of the checkout belt (Figure 15). All three conditions were implemented block by block in front of 12 parallel checkout belts concurrently (condition 1: checkout belts 1–4, condition 2: checkout belts 5–8, and condition 3: checkout belts 9–12). During data collection, up to four checkouts were open at once, and they always contained at least one of each condition. Due to the design of the checkout area, consumers

typically focused solely on the floor design of the line in which they were queued. Given the field nature of this experiment, we could not randomly assign participants to the conditions. Instead, shoppers freely selected a checkout line by themselves and became aware of the signs only later when they moved forward in the queue.

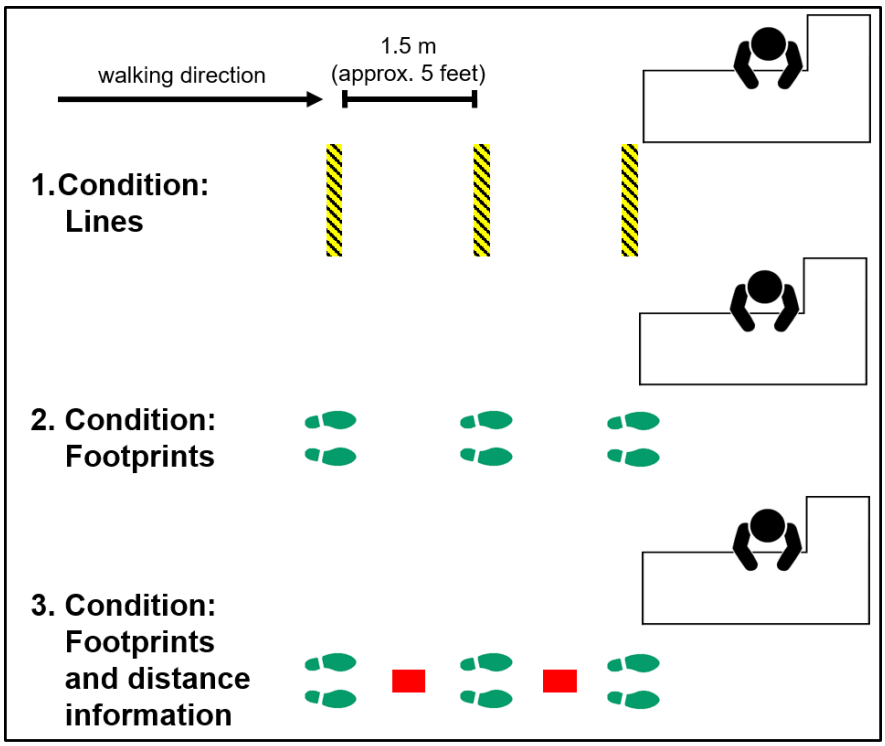

Figure 15: Experimental setup in the store.

Measures

The observation was aimed to measure whether customers followed the persuasive intent of the nudging interventions to stand at the position of the nudge. We counted participants who directly stood on either the lines or footprints as using the intervention and displaying a successful nudging effect. More precisely, we counted participants as nudged if they stood on the first and/or second line or pair of footprints. Conversely, participants who did not observe the lines or footprints in their waiting position, or who stood between two nudges in the 1.5-meter distance area, were not counted as nudged. If consumers queued up as a couple, they were counted as nudged if one of them fulfilled the aforementioned conditions and the second person stood right beside him or her. As lines and footprints had different widths and lengths, we defined an area of the same size around the line or footprints by making use of the supermarket's floor tiles (20×20 cm; 7.87″×7.87″). Three observers counted the participants according to this defined area around the intervention as

standing on it or not. Author one, author two, and a student assistant who was unaware of the hypotheses and proposition were disguised as employees taking stock of the shelves and observed the participants of one condition each.

Results

We conducted a three-way loglinear analysis for the variables nudge effect, condition, and cart. This analysis produced a model that retained two-way effects. The likelihood ratio of this model was χ^2 (0) = 0. P = 1 and indicates that the two-way-order interaction nudge effect x condition was significant, z = 3.515, p < .001, and the two-way-order interaction nudging effect x cart was significant, z = -4.104, p < .001. To break down this effect, we separated our sample into shoppers using a cart (n = 330) and shoppers without a cart (n = 253) for further analysis. Table 10 shows the percentages of participants with and without a cart who show a nudging effect.

Table 10: Percentages of participants who show a nudging effect.

	Cart		**No Cart**	
Condition	n	%	n	%
Lines	25	25.00	31	33.70
Footprints	35	30.17	38	48.72
Footprints+Distance Information	44	38.60	52	62.65

To test our hypothesis and proposition we conducted pairwise comparisons between conditions for each sample. For shoppers with a cart, we did not find a significant nudging effect for footprints alone compared with lines (z = 0.85, p = .395). However, significantly more customers with a cart were effectively nudged when the distance information was added to the footprints (z = 2.16, p = .031). The sample of consumers without a shopping cart, shows significant differences in the proportions of nudging effects across all conditions. Footprints show a significantly greater nudging effect than lines (z = 2.00, p = .045). The more transparent nudge shows a significantly greater effect compared with lines (z = 4.00, p < .001), yet does not attenuate the effect of footprints alone (z = 1.80, p = .071). Interestingly, combined footprints and distance information directionally show a greater effect size overall. The odds of successfully nudging customers without a cart are 3.30 times higher when using footprints in combination with distance information, compared with lines.

Discussion

The aim of study 1 was to investigate the effectiveness of different nudging interventions in a retail setting. The results show a greater nudging effect for footprints compared with lines, thus lending support to H1 for shoppers without a cart. This implicates the importance of simplicity in the nudging design. Knowledge from semiotics helped us to design a simple and, as we suggest, an easier understandable salience nudge.

Increasing the transparency of the nudge by adding distance information to the footprints did not attenuate the effect, which supports proposition 1. Results show that the nudging effect even increased over footprints alone. We assume that additional information facilitates the understanding of the intentions behind the nudge. The differences in the effects for customers with and without shopping carts lead us to another assumption: when using a cart, the customers could more easily have overlooked the footprint nudges, but additional stickers with distance information could increase the visibility.

Our results for the transparent nudge point toward a similar direction as Gold et al. (2020), who investigate several nudging interventions and show that participants accepted interventions more readily when the interventions were presented transparently than when they were opaque with regard to their intention. Other studies on transparent nudges mostly focus on defaults, showing that transparent defaults do not restrict the effectiveness and have positive effects on perceived fairness and compliance (e.g., Michaelsen et al., 2020; Paunov et al., 2019; Steffel et al., 2016). As shown in our results, the effect sizes for the transparent salience nudge in comparison with the salience nudge are promising.

The relative changes between conditions compare favorably with Hummel and Maedche's (2019) quantitative nudging review. They show a median effect size of 21% for nudges overall, which is close to the median of 20% for nudges in the warnings and graphics category, to which the nudge in our study belongs. In contrast, Hummel and Maedche (2019) compare effect sizes of application contexts and report a median effect size of 6% for nudges in the policy making context. We compare these relative effect sizes with the results of study 1 by calculating the relative effect size according to Hummel and Maedche (2019). We find that even the smallest increase in nudging effects is close to the overall relative effect size of nudge overall.

Despite these promising results, however, one question remains: Will the nudge that proves to be effective short-term generate a long-term effect? Study 2 addresses this question by investigating the long-term effect of the transparent salience nudge.

STUDY 2: LONG-TERM NUDGING EFFECTS

Building on the results of study 1, we implemented the transparent nudge (third condition of study 1) as the most effective nudge at all 12 checkout belts of the same supermarket. Because we expected the pandemic situation to last for several months, our objective with study 2 was to investigate whether the nudge effect would also last. Thus, study 2 investigates the long-term effectiveness of the transparent nudge after one year of exposure.

Evidence on the long-term effects of nudging interventions is still rare (Panzone et al., 2021); only a few studies investigate the lasting effects of salience nudges (e.g., Burger & Shelton, 2011; Cronqvist et al., 2018). A possible explanation for this lack of long-term nudging studies might lie in researchers' need to publish positive results (Van Kleef & Van Trijp, 2018). While a salience nudge initially increases the accessibility of information, over time the novelty and attention-grabbing power of the nudge declines, and the nudging effect reduces (Sunstein, 2017). In the context of a supermarket, a newly implemented nudge could grab the customers' attention and influence their behavior. However, if customers experience this situation frequently, the nudge may increasingly become part of the familiar design of the checkout area and thus lose its effect due to declining novelty and attention-grabbing power. We propose:

H2: The effect of a nudging intervention is reduced after constant exposure to the same nudge over several months.

Method

We conducted an observation in the checkout area of the same supermarket as in study 1. Study 2 took place one year later, in March 2021, during the third lockdown in Germany. We observed customers on March 2, 4 and 5, 2021 (Tuesday, Thursday, Friday) between 9 a.m. to 6 p.m. Because of the ongoing COVID-19 pandemic and the associated risks, we could not conduct more observations during the year of exposure. Disguised as employees taking stock of the shelves, we observed 175 customers with a shopping cart during their waiting time in the queue.

Design

The supermarket had implemented transparent nudge as described in study 1 in front of all 12 checkout belts concurrently. It consisted of three pairs of footprints and distance information stickers between each pair of footprints. During the one-year period, we

regularly inspected the visibility and quality of the stickers and replaced damaged ones directly to ensure a constant exposure of all stickers during the year.

Measures

Within the year between the observations, the supermarket extended its protective measures and obligated customers to use a cart so that store managers were able to control the number of people entering. Consequently, in study 2 we only observed customers with a cart (n = 175). As in study 1, we counted participants as nudged if they stood on the first and/or second pair of footprints. Conversely, participants who did not observe the footprints in their waiting position, or who stood between two nudges in the 1.5-meter distance area, were counted as not nudged.

Results

The results show a nudging effect for 4.57% of customers with a cart compared to 38.60% in March 2020 (Study 1; Table 10) which is a significant decrease (χ^2 (1) = 54.161, $p < 0.001$). Since in March 2021, stores obligated customers to use a cart, we were not able to observe customers without a cart.

Discussion

The aim of study 2 was to investigate the long-term effectiveness of a transparent salience nudge. The effect of the transparent nudge drastically declined after one year. We find support for H2, which suggests that constant exposure with the same salience nudge can lead to wear-out effects.

Recent studies on behavior and beliefs during the COVID-19 pandemic provide additional explanations for our results. Kuper-Smith et al. (2020) show evidence for an optimism bias concerning the personal impact of COVID-19, which leads people to believe that the chance of getting infected is higher for others than for themselves. Such beliefs in turn can reduce compliance with protective measures (Wise et al., 2020). Another factor for declining compliance lies in the expectations and duration of the need for safety measures. Briscese et al. (2020) show that a longer-than-expected duration of the need for safety measures reduces willingness to comply with such measures.

Given the specific context of the study, two limitations must be mentioned. First, because store managers at that time were obligated by law to establish the required distance between their customers, our experimental designs did not include a control group without nudges.

Second, we could not control for environmental or individual factors, like risk perception or conformity goals.

GENERAL DISCUSSION AND MANAGERIAL IMPLICATIONS

We provide consumer behavior informed insights on how to implement an effective nudging intervention to support customers during the COVID-19 pandemic. By using a salience nudge with an anthropogenic shape of footprints, practitioners can help consumers to follow the recommendation to maintain distance.

Study 1 demonstrates the stopping power of footprints as a single intervention for customers without a cart. For both groups—shoppers with and without a cart—footprints were particularly effective in combination with additional information. The latter seemed to function as a reminder for already known information and facilitate the understanding of the agent's intent for attempting to influence behavior. Therefore, our findings provide valuable insights beyond the supermarket context: the footprint nudges could also be helpful in any setting in which consumers should maintain distance to others (e.g., for discretion at ATMs, medical practices, polling stations). Study 2 provides preliminary evidence that the effectiveness of a more transparent salience nudge could significantly decline over time, as customers become accustomed to the intervention.

Future studies should examine individual factors that could moderate the effectiveness of nudges and the mechanism behind the effect of transparency on nudging effects. Of special interest remains the underlying reason for the decrease in effectiveness of nudges in the long run that we observed in our study. As an implication for public policy, we suggest that governments should not merely give general behavioral recommendations like maintaining distance but also provide guidelines on how retailers can effectively motivate their customers to follow their advice. Nudges can be valuable policy making tools in the short run, but practitioners must be ready to evolve nudges to achieve long-term effects.

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8. In This Choice Architecture and Beyond! A Quasi-Experimental Field Study Exploring Temporal Spillover Effects of Nudges

Author: Jannike Harnischmacher

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In This Choice Architecture and Beyond! A Quasi-Experimental Field Study Exploring Temporal Spillover Effects of Nudges

ABSTRACT

When aiming to change consumers' behavior, marketers and policy makers are increasingly looking at findings from behavioral economics, especially the nudging concept (Thaler & Sunstein, 2008). The effectiveness of nudges is often limited to the situation in which the choice architecture is altered. However, the existence of spillover effects could have the potential to amplify the effectiveness of nudges. This study investigates whether nudges can alter behavior beyond one choice situation in such a way that they affect a subsequent choice. To achieve temporal spillover effects, we develop a social identity nudge by innovatively synthesizing the nudging concept and Oyserman's identity-based motivation process model. We conducted a quasi-experimental field study and observed students' walking behavior in a natural setting. In N = 13,186 observations, we observed the behavior-altering effects of a salience nudge and a social identity nudge. The results show the expected temporal spillover effect for the social identity nudge. Although we did not expect it, results also show a temporal spillover effect for the salience nudge. These findings provide insights into the range of nudging effects and have potential implications for marketers and policy makers who use nudges as a cost-efficient tool to alter consumers' behavior.

Keywords: Behavior change; Nudging; Choice architecture; Social identity; Identity-based motivation; Field study

INTRODUCTION

Marketers and policy makers effectively use choice architecture tools to alter consumers' behavior. The most common and cost-efficient tool for this aim is a nudge which is an aspect of the choice architecture (Thaler & Sunstein, 2008). Nudges steer people in one direction without forbidding any options or mandating a choice. They are often used to achieve changes that do not require extra effort today, yet, have a positive effect in the future (e.g., physical activity, healthy eating, saving money).

However, to achieve future benefits, it is not enough to perform a behavior once. Only repeated choices have the power to form habits and achieve desired goals. Therefore, the nudging literature calls for the investigation of effects that go beyond a single-choice act (Beshears & Kosowsky, 2020; Van Kleef & Van Trijp, 2018). Little is known about such spillover effects of nudges and studies show ambiguous findings. Ghesla et al. (2019) and Van Rookhuijzen et al. (2021) found positive spillover effects for default nudges. Fanghella et al. (2019), by contrast, found negative spillover effects for self-identity priming nudges in the context of environmental behavior.

Further investigation of spillover effects is of great importance because they have the potential to amplify the effectiveness of nudges. Therefore, the purpose of this paper is to investigate the spillover effects of nudges on a subsequent unnudged choice. We conducted a quasi-experimental field study on the campus of a mid-sized university in Germany to investigate two types of nudges: a salience nudge and a newly developed social identity (SI) nudge. The SI nudge is based on the promising effects of 1) social nudges compared to other types of nudges (Hummel & Maedche, 2019; Mertens et al., 2021) and 2) positive spillover effects based on self-identity (Van der Werff et al., 2014). We synthesize the nudging concept and the identity-based motivation process model (IBMPM) (Oyserman, 2007, 2009) to develop a SI nudge with the potential to show temporal spillover effects. Herein, we investigate the use of nudges for the creation of a link between a salient identity, and congruent behavior as suggested by Lewis and Oyserman (2016).

The natural setting allows us to investigate real behavior and effects that have consequences for the participants (Hulland & Houston, 2021). Especially for the investigation of SI, we propose that field experiments are the method of choice because relevant in-group and out-group members are present.

This research offers three key contributions: 1) it shows the effectiveness of a stand-alone salience nudge in a real-world setting, 2) we innovatively develop a SI nudge consisting of a salience nudge and a SI prime that shows stronger effects than a stand-alone salience

nudge, 3) we provide evidence for temporal spillover effects of nudges to a subsequent unnudged situation.

THEORETICAL BACKGROUND

Nudging to Influence Consumers' Choices

In recent years, marketers and policy makers have increasingly oriented themselves to findings of behavioral economics when it comes to influencing consumers' choices. The most popular concept in this area is the nudging concept in which a nudge is defined as "any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives" (Thaler & Sunstein, 2008, p. 6). Nudges are used by choice architects who design the situations in which people make choices. They design so-called choice architectures in a way that makes use of heuristics and biases to steer choosers toward a certain behavior (Thaler & Sunstein, 2008).

The simplest type of nudge is a salience nudge, which makes use of the salience bias: colourful, dynamic, or other salient stimuli disproportionately attract attention (Taylor, 1982). Salience nudges should be characterized by simplicity in order to influence choice situations because attention is more likely to be focused on things that individuals can easily understand (Dolan et al., 2012; Guido, 2001). Choice architects can generate the salience bias by using a salient stimulus whose associations are aimed to lead to the desired behavior.

These short-term nudging effects may alter behavior in a choice situation with a nudge, but removing a salience nudge should eliminate its effect (Hertwig & Grüne-Yanoff, 2017). Thus, we do not expect salience bias or a nudge effect in a subsequent situation, even with identical choice options. Nonetheless, our aim is to investigate whether an adjusted nudge can create a spillover effect on an unnudged choice. We propose developing a SI nudge for this purpose.

Spillover Effects: Amplifying the Impact of Nudges

Behavioral spillover effects describe the sequential performance of two *different* behaviors where the first behavior is the target of intervention (Dolan & Galizzi, 2015). In nudging research, spillover effects are of great importance because they could increase the impact of nudges as a marketing or policy tool. This can have implications for the choice architects that aim for positive effects and should be aware of negative effects that backfire. Although

spillover effects are being increasingly researched in recent years (e.g., Alt & Gallier, 2022; Kesternich et al., 2019), the evidence on spillover effects of nudges is still rare (Panzone et al., 2021; Van Rookhuijzen et al., 2021).

For nudges, we see great importance in a sub-type of spillover effects, called temporal spillover that refers to the sequential performance of *the same* behavior at two points in time (Nilsson et al., 2017). Since nudges directly target a specific behavior, choice architects gain effectiveness if this behavior is performed more than once.

In nudging research, social nudges, or social norm nudges, are commonly used and considered one of the most effective types of nudges (Hummel & Maedche, 2019; Mertens et al., 2021). Although Mols et al. (2015) suggest making use of the SI theory to achieve lasting effects, nudging research has so far failed to address SI in a way that elicits identity-congruent behavior. Therefore, we develop a SI nudge by synthesizing the nudging concept and the IBMPM that describes the influence of salient SIs and how identity-congruent behavior occurs (Oyserman, 2007, 2009).

Synthesizing the IBMPM and the Nudging Concept

The IBMPM and the nudging concept both explain behavior that is influenced by the context. Nudging aims at the choice of a certain option, whereas salient SIs focus on the execution of identity-congruent behavior. The IBMPM postulates that salient identities are dynamically construed by situational cues in context and "people are motivated to act in identity-congruent ways" (Oyserman, 2009, p. 255).

In order to link the nudging concept and the IBMPM, we address an existing SI of the target group and create congruence between the SI and the desired behavior. Such a congruence can be created when the behavior is perceived as a free choice and people infer from the choice made that the behavior is part of their identity (Lewis & Oyserman, 2016). Because nudges, by definition, preserve freedom of choice, they can be used as a behavior change measure to link the desired behavior as congruent with a SI. Once a behavior is linked to an identity, it is automated and motivates behavior when it is salient (Oyserman, 2009).

We propose an SI nudge that combines a SI prime and a salience nudge, which has a stronger short-term effect than a single nudge due to their interrelation. When a SI is salient (in contrast to a personal identity), people focus their attention on the environment and connections within it (Oyserman, 2009). It is in this very environment that the salience nudge is located and is hence perceived more strongly. Within the salient SI, people strive

to achieve the associated identity goals. The salience nudge offers a way to execute identity-congruent behavior towards achieving these goals precisely at this moment.

If the behavior highlighted by the SI nudge is perceived as congruent with the primed identity, then individuals should execute it according to the IBMPM. If the behavior highlighted by the SI nudge is not perceived as congruent with the primed identity, the salience nudge promotes this and links the behavior and SI as congruent (Lewis & Oyserman, 2016). Therefore, we propose that connecting the IBMPM and the nudging concept creates an SI nudge that has a stronger effect than a single salience nudge.

The SI nudge should create a nudge with the ability to alter behavior not only in the choice situation in which the nudge is placed but also in a subsequent situation. We suggest that the SI nudge has this ability because it creates the previously mentioned link and the primed SI maintains salient and stable in a subsequent choice situation (Trafimow et al., 1991). Therefore, we hypothesize:

H1. A SI nudge increases the choice of the supported option in the choice situation and shows a temporal spillover effect to a subsequent unnudged situation.

METHOD

For the investigation of our hypothesis, we chose to conduct a quasi-experimental field study in a naturalistic setting. We strive for this methodology because we want to test if the newly developed nudge attains proof of implementation in a "noisier" setting than a lab or online survey (Dolan & Galizzi, 2015; Ottenbring, 2021). This setting allows us to test a temporal spillover effect that follow actual behavior and has consequences for the participants (Hulland & Houston, 2021; van der Werff & Steg, 2018). Especially for the underlying SI theory, we find it important to test our hypothesis in a natural setting with the presence of other members of the in-group and out-group.

We chose to address a behavior that is present in everyone's daily life, a behavior that is very simple to perform and can be implemented in many situations: walking. Despite the simplicity of the behavior, it can have a positive effect on health over a longer period of time if one frequently chooses to walk more, or more precise, to take more steps. In a world where many people tend to spend their life sitting (e.g., at work, during transportation, or in their free time) increasing walking behavior in everyday life is a classic use case for nudges. In the present study, participants chose twice. Both times, they have the opportunity to walk the regular path or to take a shortcut and, thereby, walk less. The goal

of our nudges is to increase the percentage of participants who chose the regular path and therefore decrease the percentage of participants who chose the shortcut.

Design and Setting

We conducted a quasi-experimental field study on the campus of a mid-sized university in Germany. As shown in Figure 16, people who come from the Faculty of Law and Economics (the largest faculty on campus) walk on an asphalt walkway as they leave the building. Most people tend to walk toward the main square of the campus. On this path, they can take the asphalt walkway, which we call the *regular path*, or choose to take a *shortcut* by walking along an earthy footpath. This situation of choice occurs two times on the way from the faculty to the main square. During the field study, we observed the choices between the regular path and the shortcut that each participant or group of participants made in both situations. We naturalistically observed participants in three conditions: a baseline condition with no changes in the campus environment, a salience nudge condition, and a SI nudge condition. The three conditions represent the independent variable of the study, and the choices between the regular path and the shortcut are the observed dependent variables.

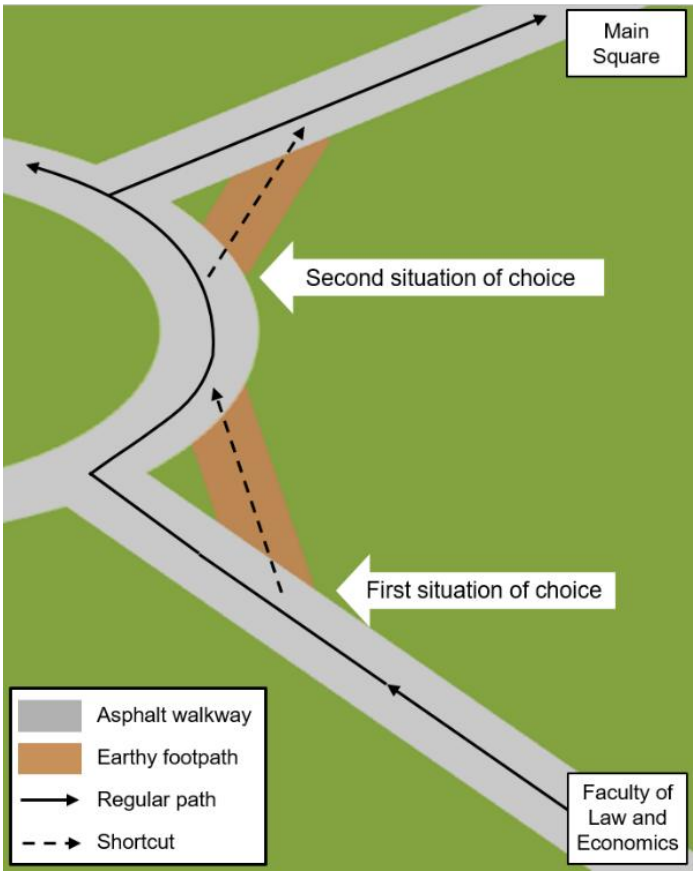

Figure 16: Setting with two choice situations between a regular path and a shortcut.

Participants and Measurement

The participants in the field study were mainly university students and employees, who were unaware that they were participating. We counted 20,638 participants in N = 13,186 observational cases. Each case is either a single person or a group of at least two people. The cases are distributed to the conditions as follows: baseline: n = 4,634; salience nudge: n = 4,585; and SI nudge: n = 3,967.

We observed the participants as they walked from the faculty to the main square. All participants passed the first situation of choice and chose between walking *regular path 1* or *shortcut 1*. In the majority of the observed cases (n = 11,842), participants continued walking to the main square, reaching the second situation of choice, and chose between walking the *regular path 2* or *shortcut 2.* Two researchers observed the participants from a distance of 180.5 feet from both situations and outside the participants' line of sight. The observers were disguised as students sitting on outdoor furniture placed nearby to avoid the Hawthorne effect of influencing participants through the observation itself (Sedgwick & Greenwood, 2015). Using paper and pencil, each observer noted a certain number of people as they made their first and second choice. This means that the total number of participants was measured block-wise by one of the observers. We sat side by side and were in constant contact to ensure that we observed all participants during data collection. No cases were double-counted. For each case, we recorded whether the observation consisted of a single person or a group of at least two people.

Although we did not collect participants' personal data, we are sure that we observed participants repeatedly during the study because many students walk the observed way several times per day and week. We excluded people from the observation who were pushing bicycles, walking with children, carrying heavy loads, or using crutches or wheelchairs because these factors could have affected their choice.

Interventions/ Materials

First, we measured the baseline of the choices between regular paths and shortcuts in the field. We did not change any aspect of the choice situations or the setting in general.

Second, we measured the salience nudge condition. The salience nudge consisted of 30 pairs of green footprint stickers on the ground (each with a realistic length of 27 cm [10.6″]). The shade of green we used is the university's corporate colour, which students are accustomed to seeing on campus. Using a familiar colour facilitates the processing of the stimulus and prevents possible distrust because it suggests that university members are

the responsible agents of the intervention. The stickers, starting before the situation of choice, emulated a realistic walk. Participants leaving the faculty building were already walking along the path of footprints by the time they arrived at the first situation of choice (Figure 17). During walking, the human ability for peripheral visual processing is enhanced (Cao & Händel, 2019), so we are confident the stickers become even more salient in this setting. The path of footprint stickers ran along the regular path and ended at the point where the first shortcut ended and joined the regular walkway again.

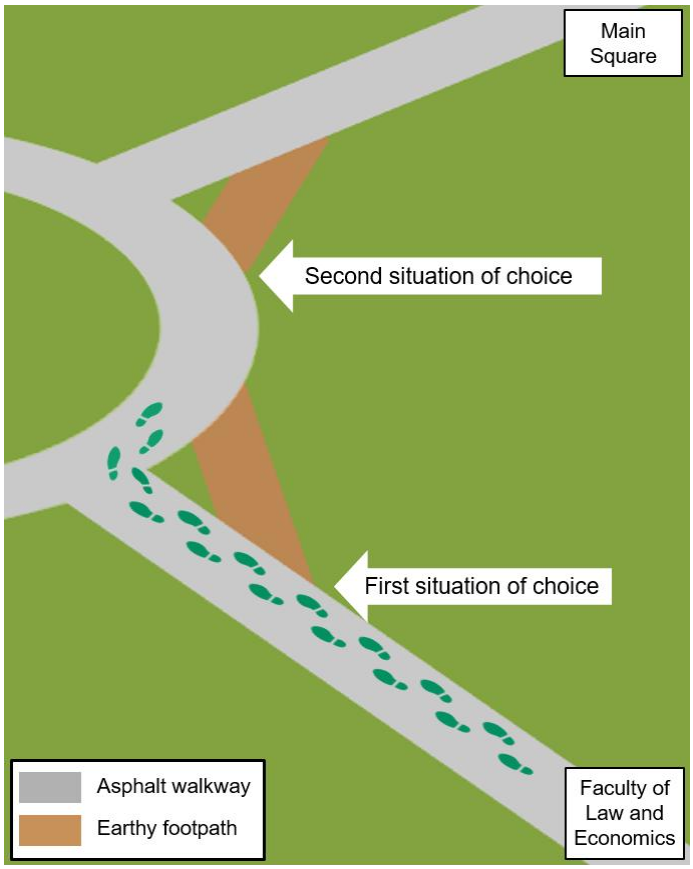

Figure 17: Design and placement of the salience nudge.

Third, we measured the SI nudge condition. In the SI nudge condition, we placed the same path of footprint stickers as in the salience nudge condition and added a SI prime. The SI prime was designed as an 84×119 cm (33″×46.8″) solid sign stating: “More steps! More exercise! More academic success! …is what recent studies show”. The first footprint sticker to mark the path and the sign were placed at the same level and referred to each other in terms of content and design. The message addressed students on campus and reminded them of their SI as students.

Within this identity, having success is a pursued goal of students, no matter how each individual defines success for him- or herself. The message in the sign refers to achieving academic success by increasing exercise, more precisely by taking more steps. This way, the message not only makes participants' SI as a student more salient, but it also activates congruent behavior towards a goal within that SI and shows a specific way to achieve that goal. Furthermore, the sign had a border in the same shade of green as the stickers and showed a path of footprint stickers towards the actual path of stickers on the sidewalk starting next to the sign. This interrelated salience nudge provides the opportunity to take the proposed action towards the identity congruent goal: follow the footprints to take more steps.

Procedure

The field study took place on 12 days between October 14 and November 12, 2019. We observed each condition, starting with the baseline, on the same four weekdays (Monday, Tuesday, Wednesday, and Thursday) from 8 a.m. to 4 p.m. to control for possible influences of time of day. During data collection, we only observed participants on days without rain to ensure that the shortcuts, which are earthy footpaths, did not change their conditions and accessibility compared with other measurement days. This way, we controlled for decisional differences through the weather.

Test of Manipulations

To test the perception of the salience nudge, we interviewed 29 participants coming from the faculty building to the main square. 26 noticed the footprint stickers, and only one inferred their purpose. We also tested the perception of the SI nudge by interviewing 25 students on campus. 11 out of 14 recalled the sign, and 5 could remember its message.

To test the message of the SI prime, we showed it to students on campus and interviewed them. The participants found the positive correlation between steps/exercise and academic success (cognitive capabilities) logical, credible, and known. Furthermore, participants identified "getting good grades" and "graduating from the university to find a good job" as goals of a student.

To test the salience of personal and social identities of students on campus, we performed a version of Kuhn and McPartland's (1954) 20-Statement Test, where we asked 64 students to write down 20 "I am..." statements for themselves. Our results show that 76.56% of the participants mentioned their SI as a student, which shows that this identity is salient (Wellman, 1971).

Reliability Check

To test interrater reliability, we invited two external observers who did not know the conditions or hypothesis of the study to evaluate the participants' two choices. We found a kappa value of .906, indicating an almost perfect agreement with the observers (Fleiss, 1971; Landis & Koch, 1977). We, therefore, consider interrater reliability high.

RESULTS

Nudging Effects in the Short-Run

In the baseline condition, 38.20% of the participants chose to walk along the regular path and not the shortcut. This share increased to 49.23% for the salience nudge (footprints) and to 52.38% for the SI nudge (footprints and SI prime). A chi-square analysis for the choice between the regular path and the shortcut in the first situation showed a significant association between the conditions (χ^2 (2) = 197.216, $p < 0.001$).

To test the nudging effects in the first situation of choice, we conducted pairwise comparisons between the baseline and nudge conditions. For this special case of 2×2 chi-square tests, we ran pairwise z-tests (Cox & Key, 1993; Franke et al., 2012; Seaman & Hill, 1996). The salience nudge showed an increase of 28.80% (odds ratio [OR] = 1.57, 95% confidence interval [CI] = [1.44, 1.70]) for the choice of the regular path compared with the baseline (z = 10.71; $p < .001$). The results demonstrate the effectiveness of a salience nudge to increase walking behavior in a real-world setting. The SI nudge showed an increase of 37.17% (OR = 1.78, 95% CI = [1.63, 1.94]) for the choice of the regular path compared with the baseline (z = 13.31; $p < .001$). These results support our proposition that a SI nudge shows a greater effect in altering behavior than a salience nudge.

Temporal Spillover Effects of Nudges

To investigate the spillover effects, we evaluated the combination of choices in both situations. The choice of *regular path 1 and regular path 2* indicates a spillover effect of the nudges. In the baseline condition, 7.53% of the participants chose to walk along both the regular paths. This share increased to 12.91% for the salience nudge (footprints) and to 15.26% for the SI nudge (footprints and SI prime). A chi-square analysis for the combined choices between the regular path and the shortcut in both situations showed a significant association between the three conditions (χ^2 (6) = 234.478, $p < 0.001$).

To test our hypothesis, we conducted pairwise comparisons between the baseline and the nudge conditions as described previously. The SI nudge showed an increase of 104.00%

(OR = 2.21, 95% CI = [1.91, 2.56]) for the choice of both regular paths compared with the baseline (z = 10.74; $p < .001$) supporting H1. The salience nudge showed an increase of 72.00% (OR = 1.82, 95% CI = [1.57, 2.11]) for the choice of both regular paths compared with the baseline (z = 8.13; $p < .001$). This result is surprising because although we were able to confirm our proposition that the salience nudge alters behavior, we did not expect an influence in a second unnudged situation. In comparison with the salience nudge, the SI nudge showed significantly greater effects (z = 3.02; $p = .003$).

DISCUSSION

Prior research has noted the importance of spillover effects of nudges to amplify their impact as a marketing or policy tool. However, few empirical studies were found regarding the question if nudges can show effects on subsequent unnudged choices. This effect is called a temporal spillover effect and refers to the performance of the same behavior at two times. Due to the characteristics of the nudge definition, we proposed that a simple salience nudge would not show such an effect. The aim of this study was to design a nudge that shows a temporal spillover effect in a naturalistic field study.

The most obvious finding to emerge from the analysis is that the salience nudge and the SI nudge proved to be effective in the short run. More precisely, the choice of the nudged option increased by 28.80% for the salience nudge and by 37.17% for the SI nudge. These effect sizes are comparable with those of previous findings as analyzed in nudging meta-analyses (Hummel & Maedche, 2019; DellaVigna & Linos, 2022). These short-term nudging effects provide the prerequisite for spillover effects to occur.

In addition, the SI nudge showed a stronger short-term effect than a stand-alone salience nudge, supporting our proposition. This result is in line with our argumentation for the effects of a SI nudge that addresses people's membership in a social group and the inherent motivation to act congruently. Therefore, it is no surprise that being physically surrounded by other members of the salient social group strengthens the effect of a SI nudge in a natural field setting.

For the newly developed SI nudge, the study found temporal spillover effects on a subsequent unnudged choice, which fully supports H1. With a relative increase of 104.00% for the nudged options and an effect size of OR = 2.21, the effect was even stronger than the short-term effects.

Although even the salience nudge shows a temporal spillover effect, this effect was greater for the newly developed SI nudge. In comparison with the salience nudge, the SI nudge showed an additional relative increase of 18.60% and a greater effect size with OR = 1.22.

The findings of this study are of great importance for marketers and policy makers who use nudges as effective behavioral change interventions. Spillover effects can amplify the effectiveness of nudges. Making use of the spillover effects would make nudges an even more cost-efficient and powerful tool. However, a note of caution is due here since the spillover effects of nudge could also affect undesirable behaviors. Marketers and policy makers should be aware of spillover effects and use nudges responsibly for the benefit of others.

We theoretically contribute to the understanding of spillover effects in nudging research by investigating the role of a salient SI in addition to the more widely researched self-identity. By developing a SI nudge, we synthesize the IBMPM and the nudging concept to establish a congruency-link between a salient identity and a behavior. However, with the limitations of data from a field study, we suggest that future studies should investigate this link in a laboratory setting. Since both nudges show temporal spillover effects, it is important to investigate the circumstances and boundary conditions under which spillover effects occur. Future studies should investigate spillover effects for two choices that are further apart in time and/or location and for different types of nudges. It is also possible that these results might be applicable to the formation of habits (e.g., more physical activity, healthy food choices) through the use of nudges.

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9. Conclusion

9.1 Contributions to Consumer Behavior and Nudging Research

> "Consumer behavior exists as a coherent set of actors, behaviors, and situations. While we might break the pieces down for individual study, a full and fully useful understanding will elude us until we (re)assemble our piecewise knowledge into the whole." (Peracchio, Luce, and McGill, 2014, p. vi)

Consistent with this integrative view, this dissertation develops an interdisciplinary account of influence that connects BE and CB by treating nudging and persuasion as related phenomena and by modeling both the agent side (design, disclosure) and the consumer side (understanding, coping). Collectively, the chapters show that transparency is not merely an ethical add-on, but a psychologically active property that shapes how people cope with influence, often without eliminating effectiveness. The contributions below specify what this means for theories in marketing, CB, and nudging research.

Chapter 3 contributes to the conceptual integration of nudging (BE) into persuasion research (CB). It maps how marketing has engaged with nudging and identifies both opportunities and obstacles for exchange with BE. The review shows that marketing discourse often treats nudging in broad, undifferentiated ways that blur types, mechanisms, and contexts. The chapter argues for adopting the full nudging framework and for aligning BE's architect-centered lens with CB's consumer-centered lens. This integration reframes influence as a relational system among architects, architecture, and consumers, and it motivates the program that follows. This chapter advances interdisciplinarity by establishing a shared analytic framework that enables cumulative theory across both traditions.

The dissertation also contributes to transparency research in both BE and CB by distinguishing disclosure (an agent act) from transparency (a consumer state). Chapter 5 introduces persuasion transparency, defined as an understanding of both mechanism and intent, and uses it to analyze digital persuasion. Chapter 4 applies analogous logic to transparent defaults in choice architecture. Across these contexts, transparency is theorized as the proximal trigger of coping rather than a compliance label. This reconceptualization places nudging and persuasion on a shared analytical basis and gives researchers a common vocabulary for studying ethical design and psychological response within one framework.

Across Chapters 4 and 5, the dissertation advances the understanding of coping mechanisms under transparency. Transparency activates PK and reactance processes, yet

its behavioral consequences are not uniformly negative. In defaults, transparency can increase PK and perceived threat to freedom while preserving default uptake, which is consistent with deliberative coping rather than mere inertia. In digital persuasion, persuasion transparency reduces the downstream harm of PK by shaping the reactance pathway, with anger emerging as a consistent emotional mediating route.

Chapter 6 contributes to measurement clarity as a precondition for empirical research by providing a framework that separates transparency from disclosure and disentangles PK from reactance. By keeping constructs conceptually distinct and empirically nonoverlapping, the chapter supports valid mediation tests and cross-context comparability. This contribution is methodological, but it is also theoretical: clearer measurement sharpens construct boundaries, which in turn improves the precision of mechanism claims in both CB and nudging research.

Furthermore, the dissertation advances a time-aware account of influence that emphasizes wear-out and spillover. Chapters 7 and 8 extend theory beyond single-shot effects. Field evidence from a retail context (Chapter 7) documents wear-out as the impact of a transparent salience nudge declines over time, whereas evidence from a campus context (Chapter 8) demonstrates spillover from a nudged choice to a subsequent, unnudged choice. Taken together, these results position time as a central construct in nudging research and call for explicit modeling of temporal dynamics. For nudging research, this moves evaluation beyond immediate behavioral endpoints toward patterns that matter for practice and policy.

9.2 Implications for Marketers and Policymakers

Transparency should be treated as a design variable, not an afterthought. In choice architecture, defaults ought to be accompanied by brief explanations that clarify what is preselected, how the default helps, and why it is offered. The results of Chapter 5 show that in digital contexts, minimal sponsorship tags are insufficient; marketers should adopt persuasion transparency, which makes both the persuasive mechanism and the intent understandable to consumers. Wording is part of the intervention: concise, goal-aligned copy that invites informed choice can support effectiveness while improving perceived legitimacy.

The implications are context- and audience dependent. Platform norms and task demands shape how transparency is received. Defaults in service sign-ups, consent flows, or sustainability choices call for brief explanations tied to consumer goals, whereas social and

creator environments require clarity about both the mechanism and intent that fits the format. For vulnerable or low-PK segments, plain language and supportive framing help avoid overload while preserving agency. Organizations should institutionalize meaningful transparency by setting internal standards for what, how, and why information is provided for each intervention type; documenting justifications; and auditing whether disclosures are actually understood.

Evaluations should be redesigned around dual outcomes and clean processes. Organizations need to track behavioral impact together with perceived autonomy, fairness, and trust, and they should separate evaluations of the intervention from evaluations of the agent. Transparency often benefits agent evaluation even when it activates coping toward the intervention itself. Before launch and during rollout, marketers should measure PK, reactance, and anger alongside behavior, and policymakers should require process evidence in addition to outcomes when reviewing programs at scale.

Time must be planned for explicitly because effects evolve. Evidence from a retail distancing context shows wear-out as transparent salience cues lose strength over time, whereas evidence from a campus mobility context shows spillover from an initial nudged decision to a subsequent, unnudged decision. Marketers should schedule refreshing and rotation to counter wear-out and should design follow-up contexts that either absorb beneficial spillovers or contain unwanted diffusion. Policymakers should budget for maintenance and variation rather than assume that one-off installation is sufficient, and they should require monitoring of temporal performance.

Taken together, the implications are straightforward. Ethically transparent influence can remain effective when it is designed with consumer understanding in mind, evaluated with dual metrics of effectiveness and legitimacy, monitored for coping processes, and managed over time for wear-out and spillover. This approach aligns managerial practice with regulatory expectations and supports interventions that work while respecting consumer autonomy.

9.3 Future Research: AI as a Bidirectional Co-Architect of Consumer Choice

> „But what's cool is my AI knows what's best for me. But I'm in total control. […] Your AI figures out exactly what you need. And by the way, I love that there's no judgment. I think it's amazing to be able to live freely. Your AI figures out what you need at the speed of thought. A sense that will ever be evolving as technology improves too." (Chaudhri, 2023)

Imran Chaudhri, a former Apple designer who helped shape the iPhone's interface, offered this vision in a widely viewed TED talk (Chaudhri, 2023; Merchant, 2017). Given his substantial influence on everyday digital behavior, statements such as these help set expectations for how AI assistance will be imagined, built, and adopted. This vision crystallizes both promises and risks: alignment ("knows what's best"), autonomy ("I'm in total control"), and opacity under speed ("at the speed of thought"). To ensure that such assistance is realized responsibly, research should precede large-scale adoption and specify the mechanisms, guardrails, and evaluation criteria that make AI assistance both effective and legitimate.

As consumers increasingly rely on AI assistants to search, compare, and decide, scholarship on AI-mediated influence has expanded across diverse disciplines (e.g., computer science, human–computer interaction, law, and public policy). This proliferation further increases the need for interdisciplinary integration within CB. In marketing research, recent work positions generative AI as a defining force for the field's next era and calls for shared concepts and the application of knowledge across traditional boundaries to guide research and practice (Rubera, Li, and Hulland, 2025). To support such integration, the nudging framework developed in this dissertation provides a structured lens for analyzing how AI reshapes decision contexts. Building on this lens, I propose AI as a bidirectional co-architect that enables co-creation of choice architectures by both the human/consumer and the choice architect.

In this view, AI operates in two complementary roles as shown in Figure 18. On the consumer side, an AI assistant receives inputs from consumers—who express their ends, constraints, and meta-preferences to the AI—and, in turn, supports coping by filtering options, proposing personal defaults, and generating explanations. On the architect side, an AI assistant supports the designing of choice architectures using those consumer-provided inputs. In this way, AI can enable the choice architect to act in a libertarian-paternalist spirit—tracking anticipated choices and attempting to steer for the chooser's good while preserving freedom of choice—while accountability for goals, ethics, and outcomes remains with the consumer.

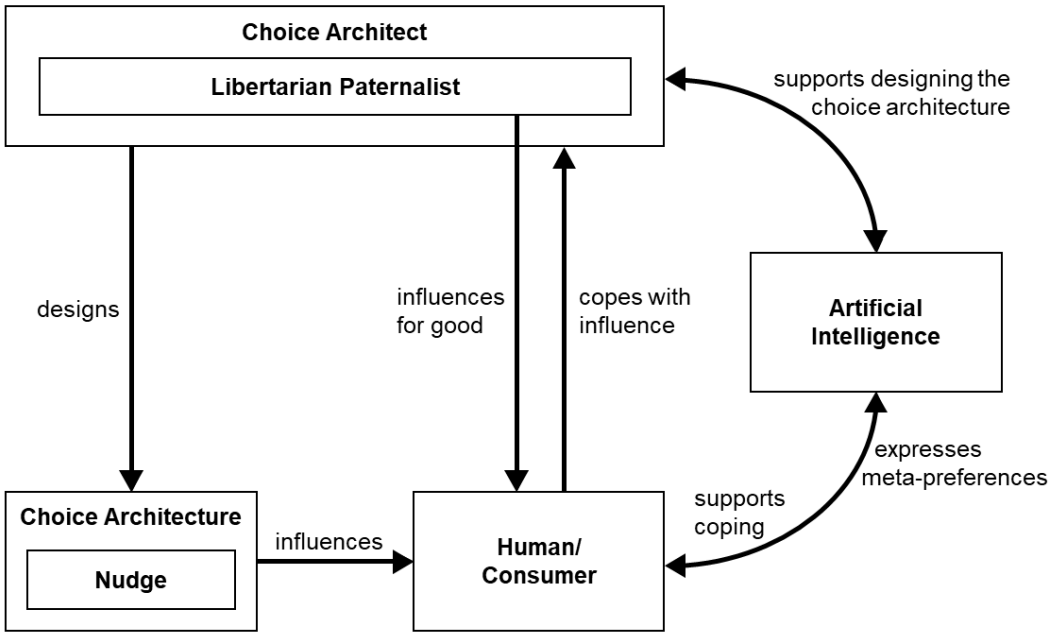

Figure 18: AI as a Bidirectional Co-Architect of Consumer Choice

Future research should formalize this bidirectional co-architecting and test when it improves both effectiveness and legitimacy relative to status quo interfaces by investigating the following research questions: Do AI-proposed personal defaults (with confirm) improve choice quality more than generic defaults, and when do they backfire? Does user control over assistance intensity (low/high) attenuate reactance relative to imposed assistance?

Building on the perspective of AI as a bidirectional co-architect (Figure 18), I propose ends-first assistance as the guiding design principle, operationalized as an ask–infer–confirm loop: elicit goals in plain language (ask), infer preferences from behavior with uncertainty (infer), and validate or correct those inferences via short, proximate explanations (confirm). This loop keeps optimization accountable to user-stated ends rather than opaque proxies. When goals conflict, studies should specify how meta-preferences are gathered, stored, and surfaced in context and how assistance levels are chosen by the user rather than imposed by the system. The corresponding research questions include the following: When does ask–infer–confirm increased PK without triggering reactance? How should systems surface trade-offs when user goals conflict (e.g., savings vs. convenience), and how do outcomes evolve over time? What onboarding sequences best calibrate inferences early on, and how does calibration shape later trust and compliance?

If AI is a delegated co-architect, transparency must be specified as consumer understanding, not merely as labeling. Explanations should reliably communicate what is being proposed or preselected, how the system is steering choices, and why the option serves the user's stated end. This "what–how–why" transparency protocol aligns with preserving choice while personalizing means to heterogeneous goals and can be evaluated in terms of both behavioral impact and perceived autonomy. A concrete question here is: What is the minimally sufficient explanation (what vs. what+how vs. what+how+why) to preserve autonomy without overload?

As shown in Chapters 7 and 8, time is a central factor in behavioral influence and should be modeled explicitly. Extending this insight to AI-mediated choice means recognizing that although AI answers within seconds, fast, proximate optimization can overweight immediate proxies and underweight delayed benefits that matter for welfare. Accordingly, in AI co-architecting, assistants should elicit time horizons and user-set weights ("future-self commitments"); extend transparency from what–how–why to what–how–why–when; and support just-in-time commitments (light frictions, staged defaults, periodic reconfirmations) alongside scenario-based forecasts with uncertainty. The aim is to preserve choice today while safeguarding ends the consumer values over time. Concrete questions include the following: Does adding "when" to transparency increase PK without increasing reactance relative to what–how–why only? Do user-configured discount weights (now vs. later) improve perceived autonomy and long-term adherence versus system-chosen weights? When the assistant makes now/later trade-offs visible, does compliance decrease while legitimacy increases—and is that acceptable?

Looking ahead, treating AI as a bidirectional co-architect points to a broader horizon for behavioral influence. AI will increasingly assist the architect in composing, testing, and justifying interventions. It will reshape the architecture itself as interfaces become adaptive, timed, and personalized. And it will support the consumer in articulating ends, weighing trade-offs, and understanding what–how–why–when in real time. The promise is a more responsive, transparent, and accountable system of influence. The responsibility is to verify when such designs are both effective and legitimate, and to build the guardrails that keep them so. Advancing this agenda will require sustained collaboration across BE, CB, and allied fields in AI and policy. If the synthesis developed in this dissertation provides the conceptual bridge, AI will be the traffic that crosses it—carrying interventions that are comprehensible, choice-preserving, and worthy of public trust.

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