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Context effects in consumer decision-making: developments in experimental realism and a framework to establish practical relevance

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Abstract

There are repeatedly raised concerns that marketing and consumer research often neglects to implement realistic studies that foster generalizability to real-world contexts, thereby limiting their findings' practical relevance. Representative of this issue, confidence in context effects' (i.e., shifts in consumer preferences based on specific choice set compositions) applicability to actual consumer decisions was challenged. Indeed, prior investigations demonstrated that context effects research generally contained low levels of realism, resulting in calls to implement a set of proposed guidelines (e.g., consequential instead of hypothetical choices) to produce generalizable and practically relevant insights. This present systematic literature review analyzes a total of 460 individual assessments of 15 context effects in product choice from over 40 years in 30 top-tier marketing journals whether they implemented these guidelines as well as further experimental characteristics. Despite notable improvements, there are still overall low levels of realism—most critically by not imposing economic consequences—but pronounced differences in the degree of generalizability between the analyzed context effects, with the attraction and compromise effect having the most solid foundation regarding relevant results. Consequently, this article presents a refined and easy-to-follow framework to implement realistic context effects research as well as a research agenda to generate practically relevant future findings in a systematic approach. For practitioners, this article provides an overview of context effects' level of confidence regarding their current real-world applicability as well as guidance on how to identify research that is relevant for their application scenarios.

Keywords: attraction effect; compromise effect; context effects; external validity; practical relevance; systematic literature review

1 Introduction

It is a central maxim of marketing and consumer research to be *practically relevant*: Research in these fields should not just produce interesting findings for academics, but generate useful insights that serve “as a basis for action” for consumers, marketing managers, and policymakers as central audiences (Hoyer et al. 2024, p. 2) due to practitioners seeking actionable guidance in a research landscape that becomes rapidly more complex (Block et al. 2025). However, repeatedly raised concerns that consumer research does not spark the interest of non-academic audiences by lacking practical relevance (Kahn and Wilson 2025) are backed by recent ratings (Jedidi et al. 2021). As these concerns are all but new, editorials of premier marketing and consumer research journals frequently address this issue (e.g., *Journal of Marketing*, van Heerde et al. 2021; *Journal of Consumer Research*, Dahl et al. 2014; Schmitt et al. 2021), calling for adopting a “more single-minded dedication to meaningful results” (Wells 1993, p. 489).

Although practical relevance is a multi-faceted concept (Hoyer et al. 2024), establishing *realism* in studies is crucial for practical relevance by increasing external—particularly ecological—validity (e.g., Morales et al. 2017; Lichters et al. 2015). This is especially pivotal if an article aims to investigate and demonstrate phenomena with proposed real-world applicability (i.e., effects application research; Calder et al. 1981). To establish realism and relevance, studies and the derived insights should be both *actionable* and *consequential* (Hoyer et al. 2024). Concerning studies’ settings and the independent variables on the one hand as well as the dependent variable on the other hand, researchers should abstain from artificial research environments and operationalize the variables in a way that can realistically be transferred to practical applications. Importantly, the focal phenomena should be demonstrated on a behavioral and consequential (i.e., involving actual costs) rather than self-reported and hypothetical basis

(Morales et al. 2017), as the latter can lead to biased conclusions about actual consumer behavior (e.g., willingness to pay; Schmidt and Bijmolt 2020; purchase rates; Lichters et al. 2017).

One prominent consumer research field repeatedly experiencing intense debates and therefore also leaving practitioners puzzled about its applicability to real-world scenarios is that of context effects (Frederick et al. 2014; Huber et al. 2014; Lichters et al. 2015; Yang and Lynn 2014). Context effects in consumers' product choices—as such introduced by Huber et al.'s (1982) seminal article about the attraction effect—represent phenomena that describe how the composition of a choice set and the constitution of its alternatives influence consumers' preferences between these alternatives in ways that violate the concept of regularity and stable preferences (Prelec et al. 1997; Huber et al. 2014). Context effects are considered to be among the most important and influential topics in consumer research (Schmitt 2024), yielding countless publications across a variety of disciplines like psychology, management, and neuroscience (Evangelidis et al. 2024). However, despite the popularity and numerous demonstrations of context effects in research that sparked widespread use in practice (Lichters et al. 2015), two author groups challenged the relevance of the attraction effect for real-world applications: Yang and Lynn (2014) as well as Frederick et al. (2014) deployed a series of independent choice scenarios and found the attraction effect primarily in choice sets with abstract and numerical choice alternative descriptions compared to perceptual and acclaimed more realistic qualitative descriptions. They termed their findings as not promising for marketing practice (Yang and Lynn 2014), stating that “we hope our article gives pause to those citing the effect and stimulates more discussion about the aspects of ecological validity that must be preserved to draw valid inferences from consumer research” (Frederick et al. 2014, p. 493). In response, these articles were initially addressed with conceptual counter-arguments pointing out limitations of these studies and thereof drawn conclusions (Huber et al. 2014; Simonson 2014). However, Lichters et al. (2015) found

that studies on the attraction, compromise, and phantom decoy effect indeed largely neglected to implement realistic settings, thereby yielding limited generalizability of results. Therefore, they proposed guidelines to conduct realistic context effects experiments in order to generate insights that are transferable to business practice.

In light of Lichters et al.'s (2015) concerning report about the (lack of) realism in context effects experiments and the associated, still enduring discussions about context effects' practical relevance (e.g., Fridman et al. 2024; Evangelidis et al. 2024; Hasan et al. 2025; Trendl et al. 2021) that leave marketers and policymakers unsatisfactorily unsure about whether to rely on context effects in practice, this present article provides an updated and expanded assessment of context effects research's realism and therefore an important pillar of practical relevance (Morales et al. 2017), pursuing two main purposes. First, from an academic perspective, this article yields a current and comprehensive overview of methodological choices applied in context effects studies. Thereby, it first contains an updated overview of how context effects' magnitude depends on the factors that determine experimental realism (*realism determinants*), demonstrating the importance to carefully consider these factors in designing studies. Second, the current evaluation of the extent to which experimental assessments of context effects in marketing and consumer research adhere to these factors expands Lichters et al.'s (2015) analyses in crucial ways. On the one hand, it also contains studies that were published after their review, allowing to assess developments in ongoing research efforts in this field (e.g., Fridman et al. 2024; He and Sternthal 2023; Polman and Maglio 2024). More importantly, on the other hand, it expands the scope of analyses. Specifically, this article (1) goes beyond just the attraction, compromise, and phantom decoy effect as the most prominent context effects (Lichters et al. 2015; Adler et al. 2024; Schmitt 2024), and includes less prominent and more recently proposed context effects like the abrupt disparity effect (Dogerlioglu-Demir et al. 2023) and the common

attribute effect (Evangelidis and van Osselaer 2018), (2) expands the analyses to include further experimental design elements (e.g., product categories used as stimuli), and (3) not only encompasses the articles in which context effects studies were reported, but also individual assessments for more fine-grained analyses as well as the journals that published these articles. The analyses reveal that the overall level of experimental realism increased after Lichters et al. (2015) proposed their guidelines on how to conduct generalizable experiments. However, there is still room for improvement, and vitally there is considerable heterogeneity between context effects, different realism determinants, and articles published in different journals. On this basis, still-existing research gaps—or rather validation gaps—are outlined to further investigate the impact of realism determinants on context effects' magnitude and accordingly establish the practical relevance of several context effects. For that matter, this article proposes expanded and refined guidelines including best-practice examples for context effects researchers to generate insights that are generalizable to real-world applications.

Second, from a practical perspective, this article provides marketers and policymakers with a toolkit to evaluate academic context effects research regarding the applicability to their use cases. Specifically, it contains a consolidated overview of the current level of confidence with which the different context effects indeed promise to shape real-world consumer behavior. As a general insight, the most popular context effects with a long research history (i.e., the attraction and compromise effect, but also the phantom decoy effect; Schmitt 2024) were already demonstrated in (several) real-world decision environments. However, also individual other recently discovered context effects (e.g., the upscaling effect; Evangelidis et al. 2023b) were shown in realistic experiments. Beyond that, this article serves as guidance for practitioners to evaluate academic context effects studies regarding their value for business or policy decisions. That is, the guidelines proposed in this article can be used as an evaluation scheme regarding

studies' experimental realism and thereby help to navigate through the vast body of context effects literature, allowing to spot generalizable research insights.

2 The Role of Realism in Context Effects Research's Practical Relevance

2.1 Context Effects in Product Choice

Context effects can broadly be summarized into categories mapped onto two levels. Higher-level context effects constitute a set of phenomena describing how the decision situation consumers are *in* influences their choice behavior (Thomadsen et al. 2018; e.g., the influence of ambient light on product choice; Biswas et al. 2017). In contrast, lower-level context effects—generally used interchangeably with the term *context effects* and the sole focus of this article as well—are phenomena that result from the choice set composition and therein contained choice alternatives' constitution. These phenomena describe preference shifts in the choice set that are incompatible with the axiom of stable preferences and therefore are seemingly irrational (Huber et al. 2014; Prelec et al. 1997).

Multiple context effects have been proposed and investigated in the over 40 years since Huber et al.'s (1982) article on the attraction effect. Based on their characteristic setting to influence consumer preferences, these context effects can be grouped into several categories¹ (Adler et al. 2024; see Table 1).

¹ A detailed discussion and procedural explanation of individual context effects is beyond this article's scope, but Adler et al. (2024), Milberg et al. (2014), Neumann et al. (2016), and Padamwar and Dawra (2024) serve as good starting points for the reader.

Table 1 Overview of context effects and their categorization

Category	Context effect	Focal publication
Decoy effects	Attraction effect ^a	Huber et al. 1982, <i>JCR</i>
	Compromise effect	Simonson and Tversky 1992, <i>JMR</i>
	Phantom decoy effect	Farquhar and Pratkanis 1993, <i>ManSci</i>
	Upscaling effect	Evangelidis et al. 2023b, <i>JCR</i>
	Abrupt disparity effect	Dogerlioglu-Demir et al. 2023, <i>ML</i>
Context effects based on changes of attributes and attribute levels	Polarization effect	Simonson and Tversky 1992, <i>JMR</i>
	Enriched vs. impoverished options	Shafir 1993, <i>MC</i>
	Common feature effect	Chernev 1997, <i>JCR</i>
	Zero-comparison effect	Palmeira 2011, <i>JCR</i>
Context effects based on the influence of past choice sets	Common attribute effect	Evangelidis and van Osselaer 2018, <i>JMR</i>
	Background contrast effect	Simonson and Tversky 1992, <i>JMR</i>
Context effects considering a single product	Jilting effect	Garvey et al. 2017, <i>JMR</i>
	Single-option aversion	Mochon 2013, <i>JCR</i>
	Lone-alternative effect	Kahn et al. 1987, <i>JCR</i>
	Display set effect	Karmarkar 2017, <i>JBDM</i>

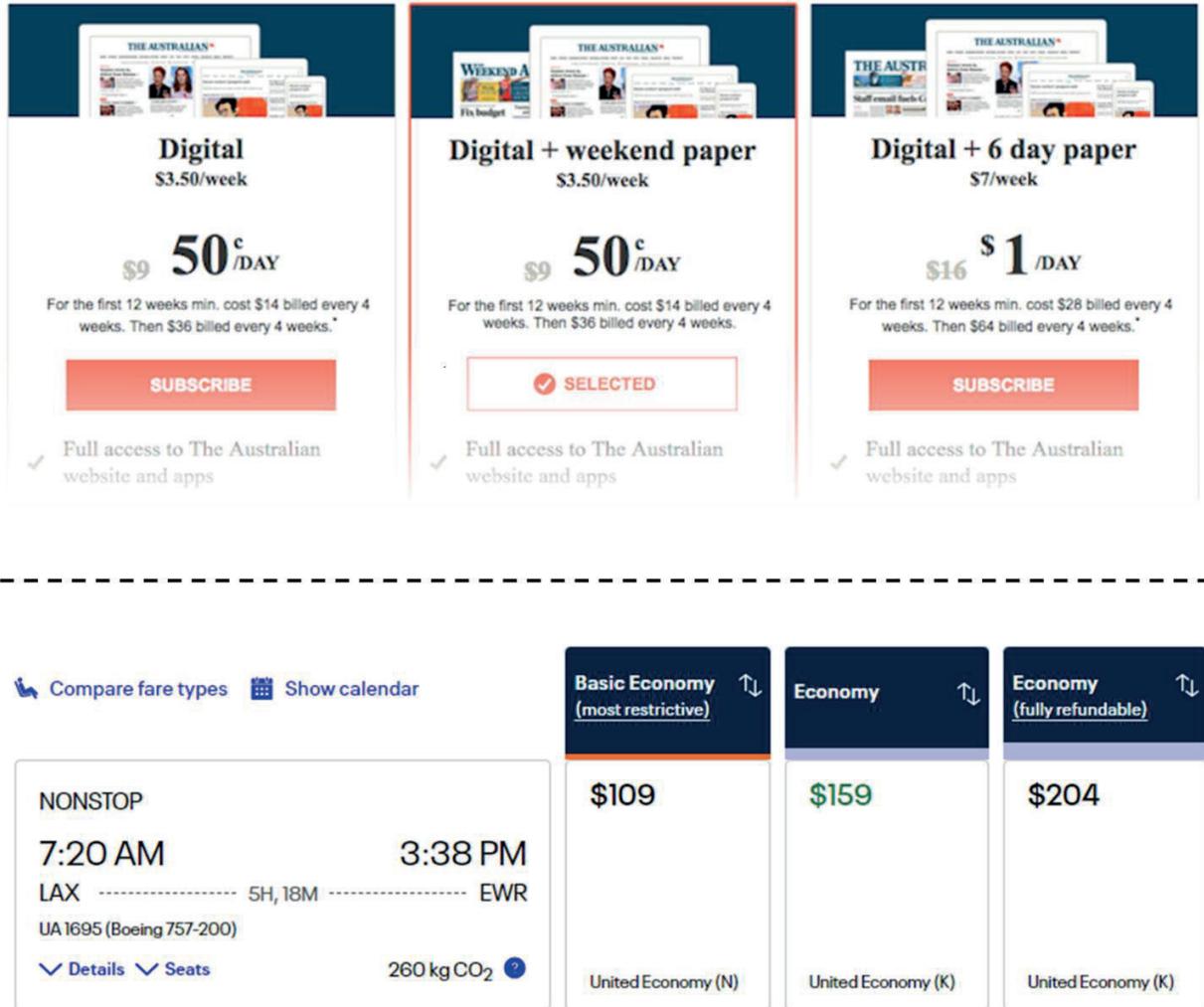
Notes. *JCR* = *Journal of Consumer Research*, *JMR* = *Journal of Marketing Research*, *ManSci* = *Management Science*, *ML* = *Marketing Letters*, *MC* = *Memory & Cognition*, *JBDM* = *Journal of Behavioral Decision Making*

^aThe attraction effect is also often referred to as the asymmetric dominance effect. There are instances in which an asymmetrically dominated decoy leads to a preference shift toward the competitor, resulting in a *repulsion effect* (Simonson 2014). Repulsion effects in product choices are rarely observed (Liao et al. 2021) and also called a negative attraction effect (Aaker 1991), therefore, the present article subsumes the repulsion effect under the attraction effect in this tradition.

Decoy effects can be observed when an additional “decoy” alternative is added to a pre-existent choice set containing (usually two) non-dominating alternatives (binary core set). These alternatives are in a trade-off situation (e.g., between price and quality), of which one commonly is termed the “target” (e.g., a more expensive alternative of higher quality that marketers primarily want to sell), and the other the “competitor” alternative (e.g., lower price and lower quality). Adding the decoy to the binary choice set shifts consumer preferences toward one of the

alternatives, from a marketer's perspective preferably the target. The most prominent and widely researched decoy (and context) effects are the attraction and compromise effect (Adler et al. 2024; Lichters et al. 2015; Schmitt 2024). Attraction effect decoys are mostly irrelevant as choice alternatives themselves, but attract choice shares toward the target due to them being asymmetrically dominated by the target but not the competitor, resulting in the target's higher appeal due to its dominating position (Huber et al. 1982). Compromise effect decoys increase the decision spectrum along the trade-off line of the target and competitor (e.g., being even more expensive and of premium quality), rendering the target a "compromise" in the choice set and thereby yielding increased preferences. Beyond their relevance in consumer research, the attraction and compromise effect are often found in real-world situations to assuagingly influence consumer decisions (see Fig. 1).

Fig. 1 Real-world examples of the attraction and compromise effect



Notes. The upper example depicts a former subscription offer of *The Australian* (adapted from Mortimer 2019) exhibiting the attraction effect. The lower example depicts economy offers of United Airlines for a randomly searched one-way flight (United Airlines, Inc. 2024) exhibiting the compromise effect.

Context effects based on changes of attributes and attribute levels can be observed where consumers face only binary choice sets; preference shifts however occur due to manipulations in the attribute (level) constitution of the target and competitor instead of adding a decoy alternative. These manipulations can, for example, focus on unveiling and emphasizing shared characteristics or features of the alternatives, resulting in shifts of attribute importance (e.g., Chernev 1997;

Evangelidis et al. 2018). *Context effects based on the influence of past choice sets* describe how the recent past yields preference shifts in current choice situations. For example, price-quality trade-offs learned in a previous choice set can transfer to and influence the decision in a current choice set (Simonson and Tversky 1992). Finally, *context effects considering a single product* contain decisions of whether to buy a target product or not. For example, consumers are less likely to buy a product when it is offered in isolation instead of together with another product due to a higher need to search for alternatives in the former situation (Mochon 2013).

2.2 The Relation of Practical Relevance and Realism in Consumer Research

To assess whether consumer research fields such as context effects are *practically relevant*, there is an evaluation frame to be established first. Practical relevance of consumer research is a multi-faceted concept with a history of different definitions (for a detailed discussion, see Hoyer et al. 2024). Fundamentally, consumer research is practically relevant “when the findings can, and will, be used as a basis for action by its intended audience”, which includes not just academics, but also consumers, marketers, and policymakers (i.e., practitioners; Hoyer et al. 2024, p. 2). That is, practically relevant research addresses issues that are present in real-world consumption, business, and policy contexts. Although practical relevance also entails broad-scale, topical dimensions such as the amount of addressed stakeholders (Jaworski 2011; Kohli and Haenlein 2021) that are potentially affected by specific research insights at a given time (Jedidi et al. 2021), it critically depends on how applicable these insights are to guide practitioners’ decisions (Benbasat and Zmud 1999).

Research findings are applicable for practitioners if they can be easily transferred to and are likely to hold in their specific real-world scenario. For that matter, consumer research not only needs to exhibit *external validity* (i.e., results obtained in one context—typically laboratory-

based experiments—can be transferred to other contexts; Beechey 2022), but also *ecological validity* (i.e., studies and their findings resemble the “real-world”; Holleman et al. 2020). This allows to *generalize* research to contexts outside of the laboratory that are relevant for practitioners. However, this fundamentally requires a defined extrapolation system and a match along several criteria of the study to the real-world context to which one wants to generalize (Calder et al. 1981). Although establishing a match to one defined real-world context can limit the generalizability to other ones (e.g., field studies are not per se generalizable to all possible application scenarios), such a match is the foundation that allows generalization to the selected extrapolation system, fosters ecological validity regarding that context, and ultimately serves as one prerequisite to establish practical relevance. Since the extrapolation systems that are relevant for consumer-research practitioners are by nature *real* consumption contexts (Schmitt et al. 2021) like choosing a product from a set of a low-, medium-, and high-quality and price alternative, generally the central element of generalizability allowing to understand and influence actual consumer behavior (*effects application research*; Calder et al. 1981²) is a study’s *realism*.

In order to establish practical relevance through realistic consumer research, studies and their findings need to be *actionable* and *consequential* (Hoyer et al. 2024; Morales et al. 2017). *Actionability* is primarily achieved by operationalizing the independent variables in close resemblance of real-world consumption situations that provides specific recommendations and easy-to-apply action steps (Hoyer et al. 2024). Morales et al. (2017) argued that the choice and

² In considerations of practical relevance—and realism for that matter, one has to differentiate between *theory application research* and *effects application research* (Calder et al. (1981); Lynch (1982)). The former is primarily driven to test a theory or provide explanations for effects, and although still worthwhile in these endeavors (Morales et al. (2017)), implementing realistic settings is not of the utmost importance. When the goal is to demonstrate a phenomenon and argue for its practical relevance, establishing realism is however fundamental. For the full line of reasoning, the reader is referred to the Calder et al. (1981) - Lynch (1982) debate.

manipulation of the independent variables determines the realism of a study on a continuum from purely artificial to very realistic. They stated that “the more these variables involve realism and entail a more naturalistic setting in which to measure or observe responses, the easier the generalization [and] the larger the impact” (Morales et al. 2017, p. 468). Importantly, an experimental study’s realism does not only depend on the independent variables, but also on other aspects of the research setting (e.g., lab vs. field environment). *Consequential* research generates “findings that allow the audience to make a meaningful impact on consumer behavior in the real world” (Hoyer et al. 2024, p. 6). This is achieved by findings demonstrated using ecologically valid measures that resemble real-world outcomes and allow the assessment of the impact of an effect or phenomenon. In other words, researchers should implement dependent variables that match actual consumer behavior. According to Morales et al. (2017), the realism of dependent variables lies on a continuum from hypothetical intention to actual behavior. An important criterion for realistic, behavioral outcome measures is whether choices impose economic consequences (costs in exchange for goods as in real purchase decisions) or are merely hypothetical (self-reports or ratings without any consequences; Hoyer et al. 2024).

In sum, both the side of independent variables (as well as study settings) and the side of dependent variables should be carefully considered to craft realistic studies that foster generalizability and therefore serve as one important proxy for practical relevance. Because consumer research is ultimately driven to understand and influence actual consumer behavior, applying means to establish realism in studies is necessary if claims about practical relevance (or irrelevance) of specific phenomena are to be made.

2.3 Practical Relevance of Context Effects and Realism in Context Effects Research

As mentioned above, the practical applicability of context effects has been doubted: Frederick et al. (2014) and Yang and Lynn (2014) challenged the attraction effect's relevance for practitioners³. They based their argument on a series of experimental attraction effect assessments, including replications of previously reported studies (e.g., Ratneshwar et al. 1987; Simonson and Tversky 1992; Trueblood et al. 2013). In these assessments, they applied and manipulated the presentation of choice alternatives' attributes across various dimensions, for example, pictorial or verbal vs. numerical. They found the attraction effect to be generally not or less observable in the former vs. latter presentation style. Arguing that pictorial or verbal (vs. numerical) presentations of products resemble offers found in real consumer decision contexts, they concluded that the attraction effect is not a robust phenomenon when using realistic stimuli, but is rather restricted to stylized and artificial study settings. Lasting to this day, their articles sparked an intense debate and inspired many research efforts addressing this argument (see, e.g., Fridman et al. 2024; Hasan et al. 2025).

Although these author groups highlighted an important issue with this criticism, in direct response, several scholars argued that there are limitations in this line of reasoning and the conclusions. On the one hand, although the choice alternatives' presentation format is an important criterion that influences how closely research stimuli resemble real-world product offers (e.g., by including product pictures; see Lichters et al. 2015), if studies are not crafted in a way that fundamentally allows the elicitation of an attraction effect, its absence arguably has other reasons than not being a robust phenomenon. For example, the possibility to detect the

³ Note that the attraction effect is just one phenomenon of context effects. The underlying reasoning regarding the arguments for and against its practical (ir)relevance representative for other context effects are outlined as well, although there might be no specific concerns regarding their practical relevance raised yet.

dominance relationship between the target and decoy, as well as presenting a decoy that is not fundamentally undesirable (e.g., a rotten apple in a choice set of fruits), are necessities for the attraction effect to occur (Huber et al. 2014; Simonson 2014). However, stimuli used in some of Frederick et al.'s (2014) and Yang and Lynn's (2014) studies diverge in that regard, therefore providing explanations for not observing the attraction effect other than not being a real and robust phenomenon. On the other hand, the presentation format is only one factor that influences a study's realism (Lichters et al. 2015). However, both Frederick et al. (2014) and Yang and Lynn (2014) did not implement other determinants of realism in their studies (e.g., economic consequences). Not observing an attraction effect in studies with varying degrees of realism in one, but unrealistic in other domains also limits the validity to conclude that the effect is not applicable to real-world contexts.

In a similar line of reasoning, one also cannot conclude that the attraction effect *is* practically relevant by eliciting it in unrealistic settings. As Lichters et al. (2015) demonstrated, a lot of research on the attraction effect—as well as the compromise and phantom decoy effect—up to that time did not implement realistic studies. One can therefore not use these studies to claim the practical relevance of context effects. Evaluating the practical relevance of the attraction effect (and other context effects) (1) requires a comprehensive set of criteria that determine the degree of realism of scientific context effects assessments and (2) has to be conducted on assessments that implement these realism determinants.

As a consequence, Lichters et al. (2015) proposed a set of guidelines to establish correspondence between the experimental and envisioned real-world application setting to fundamentally allow for relevant context effects studies. These *realism determinants*⁴ are

⁴ Note that this term is used in the present article to distinguish the realism determinants from other experimental design elements, but was originally not used by Lichters et al. (2015).

explained below and have been demonstrated to critically influence the magnitude of the most prominent context effects (i.e., the attraction and compromise effect; Schmitt 2024) to varying degrees (see Table 2). They exert their influence on context effects through various psychological processes widely established to influence decision-making (e.g., cognitive processing style; Lichters et al. 2017; Pocheptsova et al. 2009).

In line with Hoyer et al.'s (2024) and Morales et al.'s (2017) propositions regarding the dependent variable, the first realism determinant addresses economic consequences in actual choices. It is crucial to implement consequential (opposed to merely hypothetical) choices in context effects experiments, as consumers in almost all real-world purchase scenarios pay a price for their chosen alternative and receive the goods in exchange (e.g., Carmon and Ariely 2000). In other words, linking the decision with economic consequences can arguably be considered one of the fundamental determinants of study realism, as exchanging money for a product or service is at the core of a purchase decision. In fact, the attraction effect is increased (Lichters et al. 2017) but the compromise effect is attenuated (Müller et al. 2010, 2012a) in consequential vs. hypothetical choices. It is therefore important to implement consequential choices in experiments to avoid misestimations of a context effect's magnitude in real-world settings, which is in line with findings regarding other consumer behavior phenomena (e.g., hypothetical bias in willingness to pay assessments; Schmidt and Bijmolt 2020). Expanding on that notion, conducting experiments in natural consumption environments as field studies (e.g., in supermarkets or via online retailers) provides not only the benefit of incorporating consequential choices but also increases the realism of the study setting as a whole (Morales et al. 2017).

Table 2 Articles investigating the influence of realism determinants on the magnitude of the attraction and compromise effect in preferential consumer choices

Criteria	Manipulation/assessment specification	Attraction effect	Compromise effect	
# <i>Realism determinant</i>				
1	Economic consequences	Consequential vs. hypothetical choices	▲Lichters et al. (2017)	▼Müller et al. (2010); Müller et al. (2012a) –Guo (2022)
2	No-buy option ^a	Present vs. absent	▲Dhar and Simonson (2003) ▼Gomez et al. (2016) ^b	▼Dhar and Simonson (2003)
3	Relevant target audience	High vs. low product (category) knowledge ^c	▲/▼Sen (1998) ^d ▼Mishra et al. (1993) –Malaviya and Sivakumar (1998) ^d ; Ratneshwar et al. (1987)	▼Sheng et al. (2005)
4	Realistic choice alternatives	Price vs. quality orientation	▼Gomez et al. (2016) ^b	▼Müller et al. (2012b)
		Perceptual (pictorial) vs. numerical presentation	▼Frederick et al. (2014); Yang and Lynn (2014) ^e	
		Verbal vs. numerical presentation	▼Yang and Lynn (2014) ^e	
		Experienceable product sample available vs. unavailable	▼Fridman et al. (2024)	
5	Controlled alternative perception ^f	Attribute ranges/effect-specific target positioning	▲Padamwar et al. (2021) ^g	▲Padamwar et al. (2018) ^h
		Attribute- vs. alternative-based presentation	▲Cataldo and Cohen (2019) –Hasan et al. (2025); Jang and Yoon (2016)	▲Cataldo and Cohen (2019); Jang and Yoon (2016)
		Functional vs. common-scale rating attribute presentation	▲Banerjee et al. (2024)	▲Banerjee et al. (2024)
		Graphical vs. numerical presentation	▼Hasan et al. (2025)	▲Kim (2017)
		Moderate attribute levels vs. aggregated extremes		▼Liu et al. (2020)
		Displayed in middle vs. outer position	▲Hasan et al. (2025) ⁱ	▲Kim et al. (2022)
		Undesirable vs. desirable choice alternatives	▼Malkoc et al. (2013)	

Notes. ▲/▼/- = higher/lower/no unequivocal difference in the context effect's magnitude in the former vs. latter condition.

^aThe authors Chuang and Yen (2007) also manipulated the availability of the no-buy option in their fourth study but did not report its direct influence either on the attraction effect or the compromise effect.

^bAlthough the authors manipulated no-buy option availability / assessed price vs. quality orientation and reported a significant attraction effect for forced choices / quality-oriented participants but not for free choices / price-oriented participants, they did not test the two conditions / groups directly against each other.

^cGe et al. (2009) and Huang and Zhang (2016) reported a decreased out-of-stock effect—an effect related to the phantom decoy effect—for high vs. low product category knowledge. Other than that, no relevant studies regarding the influence of realism determinants on the phantom decoy effect in preferential consumer choices could be identified.

^dIn Sen (1998), the influence of product category knowledge on the attraction effect was moderated by product information presentation mode. In Malaviya and Sivakumar (1998), the attraction effect's magnitude did not differ between high and low, but was increased for moderate levels of product category knowledge.

^eYang and Lynn (2014) did not manipulate the realism of choice alternatives' presentation within experiments, but analyzed the share of significant attraction effects in different choice settings across experiments in post-hoc tests similar to a single-paper meta-analysis.

^fBoth Huber et al. (2014) and Simonson (2014) argued that generally being able to identify the specific choice set composition generating the particular context effect (e.g., dominance relationship between the target and decoy in attraction effect settings) is a prerequisite for any context effect to occur. Beyond this dichotomous segmentation, one could see the listed manipulations as a selection of (metric) sub-dimensions that influence the recognizability of choice set compositions, of which some underlying studies are presented here.

^gThe range effect is stated as a stronger attraction effect with stronger dominance of the target over the decoy on the relevant attribute.

^hThe range effect is stated as a stronger compromise effect with more central positioning of the target between the extreme alternatives in the attribute space.

ⁱThe attraction effect was strongest when the decoy was presented first, the target second, and the competitor third.

The second realism determinant considers the presence of a no-buy option, arguably another fundamental determinant of realistic purchase decisions. A no-buy option in choice sets to enable free choices matches real-world purchase scenarios because consumers almost always are not forced to buy a product but can at least delay a decision (Dhar and Nowlis 2004). It is important to include a no-buy option because Dhar and Simonson (2003) showed that it increases the attraction effect's but decreases the compromise effect's magnitude. In contrast, more recently, Gomez et al. (2016) reported a significant attraction effect only in forced-choice but not free-choice settings. These contradictory findings with regards to the attraction effect might at least partially be due to Gomez et al. (2016) imposing consequential choices on their participants, whereas Dhar and Simonson (2003) did not, highlighting again the importance of economic consequences for context effects (albeit in an indirect manner via other realism determinants).

The third realism determinant addresses the match between the sample and product stimuli. That is, the decision-makers in experimental studies (i.e., participants) should represent actual consumers to resemble potential buyers of the product stimuli. In other words, the products should be relevant for the recruited sample (e.g., not selecting a student sample for a stimuli set consisting of luxury cars or vice versa) because most real-world purchase decisions only arise due to products being relevant for consumers. This is important because several sample-related characteristics have been shown to influence context effects' magnitude. For example, both the attraction and compromise effect were weaker for consumers with high (vs. low) product knowledge (Mishra et al. 1993; Sheng et al. 2005) or price (vs. quality) orientation (Gomez et al. 2016; Müller et al. 2012b). Researchers should at least ensure that participants are potential buyers of the presented products to establish a baseline correspondence with real purchase situations.

The fourth realism determinant addresses how the choice sets' alternatives are constituted and presented. To create realism, there are arguably several dimensions to match choice sets to real-world purchase decisions. For example, researchers should extend product presentations with product pictures and customer ratings if these are typically encountered in the real world (see Fig. 2 for how consumer electronics choice sets vary in their presentation across studies). Also, although related to the adequate perception of choice sets (Huber et al. 2014), fundamentally undesirable alternatives should be avoided to limit unrealistic effect attenuations (Malkoc et al. 2013). Additionally, researchers should select product attributes and attribute levels that reflect market conditions. The presentation format of the attribute information can influence the magnitude of context effects (e.g., Yang and Lynn 2014) and therefore should be matched to typical product offers found in the extrapolation system.

Fig. 2 Context effect choice set presentations in different studies

Smartphones				Sony Headphones MDRZX300B Monitor	Sony Headphones MDRZX400B Extra Bass	Sony Headphones MDRZX600B Extra Bass
Brands	Display Size in inches	Battery Capacity in mAh	Product:	10 – 20 000 Hz	5 – 22 000 Hz	4 – 24 000 Hz
Brand A	4.5 inches	6350 mAh	Frequency response:	100 dB	100 dB	104 dB
Brand B	5.4 inches	5000 mAh	Sensitivity:	★★★★★	★★★★★	★★★★★
Brand C	6.7 inches	4000 mAh	Amazon rating:			
			Product picture:	22.40€	32.40€	54.99€
			Price:			
			Your choice:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Notes. Illustration of two choice sets used to investigate the compromise effect (both re-created with adapted values): The one on the left as displayed in Appendix A5 of Banerjee et al. (2024), the one on the right as displayed in Lichters et al.'s (2016b) appendix.

The fifth realism determinant addresses the perception of choice alternatives and the possibility of encoding how the choice alternatives are related to each other in the choice set. The choice set should be constructed in such a way that the particular context effect has at least a fundamental chance to occur. For example, the attraction effect can only occur if participants can identify the asymmetric dominance relationship between the target and the decoy (Huber et al. 2014). Further variables also influence the perception of choice alternatives, some of which are rather gradual than categorical. For example, the location of decoys in the attribute space (Padamwar et al. 2018; Padamwar et al. 2021) or their position within the presented choice set (Hasan et al. 2025; Kim et al. 2022) can influence context effects' magnitude. Relevant research must nevertheless ensure that the targeted context effect can fundamentally occur, and that the choice set ideally aligns with actual product offer presentations (e.g., ascending order of price and quality).

Beyond these realism determinants⁵, further *experimental design elements* should be taken into account to enhance the findings' realism and relevance. First, there is value in selecting an appropriate experimental design, specifically, manipulating choice sets either on a within- or a between-subjects level (e.g., Aczel et al. 2018). On the one hand, there might be reasons for choosing one or the other or even both regarding ecological validity. For example, if a consumer faces several decisions in the customer journey that reasonably allow for the repeated presentation of offers (e.g., insurance add-ons for traveling), a within- rather than between-

⁵ Note that Lichters et al. (2015) proposed two further realism determinants, i.e., the possibility of sensory pre-evaluation before purchase and the number of choices per participant. Although these factors ostensibly are criteria along which researchers should align their study setting to the real-world application setting to establish generalizability, this setting is highly context-specific itself. For example, the possibility to pre-evaluate a product sensorially can usually be established in retail stores but not in online purchase scenarios, and the number of purchase decisions varies vastly with the product category at hand (e.g., FMCGs and food items vs. cars).

subjects design might be preferred. However, if consumers typically make one-time decisions for products, the opposite is advisable. On the other hand, on a more theoretical basis, using within- vs. between-subjects designs—or ideally a combination—allows to assess distinct potential influences on a context effect (e.g., base-level preferences, states vs. changes, salience, and unobserved heterogeneity; Bless and Burger 2016; Hutchinson et al. 2000; Lichters et al. 2016b; Wernerfelt 1995).

Second, for certain context effects like decoy effects, there are several choice set compositions to elicit the specific effect (e.g., core vs. extended set and double-decoy choice sets; Canty et al. 2024; Evangelidis et al. 2018). For example, with double-decoy designs, a different decoy favors a different alternative in each choice set condition. Demonstrating context effects in different compositions, or at least with decoys favoring different alternatives (typically high vs. low price and quality; Heath and Chatterjee 1995) adds to the robustness of findings or reveals boundary conditions regarding an effect.

Third, demonstrating context effects across a range of product categories such as fast-moving consumer goods (FMCGs), durables, or services, enables broader generalization and enlarges the scope of markets that the effect might be relevant for (Gomez et al. 2016; Heath and Chatterjee 1995; Lichters et al. 2016a; Milberg et al. 2014; Neumann et al. 2016). There are several theoretical reasons why different product categories interact with psychological variables that influence the magnitude of context effects (e.g., price vs. quality orientation, Müller et al. 2012b; decision involvement and processing style, Lichters et al. 2016a). Showing a context effect in different product categories is therefore beneficial when wide-ranging relevance claims regarding manifold marketing applications are to be made.

3 Analysis of Realism and its Development in Context Effects Research

3.1 Methods

This systematic literature review analyzes experimental context effects studies on product choice in marketing and consumer research. This was done in line with the PRISMA statement to identify and screen for relevant studies fulfilling a defined set of eligibility criteria (Page et al. 2021).

In the first step, the software Publish or Perish (Harzing 2007) was used to extract articles from the Google Scholar database. The search included articles investigating⁶ the attraction effect, compromise effect, phantom decoy effect, enriched vs. impoverished options, background contrast effect, common feature effect, single-option aversion, zero-comparison effect, lone-alternative effect, upscaling effect, common attribute effect, abrupt disparity effect, display set effect, jilting effect, and polarization effect, based on established search terms related to these context effects⁷. The first context effects article was published in 1982 (Huber et al.). All articles that were published at least as advance online publications until September 30, 2025 were included. Duplicates and articles not published in the marketing journals ranked by researchers as

⁶ Several scholars who published context effects articles in respected marketing and consumer research journals were contacted and asked for their opinion on which context effects in product choice they believe result in essential consequences for marketing and consumer research. A recent bibliometric analysis of the context effects field (Adler et al. 2024) was cross-checked to ensure that no context effect with a strong publication base was overlooked.

⁷ The string of search terms used: "attraction effect*" OR "asymmetric* domina*" OR "range decoy*" OR "frequency decoy*" OR "range frequency decoy*" OR "inferior decoy*" OR "decoy choic*" OR "decoy option*" OR "compromise effect*" OR "compromise choice*" OR "compromise option*" OR "extremeness avers*" OR "phantom alternative*" OR "phantom decoy*" OR "phantom effect*" OR "out of stock effect*" OR "common attribute effect*" OR "common feature effect*" OR "abrupt disparit* effect*" OR "upscaling* effect*" OR "display set effect*" OR "display set option*" OR "background-contrast effect*" OR "zero-comparison effect*" OR "single option aversion*" OR "repulsion effect*" OR "polariz* effect*" OR "lone-alternative effect*" OR "jilt* effect*" OR "impoverish* option*" OR "enrich* option*". A similar search string was used by Adler et al. (2024).

the top 30 worldwide were removed (see Hult et al.'s 2009 journal ranking as also applied in similar reviews, like Lichters et al. 2015). A manual search of these journals' volumes, articles' references—most notably, the reviews and meta-analyses of Adler et al. (2024), Evangelidis et al. (2024), Lichters et al. (2015), Neumann et al. (2016), and Padamwar and Dawra (2024)—and another Google Scholar search followed. This process resulted in a set of 482 articles being evaluated regarding their coding eligibility.

From this set, a manual content review excluded all articles that met at least one of the following criteria: 1) articles without own empirical applications or data collection (e.g., reviews, theoretical articles, comments or replies, or meta-analyses like Neumann et al. 2016), 2) articles in an extended abstract format that did not provide enough details to assess the experimental study characteristics or that were later published as full articles (e.g., Malkoc et al. 2011), 3) articles that were not about preferential product or service choice in a discrete choice setting or not in exchange for (at least) hypothetical own money (e.g., perceptual or risk-related choices, personal liking, prediction of others' choices like Sedikides et al. 1999), 4) articles that did not manipulate context-effects related choice sets or choice alternatives in an experimental procedure but used the idea of context effects to explain observed behavior (e.g., Chang and Liu 2008)⁸, 5) articles that only referred to relevant context effects or just cited context effects articles (e.g., Chen and Mišić 2022), or 6) articles that examined consumer behavior phenomena other than the defined set of context effects (such as consumer reactions to out-of-stock products, e.g., Ge et al. 2009).

⁸ Articles about decoy effects that only used one extended choice set between groups based on the definition of Adler et al. (2024) and discussion of Davis-Stober et al. (2023) were excluded.

After screening articles according to these criteria, there were 129 articles eligible for coding⁹. These articles all investigated at least one of the target context effects in an experimental research setting covering preferential product choices (see Online Resource 1 for the final set of articles). The coding scheme (see Table 3) was applied to each study in an article dealing with a single context effect at a time (see the OSF repository for the coded data and analysis script via this link: <https://osf.io/z6cq8/overview>). This approach allowed to analyze each instance of an individual experimental assessment of different context effects separately, but also to aggregate the assessments to the article level.

⁹After screening and coding, no eligible article specifically covering the repulsion effect remained. As mentioned, the repulsion effect is implicitly a negative attraction effect, so it is covered under the attraction effect in analyses. The repulsion effect as a separate effect is therefore excluded from further elaborations. Furthermore, note that after discussion with the scholars contacted to define the set of essential context effects for this present article, Karmarkar (2015) was included in the analyses despite the amount of available information limiting the detailed evaluation of all study characteristics, because this publication was the only identified article investigating the display set effect in one of the target journals.

Table 3 Coding scheme for study characteristics in context effects experiments

Criteria	Operationalization and coding
Meta data	
Journal	Marketing journal in which the article was published (Hult et al. 2009)
Publication year	Year of publication (corresponds to the year of publication in a journal issue if the article was previously published online in advance)
Context effect	Coding which context effect ^a was assessed per study in an article
Design elements	
Experimental design	Assignment of participants to experimental conditions regarding the manipulation of context-effect defining characteristics of choice sets or alternatives (within-subjects; between-subjects; mixed designs were later allocated to both the within- and between-subjects designs)
Choice set configuration	Manipulation of defining characteristics of choice sets or alternatives to assess a context effect (core set vs. extended set; double decoy design; other or not applicable ^b)
Product category	Product categories used to construct choice alternatives (FMCGs/consumables, e.g., toothpaste, shampoo; durables, e.g., cars, grills; service/experience, e.g., flights, vacations; other, e.g., plant seeds; various, i.e., at least each one of at least two different categories)
Realism determinants	
Economic consequences	Degree of economic consequences imposed on participants' decisions (hypothetical: participants did not receive their chosen alternative; partially consequential: participants received their chosen alternative but did not have to pay for it; fully consequential: participants received their chosen alternative and had to pay for it; manipulation of full consequences: at least one experimental condition implemented with fully consequential and at least one condition with hypothetical or partially consequential choices)
Field study	The study was conducted and choice behavior assessed in a real-world consumption context outside a laboratory or artificial consumption environment (i.e., setting where consumer decisions or consumption behavior naturally take place, e.g., restaurant or retailer website; no; yes)
No-buy option	The choice set contained a no-buy option (e.g., searching for other alternatives; no; yes; manipulation of (the presence of) a no-buy option)
Target audience relevance	Selection of products as choice alternatives relevant to the participant sample or recruiting/screening of participants for which the pre-selected products were relevant (e.g., pre-tests or referring to

	existing studies; not considered: products or participants selected without any justification; considered: products or participants selected based on pre-tests or referring to existing studies; systematically varied and compared: (aspects of) product-and-participant relevance were varied or measured and their influence on choice behavior assessed)
Choice alternative realism	Choice alternatives were constructed to resemble characteristics of actual products and product offers (e.g., pictures, authentic brands, attributes and levels of products available on the market; not considered: alternatives lacked real characteristics; considered: actual products or alternatives contained characteristics of actual products; systematically varied and compared: choice sets consisted of (vs. not) actual products or alternatives containing characteristics of actual products)
Controlled alternative perception	The choice alternative constitution and choice set configuration fundamentally allowed participants to perceive the choice alternatives and their specific relationship in a way for the respective context effect to occur (not considered: choice set constructed without consideration or justification whether the context effect could fundamentally occur; considered: choice set constructed while considering or ensuring that the underlying context-effect relationship could be perceived, e.g., selecting fundamentally desirable decoys appropriately located in the attribute space based on pre-tests or existing studies; systematically varied and compared: dimensions known to influence the perception and observation of context effects were assessed or manipulated, e.g., different decoy locations in the attribute space)

Effect

Significance

Significant context effect was reported for at least one experimental condition (no; yes)

Notes. ^aTarget context effects: attraction effect, compromise effect, phantom decoy effect, enriched vs. impoverished options, background contrast effect, common feature effect, single-option aversion, zero-comparison effect, lone-alternative effect, upscaling effect, common attribute effect, abrupt disparity effect, display set effect, jilting effect, polarization effect. Only context effect assessments that fulfilled the inclusion criteria described for the article screening were coded regarding the design elements and realism determinants. For example, an individual assessment in an article was excluded from coding if it was based on perceptual rather than preferential choices.

^bFor example, in the case of enriched vs. impoverished options, just the choice alternatives are manipulated, not the configuration of the choice set.

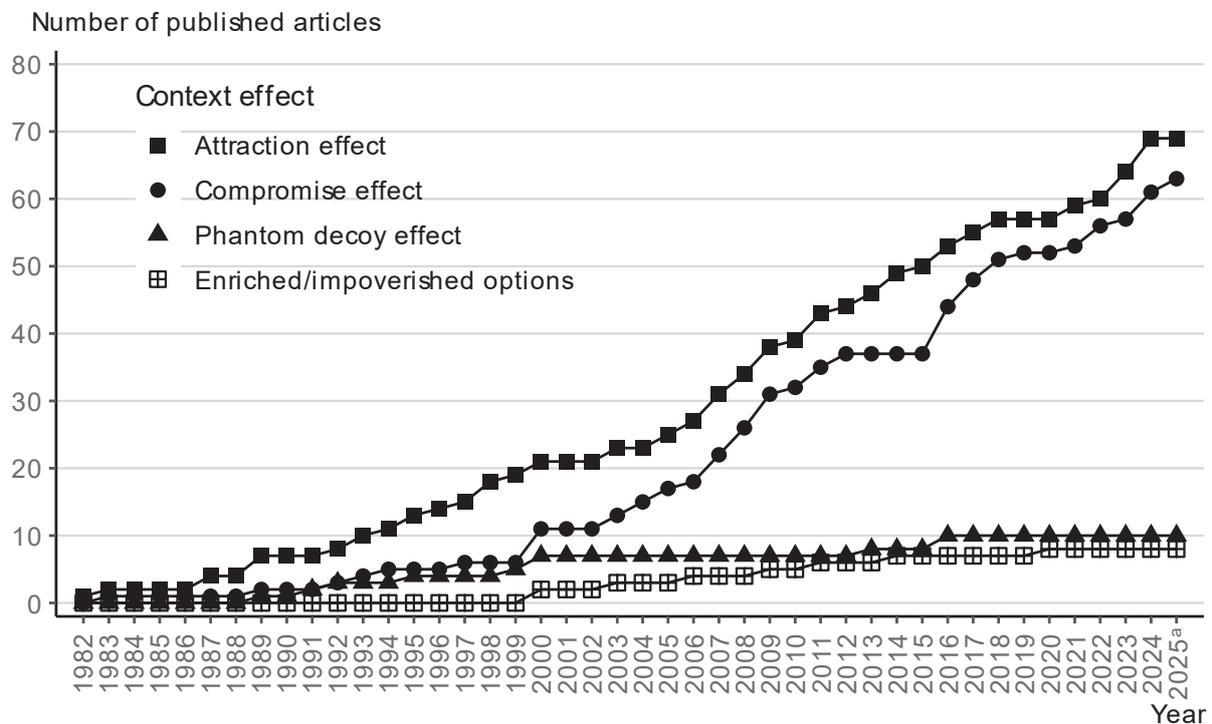
3.2 Results

3.2.1 *Publication Data: Assessments and Articles across Context Effects and Time*

The 129 eligible articles contained 460 individual assessments of context effects across 414 studies. In line with Lichters et al. (2015) and Schmitt (2024), the attraction effect (69 articles containing a total of 169 assessments) and compromise effect (63 articles, 134 assessments) were by far the most investigated context effects, followed by the phantom decoy effect (10 articles, 20 assessments). All other context effects were investigated in eight (enriched vs. impoverished options) or fewer articles (see also Table 4).

Figure 3 presents the number of articles covering the context effects assessed in more than five articles (see Online Resource 2 and 3 for the publication counts of all context effects on the article and assessment level, respectively). There has been an increase and spike in publications around the late 2000s and mid-2010s, showing a heightened interest in context effects coinciding with the debate about their practical relevance. The year 2016 marks the highest number of published context effects articles in the assessed time period (eight), followed by several years with seven published articles, including 2023. On average, the number of context effects articles published per year up to 2015 is 2.61, which increased to 4.10 from then on (not considering the year 2025 due to the inclusion cut-off before the year's end), showing continuously high research interest in context effects mainly driven by the attraction and compromise effect. Several context effects were however formally reported for the first time after 2015 (e.g., the common attribute effect in 2018 or the upscaling effect in 2023).

Fig. 3 Cumulative publications on the article level of the context effects with more than five articles published in the top 30 marketing journals



Notes. Articles are not mutually exclusive with regards to the investigated context effects. For example, both the attraction and compromise effect could have been assessed in the same article, which would have been included in the publication counts for both effects.

^aThe cut-off for article inclusion was September 30, 2025.

3.2.2 Design Elements and Realism Determinants per Context Effect Assessment

Table 4 summarizes the extent to which the analyzed individual context effect assessments adhered to the experimental design elements and realism determinants. For each context effect, the following was evaluated: First, the absolute and relative frequencies of assessments were calculated in which the relevant experimental design (within-subjects and between-subjects) and choice set configuration (core vs. extended, double decoy, and other/not applicable) was applied, and whether at least one of these assessments applying the relevant design element resulted in a significant demonstration of the context effect. Second, regarding product categories (i.e., FMCGs/consumables, durables, services/experiences, or others), it was

evaluated whether the context effect was assessed (and found to be significant) in at least two different ones. Third, to evaluate the extent to which context effect assessments implemented the respective realism determinants, the absolute and relative frequencies of assessments in which the realism determinant was either fulfilled (i.e., implemented for the whole sample; fully consequential choices regarding economic consequences) or experimentally manipulated (i.e., implemented for at least one experimental group; further on subsumed as *fulfilled* or *implemented*) were calculated. As outlined above, there was special emphasis on the economic consequences, the no-buy option, and the target audience relevance as the *fundamental realism determinants*.

Table 4 Implementation of design elements and fulfilment of realism determinants in context effects research on the individual assessment level

Context effect	Counts ^a		Design elements						Realism determinants							
	Articles	Assessments	Experimental design ^b		Choice set configuration ^b			Prod. category ^c	Economic consequences		No-buy option	Target audience relevance	Choice alternat. realism	Controlled alternat. perception	Fundamental realism determinants ^h	
			With.-subj.	Betw.-subj.	Core vs. ext.	Double dec.	Other/n.a.	Diff. cat.	Consid./manip. ^d	Field study ^c	Consid./manip. ^f	Consid./manip. ^f	Consid./manip. ^f	Consid./manip. ^{f,g}	Cons./manip.	Rep. as sign.
AE	69	169	35 (21%)*	149 (88%)*	140 (83%)*	50 (30%)*	4 (2%)*	yes*	10 (6%)*	4 (2%)*	25 (15%)*	43 (25%)*	39 (23%)*	123 (73%)*	3 / 3	3 / 3
CE	63	134	26 (19%)*	110 (82%)*	86 (64%)*	56 (42%)*	3 (2%)*	yes*	17 (13%)*	2 (1%)*	22 (16%)*	29 (22%)*	30 (22%)*	101 (75%)*	3 / 3	3 / 3
PDE	10	20	2 (10%)*	19 (95%)*	17 (85%)*	6 (30%)*	0 (0%)	yes*	1 (5%)*	1 (5%)*	6 (30%)*	4 (20%)*	12 (60%)*	14 (70%)*	3 / 3	3 / 3
EIO	8	15	1 (7%)*	14 (93%)*	2 (13%)*	0 (0%)	15 (100%)*	yes*	0 (0%)	0 (0%)	4 (27%)*	0 (0%)	1 (7%)*	3 (20%)*	1 / 3	1 / 3
BCE	5	16	0 (0%)	16 (100%)*	0 (0%)	0 (0%)	16 (100%)*	yes*	0 (0%)	0 (0%)	1 (6%)*	0 (0%)	5 (31%)*	10 (62%)*	1 / 3	1 / 3
CFE	5	9	5 (56%)*	7 (78%)*	0 (0%)	0 (0%)	9 (100%)*	yes*	0 (0%)	0 (0%)	0 (0%)	3 (33%)*	0 (0%)	9 (100%)*	1 / 3	1 / 3
SOA	4	46	0 (0%)	46 (100%)*	46 (100%)*	0 (0%)	0 (0%)	yes*	0 (0%)	0 (0%)	46 (100%)*	5 (11%)*	11 (24%)*	40 (87%)*	2 / 3	2 / 3
ZCE	3	8	3 (38%)*	8 (100%)*	0 (0%)	0 (0%)	8 (100%)*	yes*	0 (0%)	0 (0%)	3 (38%)*	0 (0%)	0 (0%)	5 (62%)*	1 / 3	0 / 3
LAE	2	2	2 (100%)*	0 (0%)	0 (0%)	0 (0%)	2 (100%)*	yes*	0 (0%)	0 (0%)	0 (0%)	1 (50%)*	0 (0%)	1 (50%)*	1 / 3	1 / 3
UE	1	19	1 (5%)*	18 (95%)*	19 (100%)*	0 (0%)	0 (0%)	yes*	1 (5%)*	0 (0%)	19 (100%)*	19 (100%)*	2 (11%)*	19 (100%)*	3 / 3	3 / 3
CAE	1	8	1 (12%)*	7 (88%)*	0 (0%)	0 (0%)	8 (100%)*	yes*	1 (12%)*	0 (0%)	1 (12%)*	1 (12%)*	7 (88%)*	7 (88%)*	3 / 3	3 / 3
ADE	1	5	0 (0%)	5 (100%)*	0 (0%)	0 (0%)	5 (100%)*	yes	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (40%)	1 (20%)*	0 / 3	0 / 3
DSE	1	3	1 (33%)*	2 (67%)*	0 (0%)	0 (0%)	3 (100%)*	no	0 (0%)	0 (0%)	3 (100%)*	0 (0%)	2 (67%)*	3 (100%)*	1 / 3	1 / 3

JE	1	3	0 (0%)	3 (100%)*	0 (0%)	0 (0%)	3 (100%)*	no	0 (0%)	0 (0%)	0 (0%)	3 (100%)*	2 (67%)*	3 (100%)*	1 / 3	1 / 3
PE	1	3	0 (0%)	3 (100%)*	3 (100%)*	2 (67%)*	0 (0%)	yes*	0 (0%)	0 (0%)	0 (0%)	0 (0%)	3 (100%)*	3 (100%)*	0 / 3	0 / 3
Total	129	460	77 (17%)*	407 (88%)*	313 (68%)*	114 (25%)*	76 (17%)*	yes*	30 (7%)*	7 (2%)*	130 (28%)*	108 (23%)*	116 (25%)*	342 (74%)*	3 / 3	3 / 3

Notes. AE = attraction effect, CE = compromise effect, PDE = phantom decoy effect, EIO = enriched vs. impoverished options, BCE = background contrast effect, CFE = common feature effect, SOA = single-option aversion, ZCE = zero-comparison effect, LAE = lone-alternative effect, UE = upscaling effect, CAE = common attribute effect, ADE = abrupt disparity effect, DSE = display set effect, JE = jilting effect, PE = polarization effect. Stars indicate that the relevant context effect was reported as significant in at least one assessment in which the respective design element or realism determinant was implemented for the whole sample or at least one experimental group (i.e., manipulated; indicated by a tick mark).

^aPer context effect, article counts correspond to the number of articles containing at least one assessment of the context effect. For example, the attraction effect was investigated in 169 individual assessments (i.e., studies) across 69 articles. With usually several studies per article and sometimes different context effects assessed in one study, the articles across context effects do not add up to the total.

^bCells contain the absolute (relative) frequencies of assessments in which the respective design element was applied. Note that one assessment could have applied different designs (i.e., mixed-subjects design) and configurations (i.e., multiple choices).

^cCells contain whether the context effect was assessed and reported as significant using choice sets of at least two product categories (FMCGs/consumables, durables, service/experience, or other; yes vs. no).

^dCells contain the combined absolute (relative) frequencies of assessments in which either the whole sample (i.e., implemented) or at least one experimental group (i.e., manipulated) received the selected choice alternative in exchange for money (i.e., fully consequential choices).

^eCells contain the absolute (relative) frequencies of assessments conducted as a field study (i.e., in an actual consumption environment).

^fCells contain the combined absolute (relative) frequencies of assessments in which the respective realism determinant was implemented for the whole sample or at least one experimental group (i.e., manipulated).

^gDue to the vast number of dimensions regarding which the perception of alternatives was considered and especially experimentally manipulated (e.g., position of alternatives in the choice set, location of choice alternatives in the attribute space), the star indicates a context effect reported as significant in at least one of the conditions.

^hThe left-hand column contains the number of fundamental realism determinants (i.e., economic consequences, no-buy option, and relevant target audience) that were implemented/manipulated at least once per context effect across assessments. The right-hand column contains the number of these realism determinants in which the respective effect was reported as significant in at least one assessment.

With regards to the experimental design elements, between-subjects designs were used about five times more frequently than within-subjects designs (407 vs. 77). Each individual context effect was reported to be significant when assessed using the relevant experimental design, except for the zero-comparison effect using a within-subjects design¹⁰. The assessments implemented predominantly core vs. extended choice sets over double-decoy configurations (313 vs. 114). Note that several context effects could not be assessed using those “traditional” configurations (e.g., enriched vs. impoverished options), resulting in 76 configurations deviating from the other two. Regarding product categories, all context effects except for the display set effect and jilting effect were reportedly assessed with different categories. Additionally, all context effects assessed with different product categories were reported as significant at least once per category, except for the abrupt disparity effect. In sum, the context effects were generally assessed and reported as significant using a broad spectrum of experimental design elements.

Regarding the realism determinants, there is generally an arguably low implementation level, especially considering the fundamental realism determinants. First and most importantly, full economic consequences were implemented only in ten attraction (6%), 17 compromise (13%), one phantom decoy (5%), one upscaling (5%), and one common attribute effect (12%) assessments. This results in only 7% of all assessments (30 of 460). All other context effects were only assessed using either purely hypothetical or partially consequential choices (i.e., handing out the product without participants having to pay its price). The context effects that were investigated with fully consequential choices were also reported as significant in at least one of

¹⁰ The effect not being reported as significant does not imply a non-significant effect because design elements could be implicitly implemented (e.g., in a mixed-subjects design) but the significance not being reported explicitly (e.g., if the effect was only reported for the between-subjects but not for the within-subjects analysis).

these instances, respectively. Only seven assessments (2%) were conducted as a field study in an actual, real-world consumption context.

Second, a no-buy option was available in 130 assessments (28%). However, excluding the 46 analyzed assessments of the single-option aversion from the evaluation (34 of these stem from a single article; Evangelidis et al. 2023a) which by nature demand a no-buy option in the choice set, this number drops to 84 (20%). Of the 15 context effects, the common feature effect, lone-alternative effect, abrupt disparity effect, jilting effect, and polarization effect were not assessed in choice sets with a no-buy option. Further, enriched vs. impoverished options and the zero-comparison effect were not reported as significant in a free-choice assessment, limiting claims about the practical relevance of all of these effects.

Third, ensuring that products used as choice stimuli were relevant for participants (i.e., potential consumers) was fulfilled in 108 assessments (23%). Nine out of 15 context effects were reported as significant in at least one experimental investigation when target-audience-product relevance was thoroughly established. In contrast, six context effects (enriched vs. impoverished options, background contrast effect, zero-comparison effect, abrupt disparity effect, display set effect, and polarization effect) were not investigated with established product relevance.

Fourth, researchers ensured realistic choice alternatives (i.e., choice alternatives were actual products or matched their characteristics and presentation) in 116 assessments (25%). By implication, 75% of assessments contained choice sets not representing actual market offers (e.g., mere indication of product attributes as low, medium, and high price or quality). Eleven of the context effects were investigated and reported as significant using realistic choice alternatives. The common feature effect, zero-comparison effect, and lone-alternative effect were however not examined using realistic choice alternatives, and the abrupt disparity effect was not reported as significant in its assessments using realistic products.

Fifth, relative to the other realism determinants, a high number of assessments ensured or manipulated the intended perception of alternatives (e.g., that a compromise alternative could be identified as such; 342; 74%). Although this realism determinant is not necessarily fundamental to resemble real purchase situations, it is by definition important to allow claims about the (non-)existence of context effects. All context effects were investigated and reported as significant when the respective context effect fundamentally was not ostensibly prohibited to emerge due to the choice set display and associated perception of the choice alternatives. Note that the perception of choice alternatives in a choice set depends on several factors (e.g., the display position of choice alternatives or the location of alternatives in the attribute space), some of which are gradual rather than categorical. This presumably contributes to the high fulfillment (and especially experimental manipulation) rate of this realism determinant in combination with procedural research interest in boundary conditions and psychological processes.

To summarize the extent of fundamental realism determinant fulfillment (i.e., economic consequences, no-buy option, and target-audience-product relevance), Table 4 also shows whether a context effect was assessed and reported as significant in experiments that considered (or manipulated) these factors. Five context effects have both been assessed and reported as significant in assessments with each of the three realism determinants implemented (however, not necessarily in the same assessment): the attraction, compromise, phantom decoy, upscaling, and common attribute effect. The single-option aversion was assessed and reported as significant with two of the three realism determinants implemented (at least for each respective one individually). Crucially, the missing realism determinant is economic consequences. The other context effects were assessed and reported as significant with no more than one of the fundamental realism determinants implemented. Importantly, economic consequences implementation is one of the realism determinants missing when showing the respective effects to be significant. Notably, the

zero-comparison effect, abrupt disparity effect, and polarization effect were not shown to be significant with any of the fundamental realism determinants implemented.

In sum, there are varying levels of confidence in claiming the different context effects' practical relevance. A fundamental limiting factor is that most of the context effects were not assessed and therefore not shown to be significant when real economic consequences were imposed on participants when making their choices in experiments. However, when evaluating the development of realism determinant implementation over time, there is an overall positive trend (Table 5).

Table 5 Comparison of realism determinant implementation before and after 2015

Realism determinant	Average before 2015	Average after 2015
Economic consequences ^a	3%	12%
Field study ^b	1%	3%
No-buy option ^c	17%	44%
Target audience relevance ^c	20%	28%
Choice alternative realism ^c	23%	28%
Controlled alternative perception ^c	61%	92%

Notes. Columns two and three contain the realism determinants' relative frequency of implementation before and including 2015, and from 2016 onward.

^aRelative frequency of assessments in which the participants received the selected choice alternative in exchange for money (implemented) or in which the implementation of this level of economic consequences was experimentally manipulated.

^bRelative frequency of assessments implemented as a field study.

^cRelative frequency of assessments in which the respective realism determinant was implemented or experimentally manipulated.

All realism determinants were implemented in a higher share of assessments when comparing the assessments in articles published after vs. prior to the end of 2015 (called “before 2015”, i.e., before vs. after the articles of Frederick et al. (2014), Yang and Lynn (2014), as well as Lichters et al. (2015) publishing their guidelines for generalizable context effects research): Economic consequences were implemented in 12% of assessments after vs. 3% before 2015,

corresponding to a fourfold increase in relative frequency. Additionally, 44% (vs. 17%) of assessments included a no-buy option after 2015 and assessments contained relevant products in 28% (vs. 20%) of cases. The implementation of realistic choice alternatives also increased after 2015 (28% vs. 23%), as did controlling for choice alternative perception (92% vs. 61%).

3.2.3 Realism Determinant Implementation in Context Effects Articles across Journals

Next, there is the analysis of realism determinant implementation per article, aggregated across therein contained assessments (i.e., whether each of the realism determinants was fulfilled in at least one vs. no assessment reported in an article). This enabled to identify the articles that implemented all three fundamental realism determinants in at least one assessment. Finally, two aspects were evaluated: (1) whether the analyzed articles were published before or after 2015, and (2) the top 30 marketing journals were compared regarding the extent of realism determinant implementation in the therein published articles (see Table 6).

Table 6 Implementation of realism determinants in context effects articles before and after 2015 separated across marketing journals

Journal ^a		Aggregation ^b	Articles			Realism determinants ^c				
Abbreviation	Rank		Counts	Economic consequences	Field study	No-buy option	Target aud. relevance	Choice altern. realism	Controlled alt. perc.	Fundam. realism determinants (all)
<i>JCR</i>	3	Total	41	4 (10%)	2 (5%)	10 (24%)	14 (34%)	10 (24%)	37 (90%)	3 (7%)
		Before 2015	35	2 (6%)	0 (0%)	8 (23%)	11 (31%)	6 (17%)	32 (91%)	1 (3%)
		After 2015	6	2 (33%)	2 (33%)	2 (33%)	3 (50%)	4 (67%)	5 (83%)	2 (33%)
<i>JMR</i>	2	Total	20	2 (10%)	0 (0%)	5 (25%)	8 (40%)	6 (30%)	16 (80%)	2 (10%)
		Before 2015	16	0 (0%)	0 (0%)	3 (19%)	5 (31%)	3 (19%)	12 (75%)	0 (0%)
		After 2015	4	2 (50%)	0 (0%)	2 (50%)	3 (75%)	3 (75%)	4 (100%)	2 (50%)
<i>ML</i>	11	Total	20	3 (15%)	0 (0%)	4 (20%)	8 (40%)	7 (35%)	15 (75%)	3 (15%)
		Before 2015	11	1 (9%)	0 (0%)	2 (18%)	3 (27%)	1 (9%)	6 (55%)	1 (9%)
		After 2015	9	2 (22%)	0 (0%)	2 (22%)	5 (56%)	6 (67%)	9 (100%)	2 (22%)
<i>ACR</i>	12	Total	9	0 (0%)	0 (0%)	1 (11%)	2 (22%)	2 (22%)	6 (67%)	0 (0%)
		Before 2015	8	0 (0%)	0 (0%)	1 (12%)	2 (25%)	2 (25%)	6 (75%)	0 (0%)
		After 2015	1	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
<i>PM</i>	17	Total	9	3 (33%)	1 (11%)	2 (22%)	5 (56%)	4 (44%)	6 (67%)	2 (22%)
		Before 2015	7	2 (29%)	1 (14%)	2 (29%)	5 (71%)	3 (43%)	5 (71%)	2 (29%)
		After 2015	2	1 (50%)	0 (0%)	0 (0%)	0 (0%)	1 (50%)	1 (50%)	0 (0%)
<i>JCP</i>	10	Total	8	0 (0%)	0 (0%)	1 (12%)	1 (12%)	2 (25%)	5 (62%)	0 (0%)
		Before 2015	6	0 (0%)	0 (0%)	1 (17%)	1 (17%)	1 (17%)	3 (50%)	0 (0%)
		After 2015	2	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (50%)	2 (100%)	0 (0%)
<i>ManSci</i>	8	Total	7	2 (29%)	0 (0%)	3 (43%)	0 (0%)	4 (57%)	7 (100%)	0 (0%)
		Before 2015	1	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (100%)	1 (100%)	0 (0%)
		After 2015	6	2 (33%)	0 (0%)	3 (50%)	0 (0%)	3 (50%)	6 (100%)	0 (0%)
<i>JBR</i>	13	Total	7	2 (29%)	0 (0%)	5 (71%)	5 (71%)	4 (57%)	6 (86%)	2 (29%)
		Before 2015	2	0 (0%)	0 (0%)	1 (50%)	1 (50%)	0 (0%)	1 (50%)	0 (0%)
		After 2015	5	2 (40%)	0 (0%)	4 (80%)	4 (80%)	4 (80%)	5 (100%)	2 (40%)
<i>MS</i>	4	Total	2	0 (0%)	0 (0%)	2 (100%)	1 (50%)	2 (100%)	1 (50%)	0 (0%)
		Before 2015	1	0 (0%)	0 (0%)	1 (100%)	0 (0%)	1 (100%)	0 (0%)	0 (0%)
		After 2015	1	0 (0%)	0 (0%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	0 (0%)
<i>EJM</i>	16	Total	2	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (100%)	0 (0%)
		Before 2015	0	0 (-)	0 (-)	0 (-)	0 (-)	0 (-)	0 (-)	0 (-)
		After 2015	2	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (100%)	0 (0%)
<i>JM</i>	1	Total	1	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)
		Before 2015	0	0 (-)	0 (-)	0 (-)	0 (-)	0 (-)	0 (-)	0 (-)

		After 2015	1	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)
		Total	1	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (100%)	0 (0%)
<i>JR</i>	7	Before 2015	0	0 (-)	0 (-)	0 (-)	0 (-)	0 (-)	0 (-)	0 (-)
		After 2015	1	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (100%)	0 (0%)
		Total	1	0 (0%)	0 (0%)	0 (0%)	1 (100%)	1 (100%)	1 (100%)	0 (0%)
<i>IJRM</i>	9	Before 2015	1	0 (0%)	0 (0%)	0 (0%)	1 (100%)	1 (100%)	1 (100%)	0 (0%)
		After 2015	0	0 (-)	0 (-)	0 (-)	0 (-)	0 (-)	0 (-)	0 (-)
		Total	1	0 (0%)	0 (0%)	1 (100%)	1 (100%)	0 (0%)	1 (100%)	0 (0%)
<i>IMR</i>	28	Before 2015	0	0 (-)	0 (-)	0 (-)	0 (-)	0 (-)	0 (-)	0 (-)
		After 2015	1	0 (0%)	0 (0%)	1 (100%)	1 (100%)	0 (0%)	1 (100%)	0 (0%)
		Total	129	17 (13%)	4 (3%)	35 (27%)	47 (36%)	43 (33%)	105 (81%)	13 (10%)
Total	-	Before 2015	88	5 (6%)	1 (1%)	19 (22%)	29 (33%)	19 (22%)	67 (76%)	4 (5%)
		After 2015	41	12 (29%)	3 (7%)	16 (39%)	18 (44%)	24 (59%)	38 (93%)	9 (22%)

Notes. ^aOnly the top 30 marketing journals ranked in Hult et al. (2009) with at least one publication on context effects are listed in the table: *JCR* = *Journal of Consumer Research*, *JMR* = *Journal of Marketing Research*, *ML* = *Marketing Letters*, *ACR* = *Advances in Consumer Research*, *PM* = *Psychology & Marketing*, *JCP* = *Journal of Consumer Psychology*, *ManSci* = *Management Science*, *JBR* = *Journal of Business Research*, *MS* = *Marketing Science*, *EJM* = *European Journal of Marketing*, *JM* = *Journal of Marketing*, *JR* = *Journal of Retailing*, *IJRM* = *International Journal of Research in Marketing*, *IMR* = *International Marketing Review*, Total = total across all journals.

^bArticles published in that journal before (and including) 2015, from 2016 onward, or the total.

^cArticles with at least one assessment in which the respective realism determinant was implemented or experimentally manipulated. The last column contains the absolute and relative frequency of articles that implemented/manipulated all three fundamental realism determinants (i.e., full economic consequences, no-buy option, relevant target audience) in at least one assessment in the article.

Due to the aggregation procedure and therefore the dependence of data, there is a pattern of realism determinant implementation on the article level similar to that of the individual assessments, but to generally higher extents (“Total” row in Table 6): The relative implementation across all realism determinants increased after 2015 compared to before. Notable and important instances are the fundamental realism determinants: Economic consequences and no-buy options were established in 29% (vs. 6%) and 39% (vs. 22%) of articles after 2015, demonstrating almost a fivefold and twofold increase, respectively. Establishing the relevance of products for the target audience increased from 33% to 44%. More recent articles on context effects were therefore more likely to include at least one assessment with the respective fundamental realism determinants fulfilled. The share of articles that implemented all three fundamental realism determinants (at least across assessments) increased from 5% to 22%. Nevertheless, the absolute number of these articles is low, rendering only 13 (10%) of all articles that did so (Canty et al. 2024; Doyle et al. 1999; Evangelidis and van Osselaer 2018; Evangelidis et al. 2023b; Fridman et al. 2024; Gomez et al. 2016; Gu et al. 2018; Lichters et al. 2016a; Lichters et al. 2016b; Lichters et al. 2017; Müller et al. 2012a; Müller et al. 2012b; Sharpe et al. 2008).

When comparing the target journals, there are considerable differences regarding the realism of therein published context effects articles. However, note that there is a vast range in the number of articles between these journals. Nevertheless, the *Journal of Marketing*—the highest ranked journal (Hult et al. 2009)—is the only journal with all its context effects publications implementing every realism determinant, which is explained by Gu et al. (2018) being the only context effects article published there. On the contrary, multiple journals stemming from different backgrounds—e.g., *Journal of Consumer Psychology* and *European Journal of Marketing*—display comparatively low rates of realism, especially considering the

fundamental determinants. None of the eight and two articles published in these journals, respectively, implemented all fundamental realism determinants, and none of these implemented economic consequences. Ranked third most important, the *Journal of Consumer Research* published the most context effects articles of the target journals (41 in total), which show roughly average—but also notably improved after 2015—realism determinant implementation rates.

4 The Status Quo of and Envisioned Road Ahead in Context Effects Research

This review analyzed the extent to which context effects studies in the fields of marketing and consumer research align with real-world consumption decision contexts. A total of 460 experimental context effects assessments published in 129 articles from 1982 to 2025 in the top 30 marketing journals (Hult et al. 2009) were analyzed regarding the extent to which they implemented realism determinants that foster generalizability and practical relevance (Lichters et al. 2015), and considered various other experimental design elements (Bless and Burger 2016).

The results can be summarized as follows. First, several metrics indicate a continuous and even increasing research interest in context effects since Huber et al.'s (1982) demonstration of the attraction effect. For example, the compound annual growth rate of the analyzed articles (4.4% without considering articles of the year 2025) is above reference values of a general increase in scientific publications (Bornmann et al. 2021). Also, there are still newly discovered context effects in recent years such as the upscaling effect (Evangelidis et al. 2023b). In line with Lichters et al.'s (2015) results and other evaluations (Schmitt 2024), the by far most investigated context effects are still the attraction and compromise effect.

Second, implementing experimental realism determinants and design elements to foster generalizability and, transitively, the external validity and practical relevance of context effects research varies between the individual criteria, but can generally be considered relatively low.

The most implemented fundamental realism determinant (i.e., no-buy option) was included in only 28% of all the analyzed context effects assessments, of which several assessments in fact required a no-buy option due to the nature of the investigated effect (i.e., single-option aversion). Notably, only 7% of assessments included consequential choices by having participants pay for their chosen alternative in exchange for the product. On a positive note, however, there is a notable increase in realism determinant implementation after the debate regarding the attraction effect's practical relevance peaked and Lichters et al. proposed their guidelines for realistic and relevant context effects research in 2015.

Third, the confidence with which context effects research insights can be transferred to real-world applications varies between the individual context effects. Despite an arguably overall low extent of generalizability across context effects assessments, the attraction and compromise effect as the most prominent context effects as well as the phantom decoy, common attribute, and the recently proposed upscaling effect were demonstrated to hold in realistic choice settings based on all the fundamental realism determinants. On the contrary, several context effects (e.g., the abrupt disparity and polarization effect) still offer only limited assurance to hold in practice, as they were not investigated with a single of those realism determinants implemented.

4.1 Limitations and Implications

These findings have important implications, however, there are some limitations contained in this study's analytical approach to embed these implications in the appropriate interpretation frame. As with every systematic review, the scope of the analyses was limited according to the defined inclusion criteria; in this case, to experimental context effects articles published in the top 30 marketing journals (Hult et al. 2009). Consequently, some articles were not taken into account (e.g., from general psychology journals or applied science fields like

health behavior; Missbach and König 2016) which could have influenced the results. The scope was however defined to assess the practical relevance of context effects in product choice in marketing and consumer research to build on the ongoing debate about the practical relevance of context effects (e.g., Fridman et al. 2024; Evangelidis et al. 2024; Hasan et al. 2025; Trendl et al. 2021) and these research fields in general (Hoyer et al. 2024; Kahn and Wilson 2025).

Furthermore, this study is not a meta-analysis, so it does not provide a definitive conclusion about individual context effects' magnitude in and depending on externally valid choice settings. However, the assessment of realism determinant implementation in combination with significant context effect demonstrations were used as an indicator of practical relevance. One reason for this approach is that several of the context effects do not provide enough data to allow for meta-analytic procedures (Borenstein et al. 2009). Nevertheless, a broad meta-analysis on the influence of the realism determinants on selected context effects' magnitude is a fruitful endeavor for future research.

Finally, there are conceptual limitations. On the one hand and a more micro level, the analyses were based on a categorical and mostly dichotomized coding which cannot capture all the nuances of realism implemented in context effects experiments. For example, economic consequences were considered to be implemented only when participants received the chosen product in exchange for money. Therefore, inconsequential choices contained any other implementation of (lacking) consequences, ranging from merely hypothetical choice intentions to choices where participants received the chosen product but did not have to pay for it (Morales et al. 2017). Further, the realism determinants of the real-world resemblance and controlled perception of choice alternatives are by nature gradual and multi-faceted (Lichters et al. 2015). Therefore, dichotomizing these criteria in coding according to the defined standards does not capture the complete variety in stimuli applied in context effects research. However, the coding

in line with Lichters et al. (2015) allows to generally replicate their results and especially to compare studies from before to after their publication containing their proposed context effects research guidelines. That is, because the same coding was applied to studies before and after 2015, the reported increase of realism in relative terms is a reliable finding. However, conclusions regarding the absolute values depend on the applied coding.

On the other hand, as laid out above, the realism applied in consumer research is only one—nevertheless, very important—criterion of practical relevance (Hoyer et al. 2024). For example, Huber et al. (1982) received the Association for Consumer Research’s Long-Term Contribution Award for their article in 2002 (2023) because it provides a meaningful signal of other dimensions of the article’s relevance, deemed so important by the field to grant this honor despite its non-realistic stimuli—which was, as demonstrated, rather the norm than exception during that time period. Therefore, considering further characteristics of context effects articles’ practical relevance (e.g., their topicality at the time; Jedidi et al. 2021), especially in light of their respective primary research goal (effects vs. theory application; Calder et al. 1981), could provide a broader assessment of this topic. However, this review only sought to assess the practical relevance of context effects research through the methods-focused lens of experimental realism as one important domain of relevance along established (Hoyer et al. 2024; Lichters et al. 2015) and widely applied criteria (e.g., Gomez et al. 2016; Canty et al. 2024).

Nevertheless, the reported findings have several important implications for both research and practice. From an academic perspective, there is already ample evidence that experimental realism determinants influence context effects’ magnitude (refer back to Table 2). Therefore, it is a crucial duty for researchers to craft realistic studies when aiming to estimate context effects’ unbiased impact in real-world settings. However, depending on the specific context effects, the realism determinants were implemented or assessed to greatly varying extents (refer back to

Table 4). This variety offers manyfold opportunities to investigate whether and how the respective context effects unfold with and depend on the implementation of realism determinants. For example, not only general confidence in the zero-comparison effect's practical relevance could be greatly increased by demonstrating it in consequential and realistic choices that include a no-buy option. Beyond that, manipulating the implementation of these realism determinants to assess their impact on its magnitude could reveal interesting insights on this context effect's underlying mechanisms, such as choice difficulty or decision involvement (see, e.g., Dhar and Simonson 2003; Lichters et al. 2017; Müller et al. 2010). Table 7 presents the research—or rather, validation—gaps resulting from the realism-determinant by context-effects matrix. Filling the blank spots in that matrix would not only provide a deeper understanding of individual context effects, but also reveal overarching patterns that hold (or deviate) across realism determinants and context effects. Therefore, that overview sets out a research agenda whose systematic pursuit would surely prove valuable for a better understanding of context effects and important aspects of external validity.

Table 7 Summarized assessment of and research gaps for context effects' practical relevance

Context effect	Article counts ^a	Economic consequences ^b		No-buy option ^b		Target aud. relevance ^b		Prod. categ. ^c	Field study ^c	Relevance evaluation ^d
AE	69	✓	✓	✓	✓	✓	✓	✓	✓	High
CE	63	✓	✓	✓	✓	✓	✓	✓	✓	High
PDE	10	✓		✓		✓	✓	✓	✓	High
EIO	8				✓			✓		Limited
BCE	5			✓				✓		Decent
CFE	5					✓		✓		Decent
SOA	4			✓	✓	✓		✓		Decent
ZCE	3							✓		Limited
LAE	2					✓		✓		Decent
UE	1	✓		✓	✓	✓		✓		Considerable
CAE	1	✓		✓		✓		✓		Considerable
ADE	1									Limited
DSE	1			✓						Decent
JE	1					✓				Decent
PE	1							✓		Limited

Notes. AE = attraction effect, CE = compromise effect, PDE = phantom decoy effect, EIO = enriched vs. impoverished options, BCE = background contrast effect, CFE = common feature effect, SOA = single-option aversion, ZCE = zero-comparison effect, LAE = lone-alternative effect, UE = upscaling effect, CAE = common attribute effect, ADE = abrupt disparity effect, DSE = display set effect, JE = jilting effect, PE = polarization effect.

^aArticle counts are the number of articles containing at least one assessment of the context effect.

^bFor each of the fundamental realism determinants, a checkmark in the left-hand column indicates at least one report of a significant context effect when the realism determinant was implemented. A checkmark in the right-hand column indicates that the realism determinant was investigated using an experimental manipulation.

^cA checkmark indicates at least one report of a significant effect in different product categories and at least one experiment was conducted in natural consumption environments yielding a significant effect, respectively.

^dHigh = context effect was investigated in more than one article, and reported as significant at least once 1) when each fundamental realism determinant was implemented, 2) in different product categories, and 3) in a field study; Considerable = context effect was reported as significant at least once when each fundamental realism determinant was implemented, but not in different product categories, a field study or was investigated in only one article;

Limited = context effect was not reported as significant with any fundamental realism determinant implemented; Decent = remaining possibilities.

Although context effects studies became more realistic after—and potentially also due to—Lichters et al.'s (2015) guidelines, context effects research's relevance would still greatly

benefit from further improvements in realism, especially with regards to implementing economic consequences, and ideally applying field studies. Although Frederick et al.'s (2014) and Yang and Lynn's (2014) articles resulted in an important discussion about the practical relevance of context effects (Huber et al. 2014; Simonson 2014) and motivated critical assessments of context effects studies (Lichters et al. 2015), that debate should have raised the bar regarding research practices more strongly in order to facilitate bridging the gap between academic and practitioner interests (Block et al. 2025; Hoyer et al. 2024; Kahn and Wilson 2025). Although some articles investigate and demonstrate especially popular context effects in real(istic) settings (e.g., Fridman et al. 2024; Gu et al. 2018), yet these still remain rather rare examples. Establishing methodological best-practices that contribute to practically relevant insights about context effects would also make discussions regarding their artificiality abundant due to a common ground for comparisons (Simonson 2014). For that matter, this article also provides revised guidelines (see chapter 4.2) serving as a comprehensive decision framework to enhance the realism of context effects studies and thereby seeking to further advance context effects research.

From a practical perspective, individual context effects differ vastly in how confident practitioners can be when transferring insights to real-world applications. For that matter, the summary in Table 7 also serves as a guiding overview for practitioners of which context effects currently provide reason to be relevant for practice applications based on demonstrations with the fundamental realism determinants implemented as well as further criteria. Although the overall extent of realism in context effects research is limited, the attraction and compromise effect have been demonstrated in multiple realistic studies (e.g., Gomez et al. 2016; Lichters et al. 2017). Furthermore, for example, Fridman et al. (2024) found a creative way to provide real-world evidence for the attraction effect by showing that service offerings on an online marketplace (fiverr.com) were more successful when they were dominating options in the choice set presented

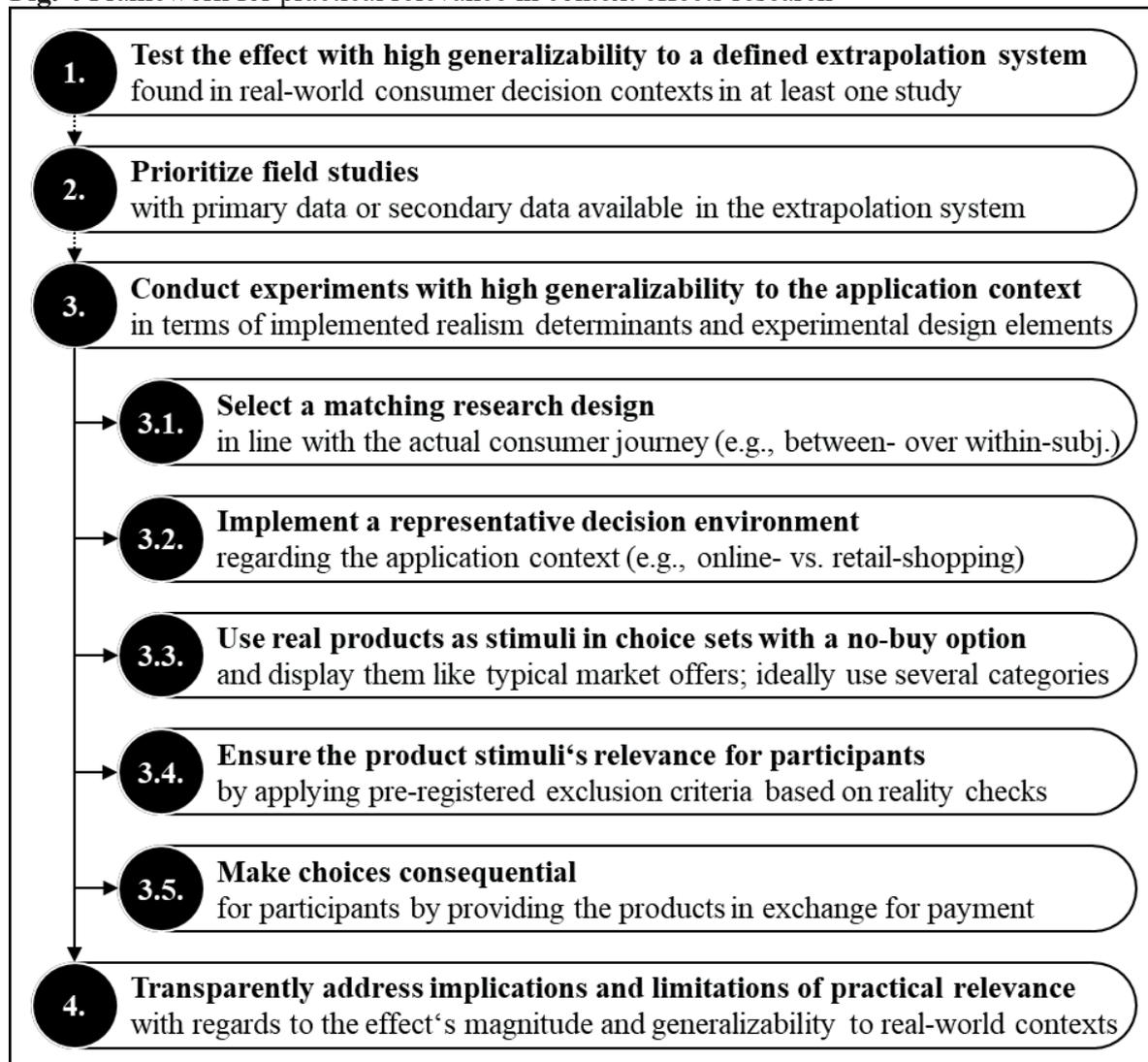
to customers. Also, the phantom decoy effect was demonstrated in one field study conducted in a supermarket (Doyle et al. 1999). Therefore, there is support for the notion that the phantom decoy effect, but especially the attraction and compromise effect do provide confidence for impactful applications in real-world scenarios. Regarding the other investigated context effects, however, there are some aspects limiting the confidence in their respective practical applicability. Although the upscaling and common attribute effect were shown in several studies including realistic choice scenarios with all fundamental realism determinants implemented (Evangelidis and van Osselaer 2018; Evangelidis et al. 2023b), so far there is only one research group that investigated each effect in one publication, respectively. It would be desirable if other research groups accumulate independent evidence (ideally with field studies in actual consumption environments) in favor of these effects to consolidate confidence in their practical relevance (Gal et al. 2023). Other context effects like the background contrast and the common feature effect have been investigated in several articles and demonstrated in assessments with at least some degree of realism. Critically, however, these effects have not been demonstrated when participants faced economic consequences. Consequently, there is decent but not unlimited reason to expect that these effects are relevant in practice. Finally, some context effects lack insights with considerable or decent confidence in practical relevance. For example, the abrupt disparity effect has not been investigated in realistic choice scenarios in its only published article so far (Dogerlioglu-Demir et al. 2023), but hopefully there are new studies revealing promising insights in the near future.

Beyond this overview, the following guidelines (chapter 4.2) do not only serve researchers as a framework to *establish* but also practitioners as a toolkit to *identify* realistic context effects research that provides a strong foundation for practically relevant insights. That is, these guidelines can be used as an evaluation scheme to assess studies regarding how transferable the contained insights are to practitioners' respective application scenarios.

4.2 Guidelines to Increase Realism and Practical Relevance in Context Effects Research

In line with repeated calls to enhance the practical relevance of marketing and consumer research in general (e.g., Hoyer et al. 2024; Jedidi et al. 2021) and the corresponding, ongoing debate regarding that of context effects in particular (e.g., Frederick et al. 2014; Fridman et al. 2024; Huber et al. 2014), this article also encourages context effects researchers to do so. To assist in that endeavor, a framework of guidelines is summarized in Figure 4 and described below.

Fig. 4 Framework for practical relevance in context effects research



Although Lichters et al. (2015) already provide context effects researchers with a set of useful guidelines in order to establish realism and thereby foster external validity, this present framework emphasizes and simplifies some of their guidelines but also provides guidance on additional aspects regarding the encompassing research process. As a foundation, the nature of effects application research (Calder et al. 1981) in context effects research has to be stressed again. Although it is a worthwhile endeavor to conduct theory application research to understand the psychological mechanisms underlying context effects (Calder et al. 1981; Evangelidis et al. 2024), investigating context effects within marketing and consumer research should by definition provide the audience—that includes consumers, marketers, and policymakers—with actionable insights (Hoyer et al. 2024; Schmitt et al. 2021). That is, when context effects are studied through the lens of consumer behavior, the ultimate goal is arguably to predict, influence, and protect consumers' choices when they are faced with respective decisions in real-world situations. Therefore, even if an article's primary goal is to understand a context effect from a theoretical perspective, at least one study within that article should test the context effect in a realistic and generalizable setting. As mentioned, a great example for that approach is Evangelidis et al.'s (2023b) demonstration of the upscaling effect: They conducted a total of 19 studies, of which one was conducted with actual products and consequential choices. An approach like this still allows to focus on context effects' mechanisms with high internal validity in controlled lab settings. However, extending an article by an additional, highly realistic study prioritizing external validity enhances practical relevance without sacrificing an article's overall internal validity in a trade-off (Mitchell 2012).

4.2.1 Guideline 1: Define the Real-World Extrapolation System

In crafting studies generalizable to real-world consumption contexts, researchers should initially define that specific extrapolation system. A good place to start is the nature of the investigated context effect(s) because this not only sets the scope for potential application scenarios but also guides further downstream decisions. For example, the phantom decoy effect considers a decoy that is unavailable for participants to select (Farquhar and Pratkanis 1993). In consequence, this limits the effect's applicability to scenarios where this is reasonably the case, like in supply shortages or closeouts. However, this also offers opportunities that researchers might exploit such as identifying possibilities to conduct field studies in these specific cases. In contrast, if a context effect provides basically no application scenario, this might raise rightful concerns whether the context effect in question is on a fundamental level practically relevant for marketing practitioners (Kohli and Haenlein 2021). Additionally, the research design of planned experiments itself is closely related to the nature of the context effect in question as well as the application scenario (see 3.1. in Fig. 4). For example, framing the decoy as "sold out" virtually forbids to investigate the phantom decoy effect in a within-subjects setting with a core vs. extended choice set (i.e., first presenting consumers the competitor and the target, and *then additionally* presenting the sold-out decoy).

Beyond considerations regarding the nature of context effects, researchers should outline the characteristics of the extrapolation system to which they want to generalize their (experimental) findings, which in turn pre-sets their choices regarding how to implement the studies (see 3.2. – 3.4. in Fig. 4). These outlines should consider consumers' decision medium, that is, for example, whether findings are aimed to be applicable to online purchases, brick-and-mortar retail shopping, or both (e.g., Kühn et al. 2020; Ratchford et al. 2022; Riquelme et al. 2016). Additionally, the type of product (stimuli) of interest should be defined: Not only does the

processing of product alternatives in general depend on their underlying characteristics (e.g., hedonic vs. utilitarian; Okada 2005), this in turn has repeatedly been shown to influence context effects' magnitude (Kim and Kim 2016; Lichters et al. 2016a). After defining the products of interest, researchers should clarify which consumer type's behavior is ought to be predicted in the market, for example, regular vs. potential (first-time) consumers (Polman and Maglio 2023) or specific consumer segments (e.g., price vs. quality oriented; Müller et al. 2012b).

Considering the characteristics of the extrapolation system upfront provides several benefits. First, as argued, this helps to guide decisions regarding the set-up and implementation of a study's characteristics. Second, accordingly, it serves as a double-check to assess whether a planned study can answer the research question at hand and whether focal variables are considered in the study's design. Third, it sets a clear foundation regarding which real-world contexts the study's findings are and are not applicable to (see 4. in Fig. 4). Of course, multiple application scenarios can be defined (e.g., online and offline purchase decisions across multiple product categories) to expand the scope of generalization. Importantly, however, these multiple scenarios then have to be covered each, potentially in different studies.

4.2.2 Guideline 2: Ideally, Conduct a Field Study within the Extrapolation System

Field studies (or field experiments), that is, consumer behavior studied within actual consumer decision contexts, are naturally higher in realism than lab experiments (Morales et al. 2017). In their "purest" form yielding the highest degree of realism, *field experiments* are conducted in a way that consumers are unaware that they are participating in a research study (Charness et al. 2013). This ensures not only the benefit of a natural consumption environment and actual decision outcomes, but also that consumers' choices are unbiased of several threats to the findings' validity (e.g., demand effects). A great example for a context effects field

experiment is reported in Gu et al. (2018): The authors manipulated the actually presented offers of an online content provider and thereby demonstrated both the attraction and compromise effect in a real-world decision context. Admittedly, many researchers don't readily have access to industry cooperators' resources to conduct field experiments like this. However, there is still the possibility to conduct *experiments in the field* (i.e., outside of the laboratory in natural consumption contexts where consumers are aware of being participants in a research study; Morales et al. 2017). Although choice behavior in these settings might not be as naturalistic as in field experiments, it is still less artificial than in lab experiments (e.g., Schöniger 2022). Evangelidis and van Osselaer (2018) report such a study where a hypothesis-blind research assistant sold pencils on a university campus as part of her research thesis.

Although field experiments and experiments in the field allow to manipulate variables and provide experimental control, researchers can also resort to secondary data to fundamentally demonstrate a context effect in actual consumption environments. For example, Wu and Cosguner (2020) demonstrate the attraction effect by analyzing sales data of an online diamond retailer.

4.2.3 Guideline 3: Ensure Experiments' Generalizability to the Extrapolation System

If field studies are not reasonably feasible, for example, because secondary data are not available or central manipulations cannot be implemented in field experiments, researchers should at least implement a high degree of realism in their (lab) experiments. That is, experimental settings and measures should undoubtedly allow to extrapolate the (lab) findings to the envisioned real-world application context due to the implemented realism determinants and experimental design elements. For that matter, several easy-to-follow steps can be taken.

In a first step (3.1), the research design should be implemented in line with what the context effect's nature and the accordingly defined extrapolation system demand. To begin with, the design revolves around whether the context effect is tested within- or between-subjects. As argued, some context effects with specific application scenarios can't naturally be investigated in a certain research design (e.g., adding sold-out phantom decoys in a within-subjects design). In contrast, other context effects require the implementation of certain research design characteristics. For example, the background contrast effect emerges only in a subsequent choice when trade-off relations between attributes in an initial choice have been learned and applied by consumers (Priester et al. 2004; Simonson and Tversky 1992). Therefore, studying the background contrast effect makes a within-subjects design at least partially necessary. Beyond that, the typical customer journey in the extrapolation context imposes limits on the research designs' generalizability. For example, if researchers want to demonstrate the compromise effect in a restaurant setting by consumers increasingly ordering a more expensive (target) instead of cheaper (competitor) wine when a third, premium (decoy) alternative is offered, a within-subjects design is of little realism because restaurant visitors typically do not get two different drink menus containing partially the same items presented. Generally, in terms of within-subjects designs, there are inherent risks with respect to participants seeing through the experiment (Aczel et al. 2018) or trying to appear consistent in their choices (Greenwald 1976).

Furthermore, the product stimuli of choice also dictate aspects of the research design. Although it might be reasonable to manipulate and present multiple low-cost FMCGs choice sets in a within-subjects attraction effect research design, it is less reasonable for more expensive durables. This is also closely connected with how many choice sets participants are faced with (Lichters et al. 2015). That is, while customers typically purchase several FMCGs during grocery shopping, multiple choice sets of (different) FMCGs can reasonably be presented in the same

experimental session. However, durables like electric toothbrushes are usually purchased once in a comparably long timeframe, rendering only a few or even just one choice set more realistic. This is an important aspect to consider in the research design as learning effects due to repeated exposure to choice sets influence context effects' magnitude (Ahn et al. 2015).

Second (3.2), the research environment in terms of participants' decision medium should also match the defined real-world consumption context targeted for generalization as closely as possible. On a basic level, this match should be established regarding an online vs. offline setting. These settings differ in various dimensions that critically influence consumer decision-making (Park et al. 2015), for example, how products are displayed and which product information are accessible to consumers. In that regard, one important aspect is that most products in online shopping are not directly physically accessible and vary in their degree of experienceability (Fridman et al. 2024). Online studies are not per se unrealistic, especially if they are to be generalized to online-shopping decision contexts and match those contexts accordingly. On a side note, as reported, there is an increase in context effects research's realism during a general rise of online studies (Sassenberg and Ditrich 2019), although the association of these findings were not directly assessed. However, products can be sensorially evaluated to further extents by consumers in retail shopping, triggering different pathways for product evaluation and selection compared to online shopping (e.g., need for touch; Kühn et al. 2020). As Lichters et al. (2015) already pointed out, if consumers in real-world consumption context have the opportunity to physically evaluate products, researchers should establish an experimental setting that allows participants to do so as well (e.g., by displaying the products in the lab). Therefore, although matching the study environment to the application context already takes care of establishing ecological validity along several domains, researchers might need to take extra steps to ensure higher correspondence. This is another instance where field studies are beneficial because they not only provide a realistic

decision environment, but also allow to match the natural decision indication process (e.g., marking a checkbox on a computer screen vs. placing a product on a counter).

Third (3.3), the stimuli of choice should be real products displayed like in the application context. Real products as stimuli not only allow to clearly assess or establish product relevance for participants (see 3.4. in Fig. 4) and provide a necessity for consequential choices (see 3.5. in Fig. 4), they are themselves also fundamental to realistic consumer decisions. Of course, hypothetical products can be constructed to be research stimuli if dictated by the generalization context. However, using real products provide several benefits beyond the ones mentioned above. On the one hand, realistic stimuli can be created in a relatively effortless fashion: Researchers can easily access product offers from the application context and replicate those closely in the study. That is, actual products are only a few mouse-clicks (or steps) away (e.g., on amazon.com, product comparison or retailer websites, or in supermarkets), providing researchers with the information that are presented to consumers and that should be matched in the experiment (e.g., product ratings, number of attributes, presentation format). On the other hand, this also relates to another benefit in establishing realism, that is, the realism of the choice set presentation itself. As mentioned above, several aspects of the choice set and its presentation that determine realism influence context effects' magnitude (e.g., whether a compromise-effect decoy is presented in the middle of the choice set or not; Kim et al. 2022). By using real products presented as in actual market offers, researchers can confidently claim to have established realism in the choice set because real products are by definition *realistic* and the presentation is found in at least one, ideally typical *real-world* consumption context.

On a further note, using that approach to investigate context effects with several different product categories helps to expand generalizability and external validity (i.e., the transferability to several different contexts). As it is obviously not the same due to the different involvement of

psychological processes when deciding between a set of car alternatives and chewing gums, implementing product stimuli of different categories (e.g., hedonic vs. utilitarian or FMCGs vs. durables; Lichters et al. 2016a) across choice sets covers more application scenarios.

Additionally, providing participants with a no-buy option is mandatory to create realistic choice sets as it is an implicit characteristic of real-world consumption decisions. The framing of the no-buy option itself is also important and should match the application context (Lichters et al. 2015). For example, the no-buy option in cases where the study sample already owns a comparable product could be framed as rather keeping that product instead of the preference to keep looking for other options (e.g., Mochon 2013).

Fourth (3.4), the selected product stimuli should fundamentally be relevant for a study's participants, or at least not completely irrelevant. Of course, there might be application scenarios where the decision behavior of consumer segments with specifically low knowledge and previous exposure regarding the products is of central interest (e.g., potential or first-time buyers). However, findings based on participants with absolutely no willingness to buy the products in question severely limit the applicability to real consumer contexts because, after all, actual purchase decisions are done in accordance with consumers' pre-selection based on relevance. To establish product relevance, researchers have several possibilities. First, selecting participants with proven product relevance can already be achieved in the recruitment process, for example, by only inviting people to a study that have previously bought such a product. In that regard, industry cooperations are again useful. For example, if possible, the customer base of an online vendor might be contacted to recruit participants. Second, only keeping participants with indicated product relevance after recruitment (and data collection) for analyses is arguably more feasible. This can be achieved based on participants' self-reported product relevance. Despite the limitations of self-report measures in general (Morales et al. 2017), Polman and Maglio (2023)

demonstrate how behavioral outcomes depend on simple, so-called “reality checks” (e.g., asking participants whether they are previous consumers of a product or not). Therefore, applying exclusion criteria based on such tools help to ensure to study consumer behavior with an appropriate sample. If convenience samples are recruited (e.g., students in the absence of any other available participants), researchers should ensure to select products that are relevant for the majority of the respective sample. For example, pilot studies can be used to identify such products (see, e.g., Lichters et al. 2016b).

Ultimately, not just product relevance should be established for study participants, but the sample should also closely reflect other characteristics of the consumer segment in the extrapolation system (e.g., according to price vs. quality orientation; Müller et al. 2012b). As it can be effortful to control for all possible personality-related variables that influence consumer decisions, ensuring a recruitment process to randomly select members of the target audience in terms of demographics in combination with applying relevance-assessment tools like reality checks serves as a good baseline of sample generalizability.

Finally (3.5), researchers should implement consequential choices: Participants should pay for the selected choice alternative, ideally with their own money (nothing in case of the no-buy option) to reveal realistic choice behavior (e.g., Lichters et al. 2017; Müller et al. 2012a). A relatively low-effort and low-cost way to impose economic consequences is by using a random payoff mechanism (RPM): Although only a limited number of choices is randomly selected for actual execution, RPMs are widely applied because they reveal realistic preferences (Cubitt et al. 1998; see also Schramm 2025). RPMs can be used to determine a fraction of choices per participant, or to determine a fraction of participants and a fraction of choices per determined participant to be payoff relevant. When study participation fees are paid, they should be either paid (days) ahead of the experimental session or at the last contact point with participants

(Lichters et al. 2015) in order to minimize house money effects (Thaler and Johnson 1990). If choices cannot be made consequential by making participants pay with their own money, researchers should ensure that the price of the selected product is deducted from participation fees, or at the very least that participants receive the selected alternative without paying a price. The latter case might even be the more ecologically valid implementation when price is not an inherent attribute in choice sets (e.g., Hedgcock et al. 2009).

4.2.4 Guideline 4: Transparently Address Implications and Limitations regarding the Article's Practical Relevance

Finally, when writing their article, researchers should clearly and transparently describe to which real-world consumption contexts their findings are (i.e., practical implications) and are not (i.e., limitations) applicable to. This helps practitioner audiences to efficiently assess to what extent the experimental findings are relevant for their specific application contexts. This transparent communication serves as another dimension of practical relevance (Hoyer et al. 2024) and should entail several aspects. First, results should contain effect sizes (McShane et al. 2024) to provide information about the context effects' magnitude. Ideally, these effect sizes are translated into terms that allow practitioners to assess the potential impact if applied in practice. For example, researchers could state expected revenue increases in case of an added decoy option so that marketers could conduct a cost-benefit analysis and weigh larger revenues against research-and-development costs. Second, researchers should explain (if studied) which application contexts might yield small or non-existent context effects or at least which application contexts have not been studied. The clear communication of limitations, especially with regards to generalizability and practical relevance, are increasingly demanded by a growing number of

journals, because that is ultimately also in the practitioner audience's interest (e.g., Albarracin et al. 2024; American Psychological Association 2025; Simons et al. 2017).

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The dataset and analysis script used for this present article are available in the Open Science Framework repository, available via this link: <https://osf.io/z6cq8/overview>.

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