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ORIGINAL EMPIRICAL RESEARCH

Habit slips: when consumers unintentionally resist new products

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Abstract Consumers' existing habits are a key driver of resistance to new product use. In an initial survey to identify this role of habit, consumers reported on products that they had purchased intending to use. They also reported whether or not they actually used them. For one-quarter of the products they failed to use, consumers slipped back into old habits despite their favorable intentions. However, consumers effectively used new products when integrating them into existing habits. A four-week experiment with a new fabric refresher confirmed that habit slips impeded product use, especially when participants thought minimally about their laundry and thus were vulnerable to habit cues. However, slips were minimized when the new product was integrated into existing laundry habits. Thus, in launching new products, managers will want to consider consumer habits that conflict with product use as well as ways to embed products into existing habits.

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Introduction

Introducing a new product into the consumer marketplace is fraught with challenges. Over half of all new products fail (Andrew and Sirkin 2003), and consumer resistance to purchasing and using new products contributes significantly to this failure (see Heidenreich and Kraemer 2016). To guide the development and marketing of new products in this rocky landscape, managers often rely on market research to test quantitative concepts (e.g., intent to purchase, definitely-would-buy scores) and conduct qualitative focus groups to understand adoption decisions.

Through this market research, managers identify consumers' decisions that could influence success of a new product. These judgments are believed to emerge from largely explicit processes involving rational decision making and forming preferences. For example, in Rogers' (1962; Rogers and Schoemaker 1971) classic analysis, adoption proceeds through knowledge of the new product, attitude formation, decision to adopt or reject, and finally implementation. Similarly, Bagozzi and Lee (1999) outlined the decision processes that consumers follow with respect to adoption, including consumer goal setting (e.g., appraisal, adoption decision) and goal striving (e.g., planning, actual adoption).

In the present article, we extend understanding of consumer adoption to include an often-discussed but rarely documented source of potential resistance to new products: consumer habit. According to Sheth (1981), "the strength of habit associated with an existing practice or behavior is hypothesized to be the single most powerful determinant in generating resistance to change" (p. 275). Resistance due to habit occurs along a continuum that

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includes more active processes at one end and more passive inertia at the other. As an active process, people may deliberately choose an existing, habitually-used product over a new alternative (Kleijnen et al. 2009). Resistance also occurs passively due to slipping back into old habits (Ram and Sheth 1989). Existing lines of research track the effects of habit on active resistance. For example, consumers' skill-based habits for an existing product impeded transitions to a new product through an essentially rational decision process involving weighing past investments and switching costs (*cognitive lock-in*, Murray and Häubl 2007; Zauberman 2003). However, emerging research on the psychology of habit identifies automated as well as deliberate effects on consumer choice (Wood and Rünger 2016).

We test whether habits can generate behavioral resistance through a relatively passive process involving automated cuing of past behaviors. Specifically, we argue that automated resistance to new products can take the form of *habit slips*, or use failures that occur when consumers fall back into repeating habits that conflict with a new product. That is, despite intending to use a new product, consumers might revert back to old habits that are cued by everyday contexts. Habit slips are thus defined as limited use of a new product due to automatically slipping back into existing habits.

Our analysis of habit slips takes a systems perspective by considering how a new product or service interacts with consumers' lifestyles. For example, despite initial excitement about purchasing a premium cable TV package, when sitting down to watch in the evening, viewers might fall back on existing patterns and automatically turn to their usual channels. Habit slips might thus occur with little input from product use intentions. To provide a strong test of the idea that habit-based resistance does not depend on intentions, we focus our research on products that consumers regard favorably and purchased with an intention to use. Although our research is post-purchase, we believe that a similar habit-slip mechanism can impede initial purchase decisions, leading consumers to stick with purchasing an incumbent product or service.

Given the limited evidence for automated habit slips, we began our investigation with a survey to identify the extent to which these do in fact impede consumers' everyday use of new products. We then conducted a field experiment that introduced a new laundry product and evaluated failures to use it. This experiment allowed us to assess implicit and explicit product evaluations longitudinally to rule out an alternative account in which resistance is tied to forming or changing product judgments. This experiment further validated the habit slip phenomenon by demonstrating that it was moderated by factors known to moderate habit performance. Specifically, because consumers tend to fall back on established habits when distracted and thinking about something other than what they are doing, we anticipated that habit slips would be greatest among participants who thought little about doing laundry. Finally, both studies also evaluated the efficacy of strategies to break habit-based resistance barriers by making new products compatible with existing habits (e.g., Ram and Sheth 1989).

Habit slips and other resistance barriers

Given that consumer resistance takes many forms, marketing teams will want to carefully consider the landscape into which they introduce new products (see Table 1). Consumers might actively resist purchasing or using a new product by making decisions. In addition, consumers might passively resist by failing to adopt a new product without explicit negative evaluations or decisions not to purchase (Heidenreich and Handrich 2015; Talke and Heidenreich 2014).

A number of active resistance barriers have been investigated in prior research (see Kleijnen et al. 2009). Consumers may experience resistance when they face uncertainty, either because they lack information about the product or because the future of the product is unclear. Resistance due to perceived product image could arise from negative stereotypes about the product. One example is both brands' and consumers' reluctance to adopt wines bottled with screw caps because of perceptions that this reflects inferior quality (Garcia et al. 2007). A number of aspects of new product uncertainty or risk have been investigated, including functional, economic, social, and physical risks (Kleijnen et al. 2009). Physical risk, or the possibility of physical harm due to the new product, may be common for some types of products (e.g., new food or health-related products) but should be relatively rare for most products (Stone and Grønhaug 1993). In contrast, functional or performance risk, involving concerns about whether the new product will perform reliably or interface seamlessly with complementary products or services, either existing or promised in the future, can cause many consumers to postpone adoption (Antioco and Kleijnen 2010; Szmigin and Foxall 1998). This may be a particularly serious issue for novel products that rely on co-evolving, compatible innovations (Bucklin and Sengupta 1993). Additionally, consumers often consider how their reference group will support their adoption behavior, particularly for conspicuous products, and will fail to use new products if the social risk is too high (Dholakia 2001). Finally, economic risk, or concerns about product value, may prevent consumers from adopting new products (Kleijnen et al. 2007). Consumers can attempt to predict the value they will receive for the product price across several factors: acquisition (cost-benefit ratio at purchase), transaction (experience of getting a good deal), in-use (derived utility), and redemption (residual value at trade-in) (Parasuraman and Grewal 2000). After weighing the benefits against the cost, consumers may simply decide that the advantages of the new product are not worth the price. When consumers are faced with uncertainty as they make decisions about a new product, they may experience frustration and ultimately postpone adoption or reject the new product outright (Strebel et al. 2004).

Table 1 Drivers of resistance to new products

Driver	Description	Example references	Mechanism of resistance
Physical risk	Consumers decide not to adopt a new product due to possible physical risks	Stone and Grønhaug 1993	Active
Functional risk	Consumers decide not to adopt a new product due to uncertainty about complementarity with existing or upcoming products	Antioco and Kleijnen 2010; Szmigin and Foxall 1998	Active
Social risk	Consumers decide not to adopt a new product because of concern about others' evaluations	Dholakia 2001	Active
Economic risk	Consumers decide not to adopt a new product because of difficulty determining its true value or whether the price will change over time	Kleijnen et al. 2007; Parasuraman and Grewal 2000	Active
Perceived switching costs	Consumers decide not to adopt a new product because of difficulty in learning the new product or recognized costs to learning the new over keeping the old	Murray and Häubl 2007; Zauberman 2003	Active
Considerable exposure to information about or aspects of an alternative product	Consumers decide not to adopt a new product because they prefer products they have encountered repeatedly in the past based on heightened familiarity, at least when these new products are reasonably complex	Cox and Cox 2002; Moreau et al. 2001	Active
Choosing an established habit over a new product that conflicts	Consumers decide not to adopt a new product when it cannot be integrated into a well-established pattern of use that consumers have no desire to change	Kleijnen et al. 2009	Active
Slipping back into an established habit for using an alternative product	Consumers continue to use existing products rather than adopting new ones when existing usage habits are strong and they fall back into these old patterns	Ram and Sheth 1989; Wasson 1979	Passive
Unawareness or indifference to new products	Consumers continue to use existing products rather than adopting new ones when they do not know about or think the new product is relevant for them	Joseph 2010	Passive
Preference for status quo, disinclination to change	Consumers continue to use existing products rather than adopting new ones when they are generally resistant toward change or are content with their current situation	Bagozzi and Lee 1999; Ellen et al. 1991; Gourville 2006; Oreg 2003; Ram 1987; Sheth 1981; Szmigin and Foxall 1998; Talke and Heidenreich 2014	Passive

In addition to lack of information and uncertainty, switching costs are another reason for consumers' active resistance. That is, when an existing product is easy to use and familiar, but a new product is difficult or has a steep learning curve, consumers may forego adopting the new product to avoid the additional learning cost (Murray and Häubl 2007). Also, consumers might choose to stay with a well-known product in order to preserve the time and resources associated with search and evaluation processes for a new alternative (Zauberman 2003). In a similar way, having repeated experience with an existing product, particularly if it is complex, may increase consumers' liking for it, and this familiarity and ease of use can promote resistance to a new alternative (Cox and Cox 2002; Kleijnen et al. 2009). For these reasons, discontinuous or novel products tend to be evaluated less favorably among consumers with familiarity in a domain (Moreau et al. 2001).

Unlike active resistance, passive resistance is not a function of consumers' active decision making about a new product or service. Passive resistance might occur when consumers are simply unaware of a new product or have no exposure to it. Consumers also resist passively when they know about the new product but are uninterested or judge it irrelevant to them (Joseph 2010). This resistance can be driven by an individuals' dispositional tendency to resist change across a variety of domains (Oreg 2003) or from satisfaction with the status quo (Talke and Heidenreich 2014). Thus, consumers are unlikely to consider a new product alternative when they are not motivated to change because they are satisfied that their current product meets their current needs or goals (Ellen et al. 1991; Ram 1987; Szmigin and Foxall 1998). For example, although consumers saw value in moving from primarily check-based to card-based financial transactions, they initially failed to adopt debit cards. They were satisfied with the performance of their existing credit cards and appreciated not having the money immediately withdrawn from their account (Talke and Heidenreich 2014). This inclination toward maintaining the status quo is further fostered by an underlying psychological bias involving ownership (i.e., *endowment effect*): consumers overestimate the benefits associated with their currently

used products and underestimate the benefits afforded by new innovations (Gourville 2006).

We focus here on a novel source of passive resistance: barriers to use due to conflicts with existing habits. As we explain, even when consumers like a new product, they may fail to use it and instead fall back into established habits.

Habit cuing

Habits are defined as context-response associations that people learn as they repeatedly perform responses in stable contexts. As habits gain strength, perception of the context cue automatically brings to mind the associated response (Neal et al. 2012; Wood and Rünger 2016). Habit slips thus emerge from the habit cuing process, as consumers' mindless repetition of activated behavior patterns leads them to overlook using a new product or service. Habits can be cued by a variety of factors, including physical locations, times of day, and prior actions in a sequence (Ji and Wood 2007). Of course, consumers are not literally locked in to performing habits, and those seeking novelty or wishing to change might make a decision to act in nonhabitual ways. However, even given such an intention, consumers may not have the willpower to inhibit the habitual response in mind and choose to do something new (Neal et al. 2013).

H1: Habit slips are as prevalent a source of consumer resistance to new product use as are better-established active drivers of resistance (e.g., perceived switching costs).

Compatibility with existing habits

Our second hypothesis is that new products that conflict with existing habits will be more susceptible to habit slips than ones that are compatible. When a new product conflicts with consumers' existing habits, the opposing habit promotes resistance as it continues to be cued in competition with use of the new product. However, not all new products conflict with habits in this way. Ones that are compatible with existing habits can take advantage of habit cues instead of competing with them. In support of this idea, consumers who successfully adopted a new cooking tool also reported that it was more compatible with their existing habits than those who failed to adopt the tool (Ostlund 1974, Study 2). More generally, Tornatzky and Klein's (1982) meta-analytic review revealed that successful adoption and implementation of new products was associated with consistency with existing habits (also Wasson 1979).

Compatibility with existing habits could reflect specific product features. In general, consumers find new products compatible when they completely replace an old product and can thereby be directly integrated into a habitual behavior stream. This possibility is consistent with Ram and Sheth's (1989) suggestion to reduce habit-based resistance by integrating new products into an existing product or activity. The successful marketing of bottled water in the last decade illustrates this process. Consumers' increased purchase of bottled water has been matched with decreased purchases of sugar-sweetened soda, suggesting that one is replacing the other as consumers have become aware of soda's links to obesity (Sanger-Katz 2015). The highly similar marketing and packaging of these two products no doubt contributed to consumers' relatively direct transition between them.

Consumers also might increase the compatibility of new product use by devising strategies to incorporate it into existing routines. For example, cognitive strategies can promote new product use by "integrating the innovation into the preceding activity or product" (Ram and Sheth 1989, p. 11). A number of cognitive strategies have been developed to harness existing mental associations by tying a product to prevailing habit cues (e.g., Adriaanse et al. 2011). For example, linking use of dental floss to tooth brushing proved to be an effective strategy to increase long-term floss use (Judah et al. 2013). If consumers strategically integrate use of a new product into an established habit in this way, they potentially avoid slips and use a new product as intended.

H2: Consumers are more likely to engage in a habit slip when using a new product that conflicts with an existing habit than when using a product that can be integrated into an existing habit.

Conditions under which habit slips occur

Our final hypothesis identifies the circumstances in which habit cues will be most likely to impact new product use. When habitual responses are automatically activated, consumers are influenced less by their intentions and other guides to behavior. For example, in behavior prediction studies, participants with stronger habits typically repeated their past behavior with little influence from their intentions (Gardner et al. 2011; Orbell and Verplanken 2010). A field study in a local cinema illustrates this same effect: consumers with stronger habits to eat popcorn at the cinema continued to eat it even when the popcorn was stale and they reported not liking it (Neal et al. 2011). Thus, a distinguishing feature of the automaticity of habit slips that separates them from decisions not to use a new product is that slips depend little on consumers' negative product evaluations or intentions.

Another distinguishing feature of habit slips is that they are especially likely to occur when consumers' decision-making capacity is reduced by distractions and related factors in daily life. Under such conditions, consumers should be especially likely to slip and automatically follow cues to act habitually without considering whether they are following through on their intentions to use a new product. This phenomenon was captured in Reason's (1979) daily diary research, in which people's unintended actions, or *action slips*, were often part of habitual behavior sequences that occurred when people were absentmindedly thinking about

something unrelated to what they were doing. Laboratory tests have since validated that habits are performed inadvertently when thought is impeded by, for example, advanced age or performing a secondary task (e.g., de Wit et al. 2014; Ruh et al. 2010).

H3: Although habit slips do not depend on product evaluations or intentions to use, they are more likely when consumers use a product mindlessly and have not integrated it into existing habits.

In summary, as depicted in Fig. 1, habit slips are likely to emerge as products conflict with consumers' existing habits (H2). Finally, slips should not occur for consumers who think carefully about a domain or who integrate new products into their existing habits (H3).

In light of these predictions, we conducted two studies (a survey and experiment) to test whether habits contribute to consumers' failure to use new products as intended.

Study 1: existing habits can impede use of new products

The primary focus of the survey was to establish that habit slips are a common impediment to new product adoption (H1) and to

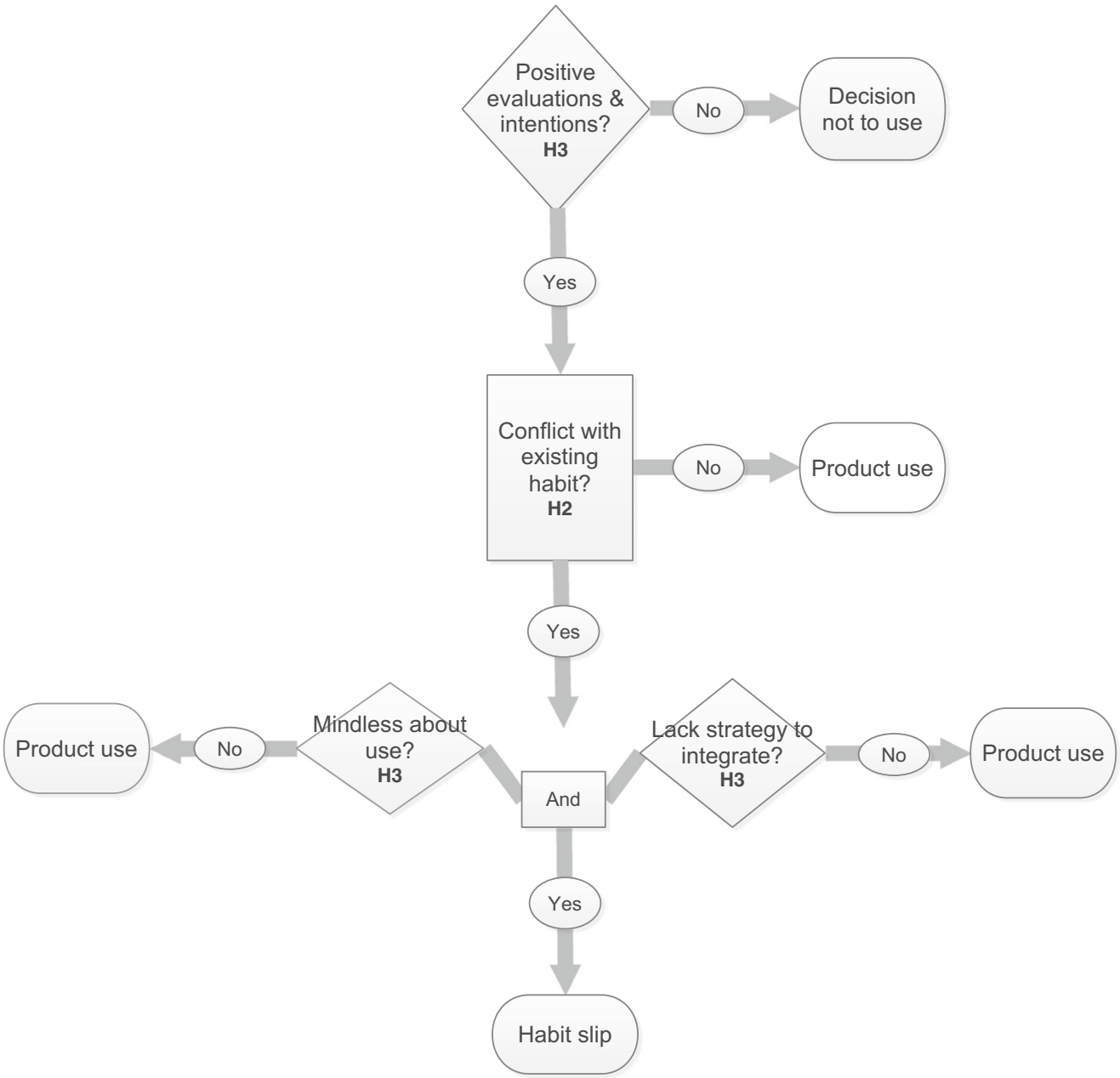

Fig. 1 Process model depicting factors that determine whether consumers will use new products or slip back into their existing habits

test whether they are more likely for new products that conflict with or are compatible with existing habits (H2). Habit slips were indicated by a failure to use new products because of the tendency to fall back on existing habits. The survey also assessed other potential impediments to new product use, including perceived difficulty (an indicator of *lock-in*), cost, and changed evaluations of the new product. In this way, we could compare the incidence of habit slips with other reasons for nonuse. The survey also assessed how much participants liked the new products and their compatibility with existing habits.

Participants

One hundred fifty MTurk workers (81 women, median age = 32 years) currently living in the U.S. completed the online survey for $1 (selected to have a 95% or better HIT approval rate).

Materials and procedure

Participants nominated and described two products that they had purchased in the last 6 months, identifying one that they *used regularly* and one that they intended to use regularly but in actuality *used rarely or not at all*. Participants nominated their own products in order to ensure that our findings were not limited to specific, given product examples. Participants nominated a broad spectrum of items, including regular use of an iPhone, slippers, a computer, jeans, and a toothbrush, and failed use of a basketball jersey, Shake Weight, juicer, DVD cleaner, waffle maker, and picnic basket. We conducted a number of analyses to identify differences between the products nominated in successful versus unsuccessful categories, and no systematic effects emerged. Most popularly nominated (successful/unsuccessful) products were: computers and electronics (27%/18%), household products and supplies (15%/19%), and beauty and health (14%/15%). Participants further indicated whether or not the new product replaced a different product they had used in the past, and if yes, named the replaced product.

Anticipated and actual product use Participants reported how often they expected to use and actually used the products on scales from 1 (*never or almost never*) to 5 (*every day or almost every day*). Participants also reported on their frequency of use of any old product that the new product was replacing.

Self-report behavioral automaticity index (SRBAI) To assess the automaticity of product use, participants completed the SRBAI (Gardner et al. 2012) for the old products that had been replaced by the new one as well as for the new products they described. Specifically, participants indicated on 5-point scales from 1 (*strongly disagree*) to 5 (*strongly agree*) whether they used each product "automatically," "without having to consciously remember," "without thinking," and "before I realize I'm doing it" (alphas = .90 and .94, for regularly- and rarely-used products, respectively).

Explanations for failure to use Participants selected which one of the following explained their rarely-used products: (a) habit slip: "I fell back on my old habit and did what I used to do," (b) cognitive lock-in: "It was difficult to use," "I never really learned how to use it," (c) attitude change: "I did not like it," (d) lack of motivation: "I wasn't motivated to use it," "I did not need it," (e) personal limitations: "I didn't have the opportunity to use it," "I didn't have the time to use it," "I forgot about it," (f) product limitations: "It did not work properly," "It cost too much to use," no longer had the product because "I lost it," "I gave it to someone else," or (g) "Other."

Conflict with and integration into habits Participants also rated the extent to which the product conflicted with an existing habit and whether it changed an existing routine (1 = *not at all*, 5 = *extremely*).

Results

Indicating that the products nominated were appropriate to test our hypotheses, participants reported that rarely-used products were in fact used significantly less often ($M = 1.86$) than those used regularly ($M = 4.58$), $t(146) = 29.00$, $p < .001$. Additionally, participants perceived greater automaticity in products they regularly used ($M = 3.86$) than ones rarely used ($M = 1.60$), $t(145) = 21.93$, $p < .001$.

Consistent with the broader argument that new products are often used in a context with existing habits, when the new product replaced an existing one (see "Compatibility with established product habits" below), the old product was moderately to strongly habitual, and thus appropriate to create habit slips. Specifically, participants reported that the old products that their new product was replacing ($n = 131$ products) were used more often than several times a week ($M = 4.15$), and that using the previous product was moderately automatic ($M_{SRBAI} = 3.58$). Participants who did not specifically replace an old product may instead have replaced an existing habitual behavior.

Hypothesis 1: incidence of slips To identify the incidence of habit slips, we first evaluated the reasons for rarely-used products. Habit slips (i.e., "I fell back on my old habit and did what I used to do") accounted for 25% of the products that participants nominated as purchased but used rarely. Specifically, habit slips and cognitive lock-in ("it was difficult to use" and "I never really learned how to use it"; 27% of products), were the most commonly selected explanations for nonuse out of the 13 provided (see Table 2).

Hypothesis 2: compatibility with established product habits To test the effects of compatibility with existing products,

Table 2 Reasons for rarely used products: Study 1

Category	Explanation	% of products
Habit slip	"I fell back on my old habit and did what I used to do."	25%
Cognitive lock-in	"It was difficult to use."	18%
	"I never really learned how to use it."	9%
Attitude change	"I did not like it."	10%
Lack of motivation	"I wasn't motivated to use it."	8%
	"I did not need it."	4%
Personal limitations	"I did not have the opportunity to use it."	3%
	"I did not have the time to use it."	4%
	"I forgot about it."	6%
Product limitations	"It did not work properly."	5%
	"It cost too much to use."	1%
	"I lost it."	2%
	"I gave it to someone else."	1%
Other	(participants could specify)	3%

we compared the amount of conflict experienced for regularly-used and for rarely-used new products. Supporting H2, regularly-used products conflicted less with other habits ($M = 1.25$) than rarely-used ones ($M = 1.71$), $t(146) = -4.84$, $p < .001$. However, contrary to expectations, regularly used products were about as likely ($M = 1.98$) as rarely used ones ($M = 2.00$) to have changed participants' existing routines, $t(146) = -0.18$, $p = .859$.

We further tested the effects of compatibility by evaluating whether regularly-used and rarely-used new products completely replaced product use in an existing habit. In support of H2, participants were more likely to use the new product when they integrated it into their existing habits by completely replacing a previous product. Regularly used products were more likely to have completely replaced a previous product (63% of participants) than rarely used ones (25% of participants), McNemar χ^2 $(1, N = 146) = 36.05$, $p < .001$.

Discussion

This survey provides some of the first empirical evidence that habits significantly impede new product adoption by encouraging consumers to unintentionally slip back into past actions. That is, in support of our first hypothesis, habit slips accounted for about one-fourth of the products that participants bought intending to use regularly but in the end used only rarely. Suggesting the pull of habits, consumers reported moderately strong automaticity for existing products, prior to the new purchase. Habit slips were then indicated by consumers falling back on old habits and doing what they used to do. Our results reveal that consumers fell back into old habits with some frequency. Their newly purchased exercise bike became a catch-all for clothing, the fancy new purse was forgotten for the old favorite, and who really needs a product to clean DVDs anyway?

More active resistance was also evident in participants' reports that they did not use products that were difficult in some way. Echoing earlier research on cognitive lock-in (Murray and Häubl 2007), consumers apparently made a rational choice not to use difficult products and instead reverted to their existing ones in order to avoid switching costs. As an additional barrier, some consumers changed their minds and decided that they did not like the new products.

The utility of our behavioral-level analysis of consumer resistance is highlighted further by the importance of the compatibility of a new product with existing habits. Consistent with H2, participants were more likely to successfully use a new product when it did not conflict with a previously established habit. Barriers to use also were lowered when the new product completely replaced one that participants already used, presumably because it would then be possible to just integrate the new item into an existing behavior stream.

We also conducted a replication study that demonstrated the reliability of the habit slip results with a new set of consumers (see Online Supplement). This second study also evaluated whether participants actively tried to integrate new products into existing habits (H3). For these ratings, participants first indicated whether or not they had ever owned each of a variety of common products (Swiffer Sweeper; Kindle, Nook or other E-Book reader; pedometer; Nintendo, PlayStation, Xbox, or other video game system; musical instrument; non-prescription sunglasses; dental floss), and then indicated whether they employed a strategy to remember to use it, including integrating the new product into an existing habit. Because every participant owned at least one of the products and could have reported a strategy for each of the products they owned, hierarchical regression models (reflecting products nested within participants) were constructed to predict product use. Consistent with H3, greater use was associated with the strategy of integrating the new product into an existing habit: "I made a plan to use it every time I was doing certain relevant routines or habits," $b = 0.59$, $SE = 0.20$, $t(363) = 2.96$, $p = .003$. Thus, successfully integrating the product into an existing habit helped participants to avoid slips and use the new product as intended (see Appendix 1 for full results).

Study 1 clearly established the incidence of habit slips and the barriers to use that arose from incompatibility with consumers' current behavior. However, several aspects of our analysis could not be tested in the survey. Although liking for the new product was not associated with the incidence of habit slips (see Online Supplement), the correlational design makes it difficult to rule out factors other than slips that limited product use. Furthermore, because we did not control for the different types of products that participants reported on, product type could have contributed to some of our results. For these various reasons, we conducted a longitudinal experiment to systematically evaluate the mechanisms behind habit slips. Furthermore, building on the replication

study, we manipulated several cognitive strategies that managers can deploy to address this barrier to new product adoption.

Study 2: habit slips depend on compatibility of a new product with habits

College students in this experiment trialed a new laundry product, a fabric refresher, that augmented their existing laundry habits. This domain was chosen so that it was likely that participants would fail to use the new product due to habit slips, given that most participants reported already having strong laundry habits. Under these conditions, people may fail to use a new product by falling back into old laundry patterns.

This second study also enabled us to examine three aspects of the slip mechanism in more detail. First, following H2, we anticipated that habit-related barriers to adoption could be controlled through strategies to integrate the fabric refresher into existing routines. We tested two different cognitive strategies. The first strategy, which did not specify integration into an existing habit, involved *implementation intentions*, or if-then plans (Gollwitzer and Sheeran 2009). That is, some participants planned to use the product by specifying when, where, and how they would do so. In this condition, participants formed plans to use the refresher under circumstances they selected (e.g., when getting dressed in the morning). Implementation intentions promote behavioral follow-through by increasing the accessibility of a triggering cue, which is the *if* component of the plan, and creating an automatic link to the desired action, which is the *then* component. Despite the general effectiveness of this strategy, it has not been clearly successful at changing the behavior of those with strong habits (Maher and Conroy 2015; Webb et al. 2009).

We also tested a second strategy that involved directly integrating a new product into a habitual routine, and thus might help participants overcome habit slips. Illustrating this approach, participants consumed healthier snacks when they linked a healthy snack food to a context in which they typically ate an unhealthful snack (Adriaanse et al. 2011). When participants planned in this way, they learned cognitive associations between the habitual context and the healthy foods. Presumably, these new associations could then automatically replace the old patterns by triggering the new behavior. The current study built on this strategy by explicitly embedding the laundry refresher into participants' existing laundry routines. Specifically, participants in this condition formed a strategy of *habit-cued use* designed to both inhibit the habitual behavior and remind them to use the new laundry product in that context. That is, at the point when they usually washed their clothes or rewore them, participants planned to think, "Don't do what you normally do, use the laundry refresher instead." For example, if students normally grabbed a pair of jeans off the floor while hurrying to class, they would now stop and think, "Don't just rewear the smelly jeans, use the fabric refresher." This strategy of integrating use of the new laundry refresher into participants' existing laundry habits was intended to facilitate use.

Second, testing H3, we evaluated the conditions under which slips occurred. We anticipated that slips would emerge despite participants' liking for and intentions to use the new product. To provide a controlled, experimental test of this claim, participants reported across four weeks their intentions to use the product and their explicit and implicit liking for it, as well as their actual use of it. By assessing both implicit and explicit evaluations, we tested the variety of ways that liking for the new product contributed to habit effects.

In short, we predicted that slips would not depend on these indicators of liking and intention. We also anticipated that slips would be most apparent for participants who did laundry relatively mindlessly and thought little about it. This pattern would echo classic action slip findings in which slips occur during episodes of distraction and thinking about something other than what one is doing (see Wood and Rünger 2016). In contrast, people who carefully thought about how to do their laundry should be less likely to inadvertently repeat old patterns and should be more successful at using the new product.

In summary, our primary predictions were that participants would avoid habit slips and use the new product primarily when they (a) integrated it into their existing habit (habit-cued use strategy, H2) or (b) were thoughtful about their laundry (H3). By examining both of these factors together in a single experiment, we also could test the interaction between them. It seemed likely that, regardless of cognitive strategy, participants who typically think about laundry should not be vulnerable to falling back into old habits and thus should successfully use the new product. In a sense, these participants do not need the strategy to counteract habit slips. If this is correct, then the analysis on product use should reveal an interaction between strategy and thought in which the habit-cued strategy is effective at reducing slips only for participants who think rarely about their laundry. Furthermore, the beneficial effects of strategy and thought on product use should not depend on participants' liking for the product or intentions to use it (H3).

Participants

A total of 70 students (55 women, M_{age} = 20.21 years) participated for payment plus extra credit in their psychology class. One additional student who indicated that he misunderstood the study instructions (assessed in the second session) was not included in the final analyses.

Procedure

Lab session 1 For a study on a new laundry product, participants first completed a brief survey assessing demographic information and laundry habits. Each participant then received a free trial bottle of a fabric refresher with the following

instructions: "For the next four weeks, try using it whenever you want to refresh clothes that you have already worn but would like to wear again." The *control* group received these instructions but no additional information ($n = 20$).

The remaining participants were provided with one of our two strategies to promote use. So that participants implemented the strategies at point of use, they were instructed to do a sniff test when deciding whether to rewear or launder previously worn clothes.

The *standard implementation intentions* group was instructed that, if the item was smelly, then they should use the fabric refresher ($n = 20$). To help them plan in this way, this group wrote down where, when, and how they would use the sniff test and the product refresher. These instructions were carefully constructed to parallel the implementation intentions used in prior research, "If situation Y occurs, then I will initiate goal-directed behavior X!" (Gollwitzer and Sheeran 2006, p. 82).

The *habit-cued use* group replaced existing laundry habits with the refresher ($n = 30$). Instead of how they typically dealt with previously worn clothes, including wearing them again or washing them, they were instructed to do the sniff test, inhibit their standard response, and instead use the new product. To help them plan in this way, participants wrote down the situations (where, when) they would typically rewear or rewash clothes, and how they would *not* do what they normally do and instead use the new product. The inhibitory component of this strategy is reminiscent of another habit control strategy involving *vigilant monitoring* (Quinn et al. 2010). However, in the present study, participants simultaneously inhibited the existing habit and remembered to replace it with the new product.

Finally, all participants completed an assessment of implicit attitudes toward the product using the Affect Misattribution Procedure (AMP), described below in the Measures section (Payne et al. 2005), and reported on their initial thoughts about it. Participants agreed to report on their product use via a web survey every week for the next four weeks.

Weekly surveys to assess in-home product use To reinforce the initial instructions, in the first weekly survey, participants were reminded of their assigned strategy (no-strategy control, implementation intentions, habit-cued use). This served as a check of participants' understanding. After re-reading the instructions, they indicated how confident they were that the instructions presented were what they had originally received. As noted above, all participants correctly remembered the strategy instructions, with the exception of one, who was deleted from the analyses.

Lab session 2 At the end of four weeks, participants returned to the lab and completed the final weekly survey, gave explicit product evaluations, and again responded to the AMP implicit attitude measure. One participant failed to show up for the final session, but the reported analysis included this individual's responses for the earlier sessions.

Measures

Laundry habits In the first lab session, participants reported on their existing laundry habits, specifically how often they rewore and washed clothes when they were only slightly dirty on scales from 1 (*never*) to 5 (*almost always*).

Product use In each weekly survey, participants reported the number of times they used the product that week. Demonstrating the validity of this measure, it was significantly correlated with the grams used from the bottle(s) that participants returned at the end of the study, $r(50) = .50$, $p < .001$. Given that not every participant remembered to return their bottle to be weighed, we assessed product use in the study from participants' reports. To further check on the validity of student reports, they indicated at the follow-up survey, after the end of the study, how accurately they had reported product use. A full 70% of respondents answered that their weekly reports of product use were 90–100% accurate. Only 5% of participants reported accuracy of less than 70% (retained in the analysis because their data did not differ from the rest of the sample).

Thought about laundry decisions On a 5-point scale ranging from 1 (*no thought*) to 5 (*very much thought*), participants reported how much thought they typically gave to their decisions to wash or rewear an item of clothing that they had already worn. They made this judgment during the first lab session and thus indicated how much thought they typically gave prior to participating in the study.

Intention to use and to purchase During the initial session before they had used the product, participants indicated on a 7-point scale anchored by 1 (*strongly disagree*) and 7 (*strongly agree*) whether they intended to use the product. During the final session, on 5-point scales anchored by 1 (*fully disagree*) and 5 (*fully agree*), participants indicated how likely they were to purchase the product in the future and whether they planned to purchase it. These purchase measures were highly correlated, $r(65) = .85$, $p < .001$, and were combined into a single measure of intention to purchase.

Product difficulty Participants rated how easy or difficult it would be for them to use the product from 1 (*extremely difficult*) to 7 (*extremely easy*).

Perceived control Participants indicated their agreement with whether or not using the product was completely up to them from 1 (*strongly disagree*) to 7 (*strongly agree*).

Implicit attitudes: affect misattribution procedure The AMP relies on the principle of affect carryover, in which an affective response to a briefly presented stimulus (e.g., a photo of a puppy) influences the judgment of a subsequent neutral target (e.g., inkblot, Chinese character) in an affect-congruent manner (e.g., the neutral inkblot seems more positive when appearing after a photo of a puppy). We adapted the AMP to measure implicit evaluations of (a) the fabric refresher (using images of the bottle), (b) a competing laundry product (using images of that bottle), and (c) a neutral image (a gray box). In this assessment, participants first saw one of these images flashed for 75 ms in the center of the screen (fabric refresher, a competing laundry product, or neutral image), then a blank screen for 125 ms, followed by one of 48 unique inkblots for 100 ms. The inkblot was then covered with a mask until the participant made their judgment whether the inkblot was pleasant or unpleasant by pressing a key on the keyboard. Participants completed a total of 48 trials (16 fabric refresher primes, 16 competing product primes, and 16 neutral image primes).

Participants' implicit affect to the primes was assessed from the number of times the inkblot was deemed pleasant when it was preceded by the fabric refresher versus the neutral image. The comparison between the fabric refresher and the competing laundry product was not used in the final analyses because of the extremely positive existing associations participants had with the competing product, which created a ceiling effect across sessions for that particular control prime. Participants completed the AMP during both the initial and final lab sessions, allowing us to calculate change in positive implicit associations to the fabric refresher during the study period.

Explicit product evaluations In the final lab session, participants rated the product on the following evaluative attributes using 5-point scales ranging from 1 (*fully disagree*) to 5 (*fully agree*): convenience, time-saving, fits lifestyle, beneficial, liking, would recommend to a friend, Facebook-worthy, appealing packaging, smells good, smells fresh, removes odors, and freshens clothes. Because the scales reflected a single underlying evaluative indicator (Cronbach's alpha = .92), they were combined into a single measure of explicit product evaluation.

Results

Overall, participants used the fabric refresher an average of 12.06 times (range 5–25 times) across the four-week study. If the potential maximum use was 25 times, then many participants did not use it at every opportunity, but on average used it only 48% of these times. In general, participants reported strong current laundry habits, with 73% reporting a strong habit for rewearing and/or washing their clothes. Means and standard deviations of all variables across conditions are presented in Table 3.

Table 3 Mean product use and product evaluations as a function of experimental condition: Study 2

Measure	Standard implementation intentions	Habit-cued use	Control
Product use	11.05 (4.25)	13.28 (4.30)	11.17 (3.75)
Thought about laundry[a]	2.30 (0.66)	2.60 (0.81)	2.55 (0.69)
Pre-study laundry loads[a]	4.85 (2.78)	4.43 (2.66)	3.80 (1.85)
Intention to use[a]	5.55 (1.10)	5.63 (1.10)	5.45 (1.28)
Product effectiveness[a]	5.20 (1.06)	5.27 (1.31)	5.30 (1.13)
Difficulty[a]	5.60 (1.35)	5.70 (1.51)	5.85 (1.39)
Perceived control[a]	5.50 (1.50)	5.07 (1.91)	6.00 (1.34)
Pre use AMP[a]	3.85 (8.13)	3.07 (9.53)	4.15 (5.21)
Explicit attitudes[b]	3.72 (0.58)	3.92 (0.63)	3.90 (0.80)
In-study laundry loads[b]	4.15 (2.11)	4.83 (3.78)	4.58 (2.97)
Freq of re-wearing clothing[b]	4.51 (1.53)	3.98 (1.71)	4.15 (1.94)
Normative beliefs[b]	1.78 (2.82)	2.53 (3.16)	2.75 (2.87)
Purchase intentions[b]	2.78 (0.88)	3.20 (0.99)	3.26 (1.15)

Means for product use (total number of times used across 4 weeks), thought about laundry decisions (1 = no thought, 5 = very much thought), loads of laundry in the past month (pre-study), intention to use (1 = strongly disagree, 7 strongly agree), product effectiveness (1 = strongly disagree, 7 = strongly agree), product difficulty (1 = extremely difficult, 7 = extremely easy), whether using the product was completely up to them (1 = strongly disagree, 7 = strongly agree), implicit (AMP) evaluations, explicit evaluations, loads of laundry during the study, number of times participant typically wore items of clothing between washings, normative beliefs (number of favorable minus unfavorable comments from others), and purchase intentions (1–5 scale with increasing numbers indicating increasing favorability)

[a] Measures assessed at beginning of study, $n = 70$

[b] Measures assessed at end of study, $n = 67$

Relationship between habit strength and other variables Participants with stronger laundry habits were not more involved in the product category. Thus, habit strength was unrelated to intentions to use the new product, thought about it, or evaluations of it. Of the various factors we assessed, strength of existing laundry habits was related only to perceived control over product use, $r(68) = .28$, $p = .019$. The full table of correlations can be found in Appendix 2, and relevant additional measures and statistical tests are located in the Online Supplement.

Hypotheses 2 and 3: thought and strategies to use new product We constructed a regression model predicting total use from (a) experimental condition (dummy coded into implementation intentions vs. control; habit-cued vs. control), (b) how much participants thought about their laundry decisions, and (c) the two interactions between the two condition variables and amount of thought. The predicted effects emerged for habit-cued use. That is, in addition to greater product use from the habit-cued strategy (vs. control),

unstandardized beta =2.55, SE = 1.20, $t(60)$ = 2.13, p = .037, and among those who thought more about laundry decisions, unstandardized beta =2.68, SE = 1.37, $t(60)$ = 1.95, p = .055, the predicted interaction appeared between habit-cued use and amount of thought, unstandardized beta = −3.90, SE = 1.64, $t(60)$ = −2.37, p = .021.[1] However, standard implementation intentions did not increase product use beyond the control group instructions, and standard implementation intentions (compared to controls) did not interact with amount of thought, all ts < 1. In a supplementary analysis reconfigured so that the condition variable directly compared habit-cued with standard implementation intentions, the strategy by thought interaction remained significant, unstandardized beta = −4.05, SE = 1.69, $t(60)$ = −2.40, p = .020.

To interpret the predicted interaction, we calculated the simple main effects of the manipulation for participants who gave little versus considerable thought to their laundry decisions (Cohen et al. 2003). Within the control and standard implementation intentions conditions, participants failed to use the product unless they gave considerable thought to their laundry, simple slope = 2.68, $t(60)$ = 1.95, p = .055, and simple slope = 2.83, $t(60)$ = 1.99, p = .051, for control and standard strategy, respectively; see Fig. 2. However, participants using a habit-cued strategy used the product frequently regardless of their amount of thought, simple slope = −1.22, $t(60)$ = −1.34, p = .184. Thus, high product usage levels were achieved both by participants who chronically thought about their laundry, regardless of experimental condition, as well as participants who thought little about laundry decisions but integrated new product use into their existing laundry routine through the habit-cued strategy.

Hypothesis 3: intentions or liking for new products To ensure that the success of the habit-cuing strategy was not driven by alternative mechanisms, we conducted additional analyses to rule out the influence of various factors that could guide product use, including perceived difficulty, implicit attitudes (AMP), explicit attitudes, and intentions. Each of these variables was entered as a covariate in a separate regression model containing experimental condition, amount of thought, and the resulting interactions predicting total use. The interaction of habit-cued use with thought remained significant in all four models after including these additional predictors, indicating that the habit-cued strategy continued to significantly promote use among those who thought little about their laundry, even when other contributing factors were controlled.

[1] The variance inflation factors (VIF) for the regression model were sufficiently low to rule out concerns about multicollinearity: habit-cued use (1.46), standard implementation intentions (1.51), and thought (1.05).

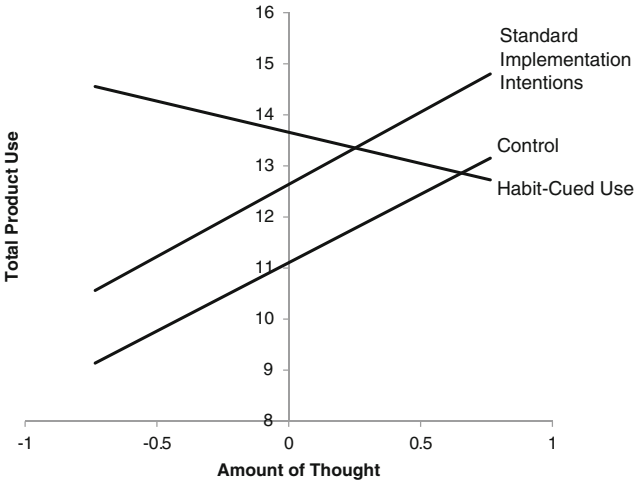

Fig. 2 Regression model predicting use of new laundry product from amount of thought and cognitive strategy: Experiment 2. Vertical axis represents number of times participants used the new product during the 4-week period. Simple slopes (± 1SD) depict relations between product use and amount of thought for each cognitive strategy. Means are unadjusted

Discussion

This experiment provides direct insight into the workings of habit slips through a naturalistic trial of a new laundry product across several weeks. As we had anticipated, participants were most successful at using the new laundry product when they adopted a cognitive strategy of tying its use to their existing habits of washing or rewearing their previously worn clothes. This habit-cued strategy integrated the new product into participants' existing laundry habits by (a) inhibiting the habit and (b) substituting the new product. In these ways, use of the new product became compatible with participants' already established laundry habits (H2).

A second clear finding in this experiment is that, consistent with H3, participants slipped back into their strong laundry habits regardless of the favorability of their intentions to use the refresher and despite their explicit or implicit evaluations of it. This dissociation from liking is a distinguishing feature of habit slips that separates them from decisions not to use a new product. That is, slips do not depend on consumers' negative product evaluations or intentions. Instead, much like action slips, habit slips represent glitches in the rational control of behavior—when people fail to follow through on their intentions to use novel products.

The experiment findings also support H3 in that habit slips occurred primarily among participants who typically did not think about their laundry. Thus, participants were especially likely to slip and fail to use the new product when they were acting in a relatively mindless way and not monitoring their behavior. Lack of thought left them vulnerable to falling back into old laundry habits. This pattern is consistent with prior research on action slips in which actions were especially likely to be captured by habit cues when participants were distracted and not thinking about what they were doing (see Wood and Rünger 2016).

Forming a habit-cued strategy did not change participants' motivations to use the new product, their evaluations of it, or the perceived difficulty of using the product. Yet this cognitive strategy did change behavior. It seems, then, that the strategy worked by stopping participants from acting on the habitual response in mind.

Finally, this experiment highlights the utility of correctly matching behavior change strategies to the mechanisms that promote an unwanted behavior. Because habit slips are activated by existing habits, strategies to overcome such slips most effectively target the habit cuing mechanism and integrate new products into existing routines. Of the cognitive strategies tested in Study 2, standard implementation intentions were relatively unsuccessful. Yet, research indicates that these standard implementation plans, because they remind people of their best intentions, are useful at changing nonhabitual behavior when participants are at risk of forgetting their intentions (Webb et al. 2009). By this logic, change strategies that heighten awareness of product intentions should be most successful at altering behavior guided by explicit evaluations. Thus, we suspect that there is no one-size-fits-all behavior change strategy. Instead, the most successful approaches will be based on a careful analysis of the psychological mechanisms that underlie an unwanted behavior.

General discussion

The current research offers one of the first empirical demonstrations of the ways in which existing habits impede consumers' adoption of new products. Together, the survey and longitudinal experiment provide clear evidence that habit is a strong barrier to adoption.

Most prior research in this area has focused on one part of the puzzle of new product adoption, emphasizing active forms of resistance, especially consumers' explicit beliefs and intentions that impede new product use (e.g., Claudy et al. 2015). Relevant to the use-based resistance in the present research, such beliefs might emerge as people actually use a product and gain experience with it. For example, consumers' intentions to use a product's many attractive features might become less favorable following purchase given the recognition of costs associated with complexity in those features (e.g., Meyer et al. 2008). Similarly, consumers may fail to act on product preferences that were formed from indirect experience, given that initially abstract product construals may shift with direct experience and the concrete experience of challenges involved in actual use of the product (Hamilton and Thompson 2007). Clearly, changes in product use intentions are an important reason for consumers' failures to use a new product as planned. However, the present research demonstrates a more passive mechanism impeding new product use that does not depend on active intentions but instead emerges from consumers' mindless, habitual repetition of past action.

Managerial implications

Our results provide several important insights to help managers understand the value provided by new products and services and how to market them to consumers. One common way to assess value is through consumer surveys and focus groups to identify positive features of a new product that might distinguish it sufficiently to attract consumer purchase and use. Our research indicates the importance of conducting these investigations within the context of consumers' daily lives. Although new products and services might appear desirable in the abstract, ones that conflict with existing habits are unlikely to be used. Thus, even after our consumers in Study 1 were favorably impressed enough to purchase an item, they failed to use it when their existing habits conflicted with new product use. Accurate assessment of barriers to adoption thus requires understanding the contexts in which consumers are likely to use a new product.

Along with demonstrating the importance of evaluating product introductions within everyday contexts in order to understand how they fare in the stream of consumers' ongoing behavior, our research suggests specific ways to integrate products into these behavior streams. That is, we provided evidence of several cognitive strategies involving tying a new product to an existing behavior in order to promote adoption. Our initial survey findings demonstrated that some consumers already used these strategies spontaneously in order to increase compatibility with existing habits. The experiment demonstrated further that these strategies can be effectively taught as new products are introduced. An especially effective strategy involves habit-cuing, as consumers piggyback use of a new product onto an existing one (e.g., first brush, then floss, Judah et al. 2013).

Limitations and future research

Although our experiment focused on cognitive strategies to promote use, product packaging may be equally successful at reducing conflict with existing habits. These strategies involve alterations in existing product design so that new products can be easily integrated into established routines. For example, U.S. consumers initially resisted tofu because it required specific cooking skills and techniques to make it palatable. Tofu manufacturers partially addressed this barrier by packaging it into ready-to-eat frozen desserts (Ram and Sheth 1989). A more recent example is the availability of reusable shopping bags that fold small enough to fit into a purse or briefcase. These can be readily available when consumers are in the checkout line in the grocery store. We suspect that packaging and design compatibilities between old and new products contributed to consumers' reports in our initial survey that a new product had replaced an old one. As would be expected,

frequently-used new products were reported especially likely to completely replace old ones in these ways.

In general, cognitive and packaging integration strategies represent powerful paths to new product adoption and avoiding the habit slips that occur when new products get neglected in consumers' ongoing habits and routines. The broad implication of our work is not to fight against consumers' past behavior, but instead to enlist it as an ally to promote successful adoption of new products.

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Appendix 1: Product use strategies (replication study)

Measures

Ownership of common items Participants indicated whether or not they currently owned or had owned in the past seven common products (featured in Amazon's Best Selling Products lists 2009, 2010: Swiffer Sweeper; Kindle, Nook or other E-Book reader; pedometer; Nintendo, PlayStation, Xbox, or other video game system; musical instrument; non-prescription sunglasses; and dental floss).

Strategies to use new products For each product participants owned, they indicated whether or not they spontaneously tried to integrate the new product into an existing habit: "I made a plan to use it every time I was doing certain relevant routines or habits." They also reported on other possible use strategies: "I put it where I would be sure to see it so I would remember to use it;" "I put reminders on my calendar to use it;" "I made a plan to use it in a certain context or at a particular time of day;" "I asked a friend, family member, or roommate to help remind me to use it;" "I really liked it and wanted to use it, so I just remembered;" or indicated an "Other" strategy.

Results

Greater use of the new product was associated with the habit integration strategy ("I made a plan to use it every time I was doing certain relevant routines or habits," $b = 0.59$, $SE = 0.20$, $t(363) = 2.96$, $p = .003$), as well as positive product evaluations ("I really liked it and wanted to use it, so I just remembered," $b = 0.89$, $SE = 0.17$, $t(364) = 5.33$, $p = .003$). No other strategies promoted product use.

Appendix 2: Table of intercorrelations (Study 2)

Table 4 Summary of intercorrelations (Study 2)

Measure	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Product use	.14	−.11	.38**	.16	.30*	−.13	.06	.41**	.30*	.45**	−.09	.03	.43**
2. Thought about laundry[a]	–	−.01	.34**	−.05	.13	.04	−.20[t]	−.02	.15	.15	.12	.10	.20
3. Laundry habit strength[a]		–	.13	.12	.06	.28*	−.07	−.18	−.09	.22[t]	.14	.10	.02
4. Intention to use[a]			–	.26*	.60**	.13	−.11	.07	.15	.41**	.37**	−.20	.20
5. Product effectiveness[a]				–	.36**	.22[t]	.04	−.06	−.09	.41**	.13	−.01	.41**
6. Product difficulty[a]					–	.15	.05	.07	.02	.34**	.29*	−.07	.19
7. Perceived control[a]						–	−.14	−.26*	−.10	−.00	.15	−.08	−.07
8. Pre use AMP[a]							–	.29*	−.58**	.13	−.15	.20	.28*
9. Post use AMP[b]								–	.61**	−.01	−.00	−.03	.06
10. Change in AMP									–	−.12	.12	−.18	−.18
11. Explicit attitudes[b]										–	.12	.46*	.75**
12. Freq of re-wearing clothing[b]											–	−.10	−.06
13. Normative beliefs[b]												–	.40*

Measure 14 is purchase intentions, assessed at the end of the study

[a] Measures assessed at beginning of study, $n = 70$

[b] Measures assessed at end of study, $n = 67$

[t] $p < .10$, *$p < .05$, **$p < .01$

References

Adriaanse, M. A., Gollwitzer, P. M., de Ridder, D. T., de Wit, J. B., & Kroese, F. M. (2011). Breaking habits with implementation intentions: a test of underlying processes. *Personality and Social Psychology Bulletin, 37*, 502–513. doi:10.1177/0146167211399102.

Andrew, J., & Sirkin, H. (2003). Innovating for cash. *Harvard Business Review, 81*, 76–83. doi:10.1225/R0309E.

Antioco, M., & Kleijnen, M. (2010). Consumer adoption of technological innovations: effects of psychological and functional barriers in a lack of content versus a presence of content situation. *European Journal of Marketing, 44*, 1700–1724. doi:10.1108/03090561011079846.

Bagozzi, R. P., & Lee, K. H. (1999). Consumer resistance to, and acceptance of, innovations. *Advances in Consumer Research, 26*, 218–225.

Bucklin, L. P., & Sengupta, S. (1993). The co-diffusion of complementary innovations: supermarket scanners and UPC symbols. *Journal of Product Innovation Management, 10*, 148–160. doi:10.1016/0737-6782(93)90006-C.

Claudy, M. C., Garcia, R., & O'Driscoll, A. (2015). Consumer resistance to innovation─a behavioral reasoning perspective. *Journal of the Academy of Marketing Science, 43*, 528–544. doi:10.1007/s11747-014-0399-0.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah: Erlbaum.

Cox, D., & Cox, A. D. (2002). Beyond first impressions: the effects of repeated exposure on consumer liking of visually complex and simple product designs. *Journal of the Academy of Marketing Science, 30*, 119–130. doi:10.1177/03079459994371.

de Wit, S., van de Vijver, I., & Ridderinkhof, K. R. (2014). Impaired acquisition of goal-directed action in healthy aging. *Cognitive, Affective, & Behavioral Neuroscience, 14*, 647–658. doi:10.3758/s13415-014-0288-5.

Dholakia, U. M. (2001). A motivational process model of product involvement and consumer risk perception. *European Journal of Marketing, 35*, 1340–1362. doi:10.1108/EUM0000000006479.

Ellen, P. S., Bearden, W. O., & Sharma, S. (1991). Resistance to technological innovations: an examination of the role of self-efficacy and performance satisfaction. *Journal of the Academy of Marketing Science, 19*, 297–307.

Garcia, R., Bardhi, F., & Friedrich, C. (2007). Overcoming consumer resistance to innovation. *MIT Sloan Management Review, 48*(4), 82–88.

Gardner, B., de Bruijn, G. J., & Lally, P. (2011). A systematic review and meta-analysis of applications of the self-report habit index to nutrition and physical activity behaviors. *Annals of Behavioral Medicine, 42*, 174–187. doi:10.1007/s12160-011-9282-0.

Gardner, B., Abraham, C., Lally, P., & de Bruijn, G. J. (2012). Towards parsimony in habit measurement: testing the convergent and predictive validity of an automaticity subscale of the self-report habit index. *International Journal of Behavioral Nutrition and Physical Activity, 9*, 102–113. doi:10.1186/1479-5868-9-102.

Gollwitzer, P. M., & Sheeran, P. (2006). Implementation intentions and goal achievement: a meta-analysis of effects and processes. *Advances in Experimental Social Psychology, 38*, 69–119. doi:10.1016/S0065-2601(06)38002-1.

Gollwitzer, P. M., & Sheeran, P. (2009). Self-regulation of consumer decision making and behavior: the role of implementation intentions. *Journal of Consumer Psychology, 19*, 593–607. doi:10.1016/j.jcps.2009.08.004.

Gourville, J. T. (2006). Eager sellers, stony buyers. *Harvard Business Review, 84*, 99–106.

Hamilton, R. W., & Thompson, D. V. (2007). Is there a substitute for direct experience? Comparing consumers' preferences after direct and indirect product experiences. *Journal of Consumer Research, 34*, 546–555. doi:10.1086/520073.

Heidenreich, S., & Handrich, M. (2015). What about passive innovation resistance? Investigating adoption-related behavior from a resistance perspective. *Journal of Product Innovation Management, 32*, 878–903. doi:10.1111/jpim.12161.

Heidenreich, S., & Kraemer, T. (2016). Innovations—doomed to fail? Investigating strategies to overcome passive innovation resistance. *Journal of Product Innovation Management, 33*, 277–297. doi:10.1111/jpim.12273.

Ji, M. F., & Wood, W. (2007). Purchase and consumption habits: not necessarily what you intend. *Journal of Consumer Psychology, 17*, 261–276. doi:10.1016/S1057-7408(07)70037-2.

Joseph, R. C. (2010). Individual resistance to IT innovations. *Communications of the ACM, 53*(4), 144–146. doi:10.1145/1721654.1721693.

Judah, G., Gardner, B., & Aunger, R. (2013). Forming a flossing habit: an exploratory study of the psychological determinants of habit formation. *British Journal of Health Psychology, 18*, 338–353. doi:10.1111/j.2044-8287.2012.02086.x.

Kleijnen, M., de Ruyter, K., & Wetzels, M. (2007). An assessment of value creation in mobile service delivery and the moderating role of time consciousness. *Journal of Retailing, 83*, 33–46. doi:10.1016/j.jretai.2006.10.004.

Kleijnen, M., Lee, N., & Wetzels, M. (2009). An exploration of consumer resistance to innovation and its antecedents. *Journal of Economic Psychology, 30*, 344–357. doi:10.1016/j.joep.2009.02.004.

Maher, J. P., & Conroy, D. E. (2015). Habit strength moderates the effects of daily action planning prompts on physical activity but not sedentary behavior. *Journal of Sport & Exercise Psychology, 37*, 97–107. doi:10.1123/jsep.2014-0258.

Meyer, R. J., Zhao, S., & Han, J. K. (2008). Biases in valuation vs. usage of innovative product features. *Marketing Science, 27*, 1083–1096. doi:10.1287/mksc.1080.0367.

Moreau, C. P., Lehmann, D. R., & Markman, A. B. (2001). Entrenched knowledge structures and consumer response to new products. *Journal of Marketing Research, 38*, 14–29. doi:10.1509/jmkr.38.1.14.18836.

Murray, K. B., & Häubl, G. (2007). Explaining cognitive lock-in: the role of skill-based habits of use in consumer choice. *Journal of Consumer Research, 34*, 77–88. doi:10.1086/513048.

Neal, D. T., Wood, W., Wu, M., & Kurlander, D. (2011). The pull of the past: when do habits persist despite conflict with motives? *Personality and Social Psychology Bulletin, 37*, 1428–1437. doi:10.1177/0146167211419863.

Neal, D. T., Wood, W., Labrecque, J. S., & Lally, P. (2012). How do habits guide behavior? Perceived and actual triggers of habits in daily life. *Journal of Experimental Social Psychology, 48*, 492–498. doi:10.1016/j.jesp.2011.10.011.

Neal, D. T., Wood, W., & Drolet, A. (2013). How do people adhere to goals when willpower is low? The profits (and pitfalls) of strong habits. *Journal of Personality and Social Psychology, 104*, 959–975. doi:10.1037/a0032626.

Orbell, S., & Verplanken, B. (2010). The automatic component of habit in health behavior: habit as cue-contingent automaticity. *Health Psychology, 29*, 374–383. doi:10.1037/a0019596.

Oreg, S. (2003). Resistance to change: developing an individual differences measure. *Journal of Applied Psychology, 88*, 680–693. doi:10.1037/0021-9010.88.4.680.

Ostlund, L. E. (1974). Perceived innovation attributes as predictors of innovativeness. *Journal of Consumer Research, 1*, 23–29. doi:10.1086/208587.

Parasuraman, A., & Grewal, D. (2000). The impact of technology on the quality-value-loyalty chain: a research agenda. *Journal of the Academy of Marketing Science, 28*, 168–174. doi:10.1177/0092070300281015.

Payne, B. K., Cheng, C. M., Govorun, O., & Stewart, B. D. (2005). An inkblot for attitudes: affect misattribution as implicit measurement. *Journal of Personality and Social Psychology, 89*, 277–293. doi:10.1037/0022-3514.89.3.277.

Quinn, J. M., Pascoe, A., Wood, W., & Neal, D. T. (2010). Can't control yourself? Monitor those bad habits. *Personality and Social Psychology Bulletin, 36*, 499–511. doi:10.1177/0146167209360665.

Ram, S. (1987). A model of innovation resistance. *Advances in Consumer Research, 14*, 208–212.

Ram, S., & Sheth, J. N. (1989). Consumer resistance to innovations: the marketing problem and its solutions. *Journal of Consumer Marketing, 6*, 5–14. doi:10.1108/EUM0000000002542.

Reason, J. T. (1979). Actions not as planned. In G. Underwood & R. Stevens (Eds.), *Aspects of consciousness* (pp. 67–89). London: Academic Press.

Rogers, E. M. (1962). *Diffusion of innovations*. New York: Free Press of Glencoe.

Rogers, E. M., & Shoemaker, F. F. (1971). Communication of innovations: A cross-cultural approach. New York, N. Y.: Free Press.

Ruh, N., Cooper, R. P., & Mareschal, D. (2010). Action selection in complex routinized sequential behaviors. *Journal of Experimental Psychology: Human Perception and Performance, 36*, 955–975. doi:10.1037/a0017608.

Sanger-Katz, M. (2015). The decline of 'big soda.' The New York times. Retrieved from http://www.nytimes.com.

Sheth, J. N. (1981). Psychology of innovation resistance: The less developed concept (LDC) in diffusion research. In *Research in marketing* (Vol. 4, pp. 273–282). Greenwich: JAI Press.

Stone, R. N., & Grønhaug, K. (1993). Perceived risk: further considerations for the marketing discipline. *European Journal of Marketing, 27*(3), 39–50. doi:10.1108/03090569310026637.

Strebel, J., O'Donnell, K., & Myers, J. G. (2004). Exploring the connection between frustration and consumer choice behavior in a dynamic decision environment. *Psychology and Marketing, 21*, 1059–1076. doi:10.1002/mar.20037.

Szmigin, I., & Foxall, G. (1998). Three forms of innovation resistance: the case of retail payment methods. *Technovation, 18*, 459–468. doi:10.1016/S0166-4972(98)00030-3.

Talke, K., & Heidenreich, S. (2014). How to overcome pro-change bias: incorporating passive and active innovation resistance in innovation decision models. *Journal of Product Innovation Management, 31*, 894–907. doi:10.1111/jpim.12130.

Tornatzky, L. G., & Klein, K. J. (1982). Innovation characteristics and innovation adoption-implementation: a meta-analysis of findings. *IEEE Transactions on Engineering Management, EM-29*(1), 28–45. doi:10.1109/TEM.1982.6447463.

Wasson, C. R. (1979). Consumer choice processes: search, or automatic response? *Journal of the Academy of Marketing Science, 7*, 360–373. doi:10.1007/BF02729685.

Webb, T. L., Sheeran, P., & Luszczynska, A. (2009). Planning to break unwanted habits: habit strength moderates implementation intention effects on behavior change. *British Journal of Social Psychology, 48*, 507–523. doi:10.1348/014466608X370591.

Wood, W., & Rünger, D. (2016). Psychology of habit. *Annual Review of Psychology, 67*, 289–314. doi:10.1146/annurev-psych-122414-033417.

Zauberman, G. (2003). The intertemporal dynamics of consumer lock-in. *Journal of Consumer Research, 30*, 405–419. doi:10.1086/378617.