Seeking Structure in Collections: Desire for Control Motivates Engagement in Collecting

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Across six studies, we provide converging and robust lab and field evidence that the fundamental human desire for control motivates consumer engagement in collecting, defined as the act of acquiring items that belong to an existing collection. This is because consumers who desire control seek structure, which is created when interconnected components form a holistic entity. A collection can provide such a structure, as it comprises related items that together create a whole set. Hence, as consumers add items to a collection, they are also manifesting a structure. Indeed, we demonstrate that desire for control's motivating effect on engagement diminishes when structure-seeking is hindered or when the collection is far from completion. This work contributes to extant consumer research by identifying desire for control as a fundamental motivation of collecting behavior, explaining when and why consumers work toward completing their collections, and explicating the structured nature of collecting. Of practical relevance, we provide implications for the enhancement of consumer well-being; the design, positioning, and communication of collectible products; and the creation of policies regulating the collectibles market.

Keywords: desire for control, engagement in collecting, collection completion, structure-seeking, motivation

I n recent years, many collectibles have seen unusual market growth during unsettled times. For example, with COVID-19 ravaging the globe in the early 2020s, eBay reported a staggering 130% increase in the sales of basketball cards and a 47% increase for football cards (Mueller 2020). Around the same time, a worldwide survey of art collectors reported that interest in collecting had increased by 59% (Art Basel and UBS 2020). Similar

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trends have also been observed for collectible wines (Zylberberg 2020), watches (Davis 2020), and cars (Elliott 2020). During another unsettling event, the 2021–2022 global inflation surge, eBay Australia saw a 649% growth in sales of sports trading cards and a 365% growth in sales of collectible card games (Meldner 2022; Shea 2022). Likewise, a Credit Suisse–Deloitte report identified record-breaking sales in art and car collections despite the high inflation (Hechler-Fayd'herbe and di Torcello 2022).

Why have many collectibles seen such exorbitant market growth during these times? While there could be multiple reasons, here we focus on one specific psychological factor that we argue is likely to represent a major cause of this phenomenon. Tumultuous events (e.g., the pandemic, economic inflation, and armed conflicts) can render consumers less capable of controlling their lives and environment, thus giving rise to a fundamental human motivation called *desire for control*, defined as the motivation to manage the events in one's environment and influence their outcomes (Burger and Cooper 1979; Landau, Kay, and Whitson 2015; Skinner, Chapman, and Baltes 1988). The present research sets out to systematically investigate the relationship between desire for control and collecting behavior. Specifically, we hypothesize that desire for control motivates consumers to engage in collecting. Here, in accordance with Long and Schiffman (1997, 496), we define *engagement in collecting* as acquiring items that belong to an existing collection. A particularly notable form of engagement in collecting is the act of completing a collection (i.e., acquiring its final item), but acquiring collection items before this point also falls under this definition.

We further argue that desire for control leads consumers to engage in collecting because of its well-established tendency to drive consumers to seek *structure* (Cutright 2012; Landau et al. 2015; Whitson and Galinsky 2008). Drawing from relevant literatures on structure and structure-seeking (Eysenck 1942; Fiske 2013; Landau et al. 2015; Neuberg and Newsom 1993; Olson and Dover 1978; Thompson et al. 2001; Wagemans et al. 2012), we postulate that structure is present for consumers when multiple items (e.g., objects, experiences) are connected with each other as one holistic entity. Such structure can be found in a collection; for example, in a collection of Stephen King books, the books share a common author and style (i.e., are connected with each other) and come together as a set (i.e., a holistic entity). In this sense, acquiring more items in a collection also brings the structure within it closer to full manifestation. Therefore, we expect that engaging in collecting offers a convenient way for control-desiring consumers to seek structure.

In summary, the present research offers a novel perspective on collecting behavior that reveals a fundamental (and, today, especially pertinent) motivation underlying collecting behavior and sheds light on the structured nature of collecting. Our work also carries great relevance and

significance for consumers, marketers, and policymakers due to our findings' broad implications for real-world collecting behaviors related to consumer persuasion, decision-making, purchase intention, and even ethics.

In what follows, we first build a conceptual model that relates desire for control to consumer engagement in collecting behavior. We then report a set of six studies that test and provide empirical support for this conceptual model, using a range of contexts, populations, and types of data. Finally, we situate our findings within a broader conceptualization of collecting behavior and present the practical implications of these findings.

CONCEPTUAL BACKGROUND AND HYPOTHESES DEVELOPMENT

Collecting Behavior and Engagement in Collecting

Collecting behavior has been defined as the activity of selectively acquiring, possessing, and disposing of a set of objects or experiences belonging to a particular category (Belk et al. 1991; Belk and Wallendorf 1994). Collecting behavior is pervasive and readily observable: consumers may collect anything, from sets of tangible objects (e.g., stamps, coins, Star Wars action figures) to sets of experiences (e.g., visits to U.S. national parks). It has been estimated that collectors make up one-third of the population on average in affluent countries (Belk 1995) and 42% of U.S. households (Braun 2016). Not surprisingly, collecting behavior constitutes a substantial market, with an annual value of $200 billion worldwide (Braun 2016), and a simple search for the keyword "collectible" on eBay returns tens of millions of results.

A particularly intriguing aspect of collecting behavior is consumers' engagement in collecting, which we define as the act of acquiring items that belong to an existing collection. Engagement emphasizes the acquisitive aspect of collecting (as opposed to the curatorial aspect, such as the display or disposal of collection items; Belk et al. 1988). In this research, we focus on engagement because it directly affects marketplace decision-making and transactions. Indeed, it is well established that consumers are often motivated to acquire the remaining items in a set after seeing a few existing components (Barasz et al. 2017; Belk et al. 1988; Danet and Katriel 1989; Gao, Huang, and Simonson 2014; McIntosh and Schmeichel 2004). For example, consumers who have collected a few of the U.S. state quarters can imagine owning the full set of 50 and may thereafter embark on a quest to collect more coins in the set. Collectors frequently exhibit strong engagement, investing significant amounts of time, money, and energy in the pursuit of adding more items to their collections. In fact, it is not uncommon to see theorists use such terms as "urge," "passion," or even "obsession" to describe the consumer

desire to acquire more collection items (Belk et al. 1988, 1991; Formanek 1991; Pearce 1994b).

Engagement in collecting is particularly remarkable in its final stage—that is, the completion of the collection, where the collector acquires the very last item in the set. Indeed, engagement can be thought of as the collector's journey toward completion by gradually adding items to the existing collection. Marking the grand finale of a collection, completion holds a crucial place in collecting and often augments a collection's financial, psychological, and/ or social value (Carey 2008; Shaddy and Fishbach 2017). In fact, the extant literature widely recognizes completion as a common and potent drive for collecting (Barasz et al. 2017; Bauer et al. 2022; Belk et al. 1991; Danet and Katriel 1989). Notably, consumers can progress toward completion not only when the collection has a finite endpoint (e.g., a collection of quarters from all fifty states) but also when the universe of the collection seems infinitely large (e.g., a collection of dolls from around the world). This is possible because consumers can achieve a sense of completion by employing a variety of strategies. For instance, consumers may endeavor to collect all items in one or multiple subsets of the collection (e.g., procuring all dolls from the Dolls of the World Barbie series), or they may identify a finite number of themed subcategories and acquire exemplars of each one (e.g., acquiring one doll from each country) (Danet and Katriel 1989; Pearce 1994a).

Apart from being a theoretically interesting phenomenon, consumers' often strong engagement in collecting makes collectibles a lucrative business. Books, movie series, music records, video games, trading cards, action figures, Barbie dolls, wines and liquors, fine arts, and vintage cars are just some notable examples of business sectors thriving because of consumers' drive to acquire collectible items in a series. For instance, Long and Schiffman (1997) observe how Swatch, a Swiss watch maker, leveraged collectors' need for completion by using advertisements encouraging them to collect more Swatches in a certain series. Likewise, under the famous slogan "Gotta Catch 'Em All," the Japanese trading card and media franchise Pokémon generates a worldwide market of approximately 105 billion USD (Statista 2021).

Motivations Underlying Engagement in Collecting

Due to its theoretical interest and practical significance, consumer engagement in collecting has captivated the attention of academics and practitioners alike. To understand this remarkable form of consumer behavior, one must consider what motivates consumers to acquire items that belong to an existing collection. Seeking to answer this question, a wealth of literature has investigated why people engage in collecting. An initial insight is that collections often serve as the extended self of their collectors, thus allowing consumers to satisfy numerous self-related motivations (Belk 1988; Belk et al. 1988, 1991). Indeed, consumers frequently form and express their identities through their collections (Belk et al. 1991; Formanek 1991; Stewart 1984). For instance, a collection of fine wines contributes to the identity of the connoisseur, reflecting their interest, taste, and expertise. Relatedly, collections can also symbolize wealth, mastery, aesthetic sensitivity, and perfection, thereby helping to boost self-esteem (Formanek 1991; McIntosh and Schmeichel 2004). Thus, engagement in collecting can be thought of as an endeavor to affirm one's identity and maintain a positive self-image.

Furthermore, by engaging in collecting, consumers can establish interpersonal connections and thus satisfy their social needs (Belk and Wallendorf 1994; Formanek 1991; Hughes and Hogg 2006). Consider Margaret Tyler, an avid British Royal Family brand collector, who has amassed more than 10,000 pieces of royal memorabilia. Notably, Margaret's social life "is rooted in her collection" (Otnes and Maclaran 2015, 81), as she educates others about the Royal Family, hosts themed parties, and serves as an opinion leader in the media on the topic of royal memorabilia. Sometimes, collecting can also serve as a basis for social comparison, as collectors often view acquiring collection items as a form of competition (Long and Schiffman 1997).

Moreover, since collections often outlive their collectors, engagement in collecting may serve as a human endeavor to transcend mortality and ephemerality: as long as a collection is preserved, its collector, in a way, lives on (Belk and Wallendorf 1994; Rigby and Rigby 1944). Consider the late American businessman Eli Broad, who is immortalized through his famous contemporary art collection now hosted by the Broad Museum in Los Angeles. This notion also dovetails with the finding that collecting can serve the consumer quest for meaning, making collectors feel they are experiencing history, preserving art, or garnering sociocultural approval as they collect (Baudrillard 1994; Belk et al. 1988).

While the studies reviewed above drew heavily on qualitative methods, experimental research has also contributed to unraveling why consumers engage in collecting. For instance, Keinan and Kivetz (2011) find that partaking in collectible experiences helps consumers build an "experiential curriculum vitae." In addition, Gao et al. (2014) find that consumers embark on collecting to rationalize excessive possessions (e.g., owning five different teacups when only one is really needed), which are challenging to justify from a utilitarian perspective. Furthermore, and particularly relevant to collection completion, Barasz et al. (2017) and Bauer et al. (2022) demonstrate that the avoidance of incompleteness drives consumers to acquire more items in a set.

The Present Research: Desire for Control as a Fundamental yet Overlooked Motivation for Engagement in Collecting

Adding to the works reviewed above, the present research focuses on a less-documented motivation that we believe also underlies consumers' engagement in collecting: desire for control, referring to the motivation to manage the events in one's environment and influence their outcomes (Burger and Cooper 1979; Landau et al. 2015; Skinner et al. 1988). This motivation derives from and captures the innate human need to interact with the environment effectively, so as to avoid undesirable events and outcomes and produce desirable ones (DeCharmes 1968; Deci and Ryan 2008; Skinner 1995; White 1959).

Desire for control operates both as a stable personality trait varying across individuals and as a state that fluctuates within individuals based on situational factors, both of which motivate consumers to engage in coping behaviors to gain more control. As a personality trait, desire for control captures the longitudinal, general consumer disposition "to control the events in one's life" (Burger and Cooper 1979, 381). Consumers higher in trait desire for control may be less inclined to conform to norms as a way to assert their own control over their surroundings (Burger 1987). They may also engage in superstitious practices (e.g., knocking on wood, buying lucky items) to influence event outcomes via supernatural means (Hamerman and Johar 2013; Keinan 2002).

State desire for control, on the other hand, is often triggered by experiences of losing control (i.e., low levels of perceived control), an "unsettling and aversive" state (Whitson and Galinsky 2008, 115) that prompts active consumer efforts to reestablish control (Kay et al. 2009; Landau et al. 2015; Rutjens et al. 2013). These efforts may include multitasking (Han and Broniarczyk 2021) or opting for effort-intensive products (e.g., DIY furniture; Cutright and Samper 2014), thereby reasserting control over tasks. A heightened state desire for control can also lead consumers to prefer products with numerical information (Lembregts and Pandelaere 2019) and to shy away from novel products (Faraji-Rad, Melumad, and Johar 2017), as both of these strategies help maintain control by reducing decision-making uncertainty.

We argue here, and later also empirically demonstrate, that both trait and state desire for control can motivate consumers to engage in collecting, such that:

> **H1:** Consumers high (vs. low) in desire for control are more likely to engage in collecting.

We further argue that this occurs because people who experience a desire for control seek structure (Kay et al. 2009; Landau et al. 2015; Rutjens et al. 2013; Whitson and Galinsky 2008), which is present when multiple items (e.g., objects, experiences, concepts) interconnect as a unified entity. Structure allows people to interpret stimuli in their environment in a more simplified, generalized, and organized way, thereby reducing randomness and chaos (Laurin and Kay 2017; Neuberg and Newsom 1993; Thompson et al. 2001). As a result, structure renders the infinitely complex world more intelligible, predictable, and manageable. Indeed, it is well-established that consumers high (vs. low) in desire for control tend to seek structure and thus are more likely to see patterns in random things (Whitson and Galinsky 2008), endorse hierarchies in social organizations (Friesen et al. 2014), and prefer logos and products that are bounded (and thus more structured; e.g., an encircled logo or a framed painting) versus unbounded (e.g., an open logo or unframed painting; Cutright 2012).

In the present research, we argue that engagement in collecting is a convenient way for control-desiring consumers to seek structure. To understand this argument, one needs to examine the concept and nature of structure, which are extensively explored in Gestalt psychology (Koffka 1935; Köhler 1947) and schema theories (Fiske and Taylor 1991; Markus 1977). According to these traditions, structures represent the "holistic integration of multiple items perceived as other than the sum of the parts" (Shaddy and Fishbach 2017, 738); "cohesive units or larger wholes" perceived from "multiple, discrete objects" (Barasz et al. 2017, 1461); or "relatively homogeneous, well defined" generalizations of experiences (Neuberg and Newsom 1993, 113–14). Notably, all these theoretical accounts converge on the notion that structure is a holistic entity formed by interconnected components.

Following this line of thought, we note that when engaging in collecting, consumers are not merely accumulating items but also are contributing to a structure. Indeed, items in a collection are never acquired randomly or impulsively; rather, they can only be added if they adhere to a common theme and fall within defined boundaries (Belk et al. 1988, 1991; Belk and Wallendorf 1994; Danet and Katriel 1989). In this sense, a collection always embodies a holistic entity comprising interrelated items—that is, a structure.

The structure of a collection can be perceived from just a few items (Gao et al. 2014; Wagemans et al. 2012). For instance, a consumer can envision what a full set of U.S. state quarters would look like and appreciate how its components interrelate just by seeing a few coins in the set. Once this structure is perceived, the missing items then become an interruption of the holistic entity (Barasz et al. 2017; Shaddy and Fishbach 2017). Conversely, as consumers acquire more items in a collection, the structure embodied in it becomes increasingly refined, fully manifesting when the collection is deemed complete. Hence, we further posit the following:

> **H2:** Structure-seeking underlies the motivational effect of desire for control on engagement in collecting.

If hypothesis 2 holds true, it follows that desire for control's impact on engagement should diminish when it is

difficult to seek structure in the collection. This is because difficulty in structure-seeking will hinder the collector's effort to perceive structure in the collection, and, therefore, their engagement in collecting is dampened. Thus, we propose the following supplementary hypothesis:

> **H2a:** The motivational effect of desire for control on engagement in collecting is diminished when it is difficult (vs. easy) to seek structure in the collection.

Moreover, if hypothesis 2 holds true, it follows that desire for control's impact on engagement should diminish when acquiring a collection item does not significantly contribute to the structure's refinement and manifestation—notably, when the collection is far from (vs. close to) its completion. Specifically, we argue that when a collection is close to completion, acquiring its missing items significantly contributes to the full manifestation of its structure, with the final item being of the utmost importance for the structure's complete realization (Shaddy and Fishbach 2017). However, in the early stages of a collection, when many items are still missing, acquiring one item will only marginally refine the structure and, as a result, will not be as appealing to a structure-seeking consumer as an item acquired later. This perspective aligns with extant findings that later items in a collection are valued more than earlier ones and that missing items loom large as the collector approaches the endpoint of the collection (Barasz et al. 2017; Carey 2008; Gao et al. 2014).

This proposed effect can also be seen as a form of the goal gradient, where consumers pursue their goals more vigorously as they approach goal attainment (Kivetz, Urminsky, and Zheng 2006; Nunes and Drèze 2006). While consumers can pursue a variety of goals in collecting, some goals may lead to actions other than engagement. For instance, collectors may actively forestall engagement if a complete collection contradicts their goal of continued self-enrichment (Belk et al. 1988). Likewise, collectors whose goal is to enjoy the process toward completion (rather than completion itself) may prefer an incomplete set over a complete one (Belk et al. 1988; Ruan, Polman, and Tanner 2024). However, importantly, if desire for control drives collectors to pursue the goal of fully developing and revealing the structure in the collection, their engagement in collecting should be more prominent when they are close to completion (i.e., the fulfillment of the structure goal) than when the goal is still distant. Thus, we propose another supplementary hypothesis:

> **H2b:** The motivational effect of desire for control on engagement in collecting is diminished when the collection is far from (vs. close to) completion.

OVERVIEW OF STUDIES

In what follows, we report six field and lab studies that test hypotheses 1–2b. To begin, using a dataset scraped from the crowdfunding website Indiegogo, a pilot study finds that projects seeking to fund collectible (but not non-collectible) products became more successful in the aftermath of the COVID-19 outbreak, an event that evoked desire for control. The pilot study thus offers initial, real-world support that consumers high (vs. low) in desire for control are more likely to engage in collecting (hypothesis 1). Studies 1 and 2—employing field and lab data, respectively—demonstrate this effect in better-controlled settings. Next, lab study 3, employing a moderation-of-process design, demonstrates that structure-seeking underlies the effect of desire for control on engagement in collecting (hypothesis 2a) (Spencer, Zanna, and Fong 2005). Specifically, we demonstrate that when structure-seeking is impeded, the effect of desire for control on engagement in collecting also diminishes. Next, conducted in a lab and a field setting, respectively, studies 4 and 5 test hypothesis 2b, which states that the effect of desire for control on engagement diminishes if a collection is far from (vs. close to) completion. These studies provide further support for the role of structure-seeking and delineate an important boundary condition for our effect. Table 1 summarizes our studies.

All human subjects provided their consent to protocols approved by the institutional review boards at the authors' universities. Materials, data, and code are available on the Open Science Framework: https://osf.io/jsepb/?view_only= cec67a7f6b074ceebd22e36748cf2d58.

PILOT STUDY

The goal of the pilot study was to provide initial, real-world evidence that high (vs. low) desire for control is associated with greater engagement in collecting (hypothesis 1). We used a web-scraped dataset from the crowdfunding website Indiegogo and examined consumers' willingness to fund collectible (vs. non-collectible) products before and after a desire-for-control-inducing event (i.e., the COVID-19 outbreak).

Overview and Methods

The COVID-19 Outbreak and Desire for Control. Numerous studies have shown that the COVID-19 pandemic greatly threatened consumers' perception of control and, as a result, increased their desire for control. For example, during the pandemic, people became more receptive to surveillance technology in order to regain control over their environment (Wnuk, Oleksy, and Maison 2020). Similarly, a pandemic-induced desire for control led students to demand clearer communication and more course options in teaching (Rippé et al. 2021) and to avoid multitasking if they believed doing so would harm work efficiency (Han and Broniarczyk 2021).

TABLE 1

OVERVIEW OF STUDIES

Study	Data	H	DC	Context	Design
Pilot	Field	1	State	Crowdfunding	2 (DC) × 2 (project collectability), quasi-experimental
1	Field	1	Trait	Video game	Single-factor (DC), continuous, correlational
2	Lab	1	State	Vinyl record	Single-factor (DC), 2-level, experimental
3	Lab	2a	State	Tourist attraction	2 (DC) × 2 (ease of structure-seeking), experimental
4	Lab	2b	State	Vinyl record	2 (DC) × 2 (distance to completion), experimental
5	Field	2b	Trait	Video game	Continuous (DC) × continuous (distance to completion), correlational

NOTE.—Study = study number; Data = type of data used (field or lab); H = hypothesis tested; DC = desire for control operationalized as a personality trait or a situational state; Context = context of study; Design = study design.

To further support COVID-19's impact on desire for control, we surveyed 388 U.S. participants (39.2% female, M_{age} = 37.9 years) about their desire for control both before and after the early 2020 COVID-19 outbreak using a seven-point Likert scale ("I wanted more control over what was happening around me"; 1 = strongly disagree, 7 = strongly agree). A paired sample t-test indicated an increase in desire for control after (vs. before) the COVID-19 outbreak ($M = 5.26$, SD = 1.43 vs. $M = 4.80$, SD = 1.35, $t(387) = 6.13$, $p < .001$, Cohen's $d = 0.31$).

Engagement in Collecting as Reflected by Crowdfunding Project Success. If COVID-19 indeed led to a heightened desire for control, we should be able to observe its impact on engagement in collecting. To this end, we analyzed the success of online crowdfunding projects aimed at funding collectible versus non-collectible products. Contributors to crowdfunding projects are essentially pre-ordering products they hope to own in the future (Belleflamme, Lambert, and Schwienbacher 2013; Kuppuswamy and Bayus 2018). Thus, the success of these projects seeking to fund collectible products reflected consumers' willingness to acquire (and spend on) collection items and thus, per our definition, their engagement in collecting. Following extant crowdfunding research (Fan, Gao, and Steinhart 2020; Kuppuswamy and Bayus 2018), we included three key measurements in this study to assess the success of crowdfunding projects (which in turn serve as indicators of engagement in collecting): the amount of money raised (in U.S. dollars); the number of backers (i.e., project funders); and the percentage of the original goal achieved (the actual amount raised/the original target amount the fundraiser set × 100%).

Data. The pilot study employed a web-scraped dataset that includes all 3,813 crowdfunding projects launched between November 1, 2019 and June 30, 2020 in the United States on Indiegogo. With the assistance of two independent coders blind to our hypotheses, we identified 526 (3,287) of these projects as seeking to fund collectibles (non-collectibles). We also used Google Trends to infer when the impact of COVID-19 reached the U.S. population, which led us to consider all projects that began on or after March 1, 2020 as "post-COVID" and all earlier projects as "pre-COVID." See web appendix A for coding details and how we determined the onset of the COVID-19 impact.

Model. The pilot study employed a difference-in-differences (DID) model, a quasi-experimental method widely used to study the impact of external events like pandemics, natural disasters, and policy changes (Lechner 2010). Our modeling procedure is detailed in web appendix A; in a nutshell, the DID model of the pilot study can be thought of as a 2 (product type: collectible vs. non-collectible) × 2 (COVID-19: before vs. after) quasi-experimental design. Specifically, if COVID-19 (which increases desire for control) motivates engagement in collecting, projects for collectible products should be more successful if launched after (vs. before) the COVID-19 outbreak. Conversely, this increase in success should be diminished for projects seeking to fund non-collectible products. In other words, we expect a product type × COVID-19 interaction effect, such that the relative increase in project success from pre- to post-COVID should be more pronounced when the project seeks to fund collectible (vs. non-collectible) products (hence the name "difference-in-differences").

Results and Discussion

Our DID analyses revealed that after COVID-19, projects seeking to fund non-collectible products raised less money, attracted fewer backers, and saw no changes in percentages of goals achieved. Projects seeking to fund collectible products, on the other hand, became *more* successful on all three of those measurements. With all three measurements, the product type × COVID-19 interaction effects were statistically significant by conventional standards. Table 2 summarizes the descriptive results, and web appendix A reports full DID analyses and additional robustness checks.

TABLE 2

PILOT STUDY: COLLECTIBLE (BUT NOT NON-COLLECTIBLE) PRODUCTS RAISED MORE MONEY, ATTRACTED MORE BACKERS, AND MET THEIR ORIGINAL FUNDING GOALS BY A HIGHER PERCENTAGE AFTER (VS. BEFORE) THE COVID-19 OUTBREAK

	Collectible products		Non-collectible products	
	Pre-COVID	Post-COVID	Pre-COVID	Post-COVID
(1) Amount raised	$1,088.56	$2,996.71**	$597.36	$313.53***
(2) Number of backers	18.23	41.53**	11.53	7.98**
(3) Goal percentage	42.91%	107.88%***	29.14%	28.75% (NS)

NOTE.— $^{**}p < .01$, $^{***}p < .001$. Amount raised, number of backers, and goal percentage were log-transformed in all DID analyses due to their high skewness (19.31, 10.05, and 56.73, respectively). Means reported herein are back-transformed values.

Supporting hypothesis 1, we find that after an event that heightened desire for control among the population (i.e., the COVID-19 outbreak), crowdfunding projects seeking to fund collectibles raised more money, attracted more backers, and met their original goals by a higher percentage. Non-collectible products, on the other hand, did not see these effects. Our data thus indicate heightened engagement in collecting following the pandemic. These results are also consistent with the observation at the beginning of this article that collectibles show market growth at chaotic times, such as COVID-19 and inflation.

Admittedly, limitations to this study exist because COVID-19 evoked more responses than desire for control alone (e.g., mortality salience and anxiety). Thus, in what follows, we buttress these observational data with better-controlled lab and survey studies.

STUDY 1

The goal of study 1 was to test the motivational effect of desire for control on engagement in collecting (hypothesis 1) in a better-controlled field setting. We used virtual collections of in-game characters embedded in video games, measured trait desire for control, and sampled actual video game players to provide real-world evidence.

Overview and Methods

Context and Background. The idea that virtual items can serve as collectibles is well supported by both real-world cases (e.g., *Pokémon GO*, Dorward et al. 2017) and scholarly consumer research (Mardon and Belk 2018; Siddiqui and Turley 2006). In this study, we focused on the video game genre of *gacha* games, which feature strong collection systems. Often mobile titles featuring Japanese anime-style aesthetics and designs, these games are marked by what are colloquially called "*gacha* pulls," referring to an in-game action (usually executed by button presses or finger drags) in which players obtain a random virtual item by spending in-game currency purchasable using real-world money. Such items usually include game characters, skins (i.e., cosmetic changes to characters), or equipment (i.e., functional upgrades to characters, e.g., in-game

weaponry) (Hiramatsu 2020; Woods 2024). *Gacha* games represent a popular, lucrative model that drives consumer engagement through collecting (e.g., the Chinese title *Genshin Impact* generated $3.7 billion in revenue from over 59 million active players globally in just its first year on the market; Milakovic 2022).

Gacha games constitute a viable context to study collecting behavior: virtual items in these games are collectible by design, forming "a set of objects or experiences belonging to a particular category" in line with our definition of collecting. For instance, playable characters in *gacha* games might represent a task force of mercenaries, a fleet of anthropomorphized warships, or a pantheon of mythological heroes and heroines. They also typically feature uniform in-game presentations and are often explicitly framed as a completable set (see web appendix B for examples). Players of *gacha* games are often aware that they are partaking in collecting as they acquire in-game items: ethnographic studies document instances where, when prompted to articulate why they feel compelled to acquire such items, players responded, "Collection. I have no other words, it's literally a collection" and "I want to finish my collection" (Woods 2024, 834). Further supporting this finding, another study of ours from an independent sample of players ($N = 1,050$) revealed that the vast majority of players (94.8%) confirmed the presence of collecting elements in the *gacha* games they played (see web appendix B for details). Further, *gacha* games allow us to obtain data on highly homogenous, if not identical, collections from many real collectors—unlike many other types of collections (e.g., stamps, wine), which are often highly heterogeneous and thus incomparable between collectors.

Note that we focus on in-game characters because the holistic structure is more salient for characters than other in-game collectibles such as skins and equipment because game characters are the protagonists of the story.

Participants. Five hundred Chinese players ($M_{age} = 30.9$ years, 66.8% female) of the *gacha* game *Genshin Impact* participated. The study took place in China due to the popularity of *gacha* games in that country. One participant stated their age as 2 years and another as 258 years (likely typos); the former case was excluded from further

analysis due to our preregistered rule to exclude participants with a self-reported age under 18.

Study Design. Study 1 employed a correlational design with trait desire for control as the independent variable and engagement in collecting (as captured by in-game expenditures and players' acquisition of new characters) as the dependent variable. Study 1 was preregistered to test that trait desire for control is positively correlated with consumers' engagement in collecting; the preregistration also stated our planned sample size (https://osf.io/qyjmz/?view_only=5bd2c54fbbd6428a8ea12ccf66aaac72).

Procedure. After confirming that participants were *Genshin Impact* players and were at least 18 years old, we assessed the engagement in collection in three different ways. First, we assessed the total amount players spent on *gacha* pulls during an in-game event in which a new collectible character became available. Collecting items via *gacha* pulls is the primary spending driver in these games. For example, a recent survey of 612 gamers found 77.7% cited spending to obtain in-game characters or weapons and 39.3% to obtain skins (Lakić, Bernik, and Čep 2023). Other reasons (e.g., faster game progression) were comparatively minor (each under 20%). Similar results were seen in online community surveys (Reddit 2019). Second, we assessed players' monthly expenditures on *Genshin Impact*. Third, we assessed engagement in collecting via a non-monetary measurement: we showed participants the image of the new character in the event and asked whether they had obtained her on a yes–no dichotomous question. The event closed one day before our data collection began, so our data reflected participants' final decisions. Participants then responded to an eight-item trait desire for control scale adapted from Burger and Cooper (1979) and Gebhardt and Brosschot (2002). Sample items include "I enjoy making my own decisions" and "I enjoy having control over my own destiny" (1 = strongly disagree, 7 = strongly agree; $\alpha = 0.53$; see the full scale in web appendix B). The Chinese version of the scale was translated from and back-translated into English to ensure accurate translation (Brislin 1970). Participants also responded to an attention screener item, which all participants answered correctly. Participants then reported their monthly disposable income in Renminbi yuan. In study 1, we controlled for participants' income in all analyses, as wealthier participants are likely to be able to afford more *gacha* pulls and thus spend more on the game to acquire more in-game characters. The inclusion of income as a covariate was also preregistered. Toward the end of the study, participants reported their age and gender. We collected these two demographic factors at the end of each study; for succinctness, we will not report this procedure for the remaining studies.

Results and Discussion

Desire for Control Predicts Total Amount Spent on Gacha Pulls During the Event. In support of hypothesis 1, a linear regression revealed that, after controlling for income, participants higher in trait desire for control spent more on *gacha* pulls (unstandardized $B = 0.21$, 95% CI: [0.03, 0.38], $t(496) = 2.27$, $p = .02$, model $R^2 = 0.16$; effect of income: unstandardized $B = 7.74 \times 10^{-5}$, 95% CI: [6.10×10^{-5}, 9.30×10^{-5}], $t(496) = 9.55$, $p < .001$; log-transformed due to high skewness 5.15).

Desire for Control Predicts Monthly Expenditure on Genshin Impact. In further support of hypothesis 1, another linear regression also revealed that, after controlling for income, participants higher in trait desire for control had greater monthly expenditures on *Genshin Impact* (unstandardized $B = 0.23$, 95% CI: [0.07, 0.39], $t(496) = 2.81$, $p = .01$, model $R^2 = 0.21$; effect of income: unstandardized $B = 8.43 \times 10^{-5}$, 95% CI: [7.00×10^{-5}, 9.90×10^{-5}], $t(496) = 11.41$, $p < .001$; log-transformed due to high skewness 4.10).

Desire for Control Predicts the Acquisition of the New Character. In still further support of hypothesis 1, a logistic regression also revealed that, after controlling for income, participants higher in trait desire for control were more likely to have acquired the new character (unstandardized $B = 0.34$, 95% CI: [1.01, 1.96], $Wald = 3.98$, $p = .046$, $Exp(B) = 1.40$; effect of income: unstandardized $B = 6.90 \times 10^{-5}$, 95% CI: [$1 + 0.39 \times 10^{-5}$, $1 + 10.00 \times 10^{-5}$], $Wald = 19.45$, $p < .001$, $Exp(B) = 1.00$). Not controlling for income did not qualitatively change the results (web appendix B).

In summary, study 1 provided real-world evidence that consumers higher in trait desire for control also exhibit greater engagement in collecting, supporting hypothesis 1. Note that it might be argued that desire for control is related to the acquisition of *any* collectible item, not just those missing from an existing collection. In study 2, we addressed this alternative explanation while subjecting hypothesis 1 to a test for causality.

STUDY 2

The goal of study 2 was to test the causality proposed in hypothesis 1 via an experimental design. We used a collection of vinyl records and manipulated desire for control.

Overview and Methods

Participants. Four hundred and three American online panel members (49.1% female, $M_{age} = 43.4$ years) participated for monetary compensation. Throughout this research, we recruited all online panelists via the CloudResearch platform.

Study Design. Study 2 employed a single-factor two-level (desire for control: high vs. low) between-subjects design, with desire for control as the independent variable and engagement in collecting (as captured by participants' intention to complete an existing collection) as the dependent variable. Study 2 was preregistered to test the notion that desire for control can motivate consumers toward completing (as opposed to expanding) their collections (https://aspredicted.org/blind.php?x=1T5_PYQ). In line with our preregistered rule to exclude participants who may have provided nonsensical responses to the writing prompt, we screened and removed such responses from the analysis. The data analysis in the main text refers to this reduced sample with nonsensical responses omitted, as per our preregistration rule, while the full dataset, including all responses, is analyzed in web appendix C. Importantly, there were no qualitative differences in the main effect between the reduced and full datasets.

Procedure. We asked all participants to imagine that they had been collecting vinyl records of Beethoven's nine symphonies. Participants were further told that they already had records for Symphonies No. 1, 3, 4, 5, 6, 7, and 9 but were missing No. 2 and 8. We then manipulated desire for control by randomly assigning participants to one of two conditions. Specifically, participants completed an ostensibly unrelated writing task, during which they recalled and wrote about an incident when they wished they had had more control (the high desire for control condition) or did not feel they needed more control (the low desire for control condition) over the situation. As a manipulation check, after the writing task, participants rated how much they agreed with the statements "I wanted to be in control" and "I desired more control" in the scenario they wrote about on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree; inter-item $r = 0.65$). Participants then supposed they were in a local music store where two vinyl records caught their attention. We then asked participants to choose one of two vinyl records to add to their present collection. The options were Beethoven's Symphony No. 8 and Triple Concerto. The study explicitly indicated that choosing the former would help complete their collection of Beethoven's nine symphonies, whereas the latter would expand their collection's scope from purely symphonies to include other works by Beethoven. By this design, participants' choice of Symphony No. 8 indicates engagement in collecting per our definition (i.e., acquiring items that belong to an existing collection), whereas the Triple Concerto provides an alternative, non-engagement approach to collecting.

Results and Discussion

Manipulation Check. An independent samples *t*-test showed that the manipulation of desire for control was successful. Specifically, participants in the high desire for control condition reported that they desired more control when writing about the assigned scenario than did those in the low desire for control condition ($M = 6.24$, SD = 0.93 vs. $M = 3.76$, SD = 1.66, $t(372) = 17.97$, $p < .001$, Cohen's $d = 1.86$).

Desire for Control Leads to Greater Engagement in Collecting. In further support of hypothesis 1, a Chi-squared test revealed that participants in the high (vs. low) desire for control condition exhibited a greater tendency to engage in the existing collection (i.e., choosing Symphony No. 8 over the Triple Concerto; 70.8% vs. 60.4%, $\chi^2(1) = 4.48$, $p = .03$, Cramér's $V = 0.11$). Note that desire for control increased participants' willingness specifically to complete the collection, rather than just to make any purchase (which could be argued for study 1), since one would not expect a distinction between conditions if any purchase could satisfy participants' salient desire.

STUDY 3

The goal of study 3 was to test hypothesis 2, which states that structure-seeking underlies the motivating effect of desire for control on engagement in collecting. Importantly, if hypothesis 2 holds true, desire for control's effect on engagement should diminish when it is difficult (vs. easy) to seek structure in the collection (supplementary hypothesis 2a). We used collectible experiences and manipulated both desire for control and the ease with which participants could seek structure in these experiences.

Overview and Methods

Participants. Three hundred and twenty-one undergraduate and graduate students (28.3% female, $M_{age} = 21.0$ years) from an American public university participated for course credit. To ensure participants were unfamiliar with the experiences—tourist visits to historical sites in China—we included only the 294 participants who reported never having visited China, allowing the collection set to be framed without prior knowledge or preference. Including all participants, however, does not qualitatively alter the results (web appendix D). In line with study 2's approach to exclude participants who may have provided nonsensical responses to the writing prompt, we also screened the responses and found that none in this student sample met criteria suggesting nonsensical responses.

Study Design. Study 3 employed a 2 (state desire for control: high vs. low) × 2 (ease of structure-seeking: difficult vs. easy) between-subjects design with state desire for control as the independent variable, ease of structure-seeking as a moderating variable, and engagement in

collecting (as captured by participants' decision to complete an experiential collection) as the dependent variable.

Procedure. We informed all participants that the study concerned a particular type of collection—specifically, a collection of travel destinations. We asked participants to imagine that they were collecting visits to imperial palaces and tombs in Shenyang, a northeastern Chinese city, and that they had already visited two imperial tombs, namely the East and North mausoleums. Participants were then randomly assigned to one of two structure-seeking conditions. Participants in the easy-to-seek-structure condition also read that the two tombs were part of a collection of Shenyang royal sites, collectively referred to as "one palace, two tombs," with the Shenyang Imperial Palace being the site they had not yet seen. Participants in the difficult-to-seek-structure condition, however, did not receive this information. By this design, in the easy-to-seek-structure condition, we imposed a structure upon the collectible experiences by making the three royal sites an interrelated whole. Therefore, participants in this condition could easily call upon the structure of "one palace, two tombs" if they so desired. This structure (i.e., a holistic entity formed from interconnected items), however, is lacking in the difficult-to-seek-structure condition. Participants also responded to quiz questions to ensure they understood our instructions. Participants were then randomly assigned to one of two desire-for-control conditions via an ostensibly unrelated writing task. In this task, participants recalled and wrote about an incident during which they either were in complete control of the situation (the low desire for control condition) or did not have any control over the situation (the high desire for control condition). This manipulation is adopted from Whitson and Galinsky (2008; study 3) and is widely used in the literature to induce desire for control (Cutright 2012; Cutright and Samper 2014; Faraji-Rad et al. 2017). This method is effective because incidental, short-term control loss can motivate consumer efforts to restore control (Kay et al. 2009; Landau et al. 2015; Rutjens et al. 2013). This manipulation slightly differs from that in study 2, which required participants to directly write about their desire for control. However, given the theoretical connections between the two treatments, both yielded the desired outcomes, as confirmed by our manipulation checks. Participants were then told that they would only have time to visit one more site before leaving China and would have to choose between two options: the Shenyang Imperial Palace in Shenyang, also known as the Mukden Palace (i.e., the last piece of the "one palace, two tombs" collection), or the Forbidden City in Beijing. Since participants were originally collecting imperial palaces and tombs in Shenyang, by choosing the Shenyang Imperial Palace, they would engage with their existing collection. The Forbidden City, on the other hand, serves as an attractive alternative to this engagement due to its fame. By this design, if control-desiring consumers engage in collecting to seek structure, participants aware of the "one palace, two tombs" collection (i.e., participants in the easy-to-seek-structure condition) should be more likely to choose the Shenyang Imperial Palace when desire for control is high (vs. low). This difference, however, should diminish if structure-seeking is hindered (i.e., in the difficult-to-seek-structure condition). Toward the end of the study, we asked all participants to imagine that they had visited the East mausoleum, North mausoleum, and Shenyang Imperial Palace. We then asked them to place themselves on a 10-step self-anchoring ladder scale to assess how much self-esteem they would derive from visiting all these places. This measurement aims to rule out the alternative theory that desire for control motivates engagement not because of structure-seeking but, rather, due to the self-esteem gained from owning a complete collection. Participants were then asked whether they had been to China, the Forbidden City in Beijing, or Shenyang; whether English was their first language; and in what country they were born. We focused on whether participants had been to China as the most straightforward variable for participant exclusion.

Results and Discussion

Manipulation Checks. To check the validity of our manipulation of state desire for control and to avoid potential demand effects, two independent coders rated participants' written responses on a four-point scale (1 = the writer did not want any more control over the situation; 4 = the writer wanted much more control over the situation; inter-rater $r = 0.84$). An independent samples t-test showed that the manipulation of state desire for control was successful. The two coders rated the written responses from participants in the high desire for control condition as implying a higher desire for control ($M = 3.30$, SD $= 0.59$) compared to those in the low desire for control condition ($M = 1.23$, SD $= 0.56$, $t(292) = 30.93$, $p < .001$, Cohen's $d = 3.61$). See web appendix D for detailed coding instructions.

To check the validity of our manipulation of ease of structure-seeking, another 200 online panelists (52.0% female, $M_{age} = 40.5$ years) were randomly assigned to one of two ease-of-structure-seeking conditions (high, low) and evaluated the ease of structure-seeking within the Chinese historical places on a seven-point scale (1 = very difficult; 7 = very easy). An independent samples t-test showed that the manipulation of ease of structure-seeking was successful: participants found it easier to seek structure when provided with information about visiting all sites that comprise the "one palace, two tombs" set ($M = 4.98$, SD $= 1.25$) compared to not having this information ($M = 4.25$, SD $= 1.51$), $t(198) = 3.71$, $p < .001$, Cohen's $d = 0.53$ (see web appendix D for full details).

The Effect of Desire for Control on Choice is Contingent on the Ease of Structure-Seeking. In support of hypotheses 2 and 2a, a Chi-squared test employing the Cochran–Mantel–Haenszel approach (Landis, Heyman, and Koch 1978) suggested that the effect of desire for control on engagement is conditional on the ease of structure-seeking (Cochran's $\chi^2(1) = 4.19$; asymptotic significance $p = .04$; for clarification: the test result rejected the null hypothesis that desire for control and engagement in collecting are independent across both ease-of-structure-seeking conditions). Specifically, in the easy-to-seek-structure condition, participants with high (vs. low) desire for control were more likely to choose the Shenyang Imperial Palace (32.4% vs. 16.0%, $\chi^2(1) = 5.38$, $p = .02$, Cramér's $V = 0.19$), demonstrating greater engagement with the existing collection. This difference, however, was not observed in the difficult-to-seek-structure condition (5.4% vs. 5.4%, $\chi^2(1) = 0.00$, $p = 1.00$, Cramér's $V = 0.00$). Taken together, and supporting hypotheses 2 and 2a, the effect of desire for control on engagement is conditional on the ease of structure-seeking, such that the effect diminishes when structure-seeking is impeded (figure 1). Moreover, this effect cannot be attributed to participants' self-esteem gained from visiting a complete set of attractions (see web appendix D for additional analyses).

Study 3 demonstrated that the effect of desire for control on engagement in collecting will diminish when the structure in the collection is made undiscernible, in this case by a lack of knowledge of how collection items are connected as a whole. Supporting hypotheses 2 and 2a, this study demonstrated that structure-seeking underlies the motivational effect of desire for control on engagement in collecting. In what follows, we provide further support for the role of structure-seeking by showing that this effect also diminishes when obtaining a collection item does not substantially contribute to structure (i.e., when the collection is far from completion).

STUDY 4

The goal of study 4 was to provide further support for hypothesis 2 by testing supplementary hypothesis 2b, which states that the motivational effect of desire for control on engagement in collecting is diminished when the collection is far from (vs. close to) completion. We used the collection of vinyl records from study 2 and manipulated both desire for control and the distance to completion.

Overview and Methods

Participants. Eight hundred American online panel members (54.3% female, $M_{age} = 41.0$ years) participated for monetary compensation.

Study Design. Study 4 employed a 2 (state desire for control: high vs. low) × 2 (distance to completion: close vs. far) between-subjects design with state desire for control as the independent variable, distance to completion as a moderating variable, and engagement in collecting (as captured by participants' intention to complete an existing collection) as the dependent variable. Study 4 was preregistered to test whether desire for control motivates consumers to engage in collecting behavior and, if so, whether this effect is stronger when the collection is closer to completion (and weaker when the collection is further from completion) (https://aspredicted.org/2HL_C1W). In line with our preregistered rule to exclude participants who may have provided nonsensical responses to the writing prompt, we screened and removed such responses from the analysis. The data analysis in the main text refers to this reduced sample with nonsensical responses omitted, as per our preregistration rule, whereas the full dataset, including all responses, is analyzed in web appendix E. There were no qualitative differences in the main findings between the reduced and full datasets.

Procedure. The procedure for study 4 was similar to that of study 2. We manipulated desire for control by having participants recall and write about an incident in which they had either no or full control over the situation, depending on their randomly assigned condition. For manipulation check purposes, participants rated how much they agreed with the statements "I want to be in control" and "I desire more control" on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree; inter-item $r = 0.68$). In addition, participants were randomly assigned to one of two distance-to-completion conditions. Participants in the close-to-completion condition were told that they already had records for seven symphonies (No. 1, 3, 4, 5, 6, 7, and 9) and were only missing two (No. 2 and 8), as in study 2. Participants in the far-from-completion condition, however, were told that they only had two records (Symphonies No. 1 and 3) and were missing seven (No. 2, 4, 5, 6, 7, 8, and 9). Moreover, since the Triple Concerto record in study 2 features three Soviet Russian soloists, and since this study (unlike study 2) was conducted after Russia's 2022 invasion of Ukraine, it was possible that participants' attitude toward Russia might interfere with their choice. Therefore, we replaced that record with one featuring other soloists.

Results and Discussion

Manipulation Checks. An independent samples *t*-test showed that the manipulation of state desire for control was successful. Participants in the high desire for control condition reported they desired more control than did those in the low desire for control condition ($M = 5.65$,

FIGURE 1

STUDY 3: DESIRE FOR CONTROL'S EFFECT ON ENGAGEMENT DIMINISHES IN THE DIFFICULT-TO-SEEK-STRUCTURE
CONDITION
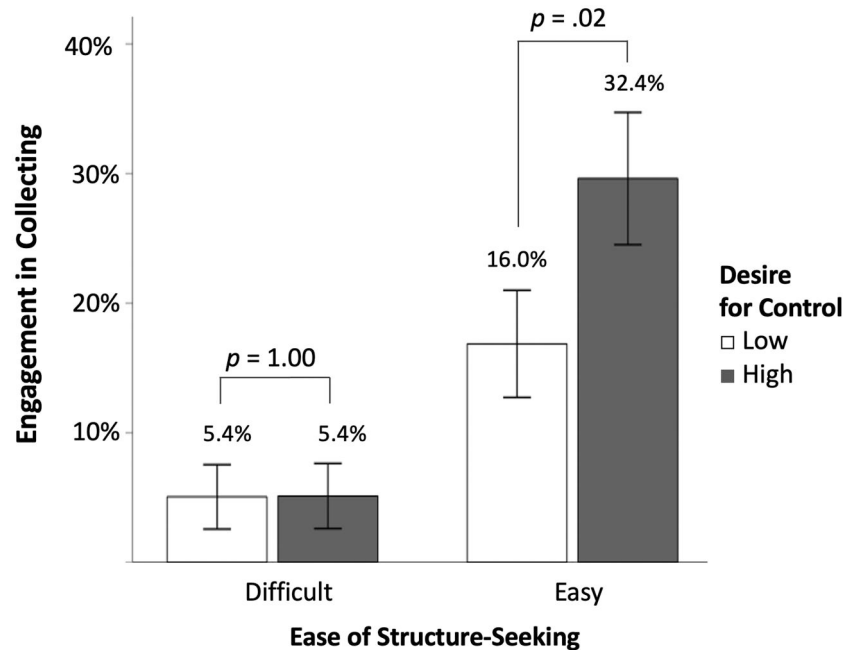
NOTE.—Error bars show ± 1 SE.

SD $= 1.07$ vs. $M = 5.14$, SD $= 1.20$, $t(798) = 6.26$, $p < .001$, Cohen's $d = 0.45$).

To check the validity of our manipulation of distance to completion, another 201 online panelists (53.2% female, $M_{age} = 42.5$ years) were randomly assigned to one of two distance-to-completion conditions (high, low) and evaluated our stimuli's perceived distance to completion on a seven-point scale (1 = very far away; 7 = very close). An independent samples t-test showed that the manipulation of distance to completion was successful: participants considered themselves closer to completion when owning seven (vs. two) records ($M = 5.58$, SD $= 1.05$ vs. $M = 2.54$, SD $= 1.14$, $t(199) = 19.68$, $p < .001$, Cohen's $d = 2.78$).

The Effect of Desire for Control on Choice is Contingent on the Distance to Completion. In support of hypotheses 2 and 2b, a Chi-squared test employing the Cochran–Mantel–Haenszel approach (Landis, Heyman, and Koch 1978) suggested that the effect of desire for control on engagement is conditional on the distance to completion (Cochran's $\chi^2(1) = 5.07$; asymptotic significance $p = .02$). Specifically, in the close-to-completion condition, participants with high (vs. low) desire for control were more likely to choose Symphony No. 8, which would help complete their existing collection (63.7% vs. 52.1%, $\chi^2(1) =$

5.36, $p = .02$, Cramér's $V = 0.12$), thus demonstrating greater engagement with the existing collection. This difference, however, was diminished in the far-from-completion condition (48.3% vs. 43.8%, $\chi^2(1) = 0.79$, $p = .38$, Cramér's $V = 0.05$). Taken together, and supporting hypotheses 2 and 2b, the effect of desire for control on engagement is conditional on the distance to completion (figure 2).

In addition, to further scrutinize our interpretation of this conditional effect, we replicated this study with a continuous dependent variable instead of a dichotomous choice variable, and we analyzed the data with a 2×2 ANOVA. As expected, the interaction term was statistically significant by conventional standards with the same pattern of simple main effects as in study 4 (see this replication study in web appendix E).

STUDY 5

The goal of study 5 was to replicate the findings of study 4 in a real-world setting. As in study 1, we used virtual collections embedded in video games and recruited actual video game players. We also measured trait desire for control and participants' distance to completion.

FIGURE 2

STUDY 4: DESIRE FOR CONTROL'S EFFECT ON ENGAGEMENT DIMINISHES IN THE FAR-FROM-COMPLETION CONDITION
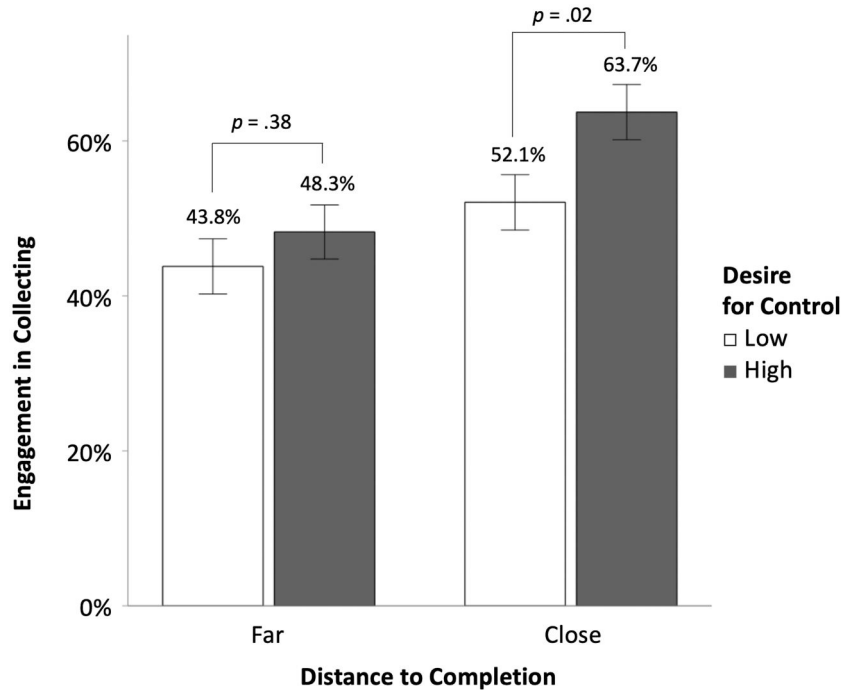
NOTE.—Error bars show ± 1 SE.

Overview and Methods

Participants. Five hundred Chinese players (55.6% female, $M_{age} = 29.2$ years) of the *gacha* game *Arknights* participated.

Study Design. Study 5 employed a correlational design with trait desire for control as the independent variable, the distance to completion (as captured by the number of in-game characters participants already owned) as a moderating variable, and engagement in collecting (as captured by number of *gacha* pulls completed and in-game expenditures) as the dependent variable. We also controlled for participants' income as a covariate. Study 5 was preregistered to test whether high (vs. low) desire for control is associated with a greater consumer tendency to acquire collectible items and whether the effect is stronger when one has more items in their existing collection (i.e., weaker when one has fewer items in their existing collection) (https://osf.io/jd2sw/?view_only=ee4fb3656581424a89ffb1dfd36b778b).

Specifically, study 5 captured engagement in collecting by two indicators: the number of participants' *gacha* pulls in an in-game event and participants' expenditure during the period of the event. Since *gacha* pulls in *Arknights* are

exclusively conducive to in-game characters,[1] the former indicator directly captured players' endeavors in acquiring in-game collection items. The latter indicator captured consumers' monetary investment toward the acquisition of collection items, in that *gacha* pulls ultimately require money to sustain. In study 5, to obtain a more precise assessment of these indicators, we instructed participants to access the official *Arknights* website, which minutely documents records of event-specific *gacha* pulls (the first indicator) and expenditures over a specified period (the second indicator). Further supporting our choice of dependent variable, another study of ours from an independent sample of players ($N = 395$) revealed that the vast majority of *Arknights* players (90.6%) consider the acquisition of in-game characters as a form of collecting, affirming these games as a viable context for our investigation (see web appendix F for details).

Procedure. After confirming that they were *Arknights* players and at least 18 years old, all participants were reminded of a recent in-game event in which new in-game

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1 https://arknights.fandom.com/wiki/Headhunting; in *Arknights*, *gacha* is called "headhunting" and characters are called "operators."

characters became available. This event ended the day before our data collection began. After this reminder, we directed all participants to the official *Arknights* website, gave them instructions for record retrieval, and asked them to report how many *gacha* pulls they completed and how much money they spent during the event. Note that while this method allows for more precise data collection, the variables reported are still self-report in nature, as we lack the means to directly verify participants' actions on the website. Participants then filled out the eight-item trait desire for control scale from study 1 ($\alpha = 0.54$). Next, participants were shown a list of the 66 in-game characters (see full list of these "six-star" characters in the materials in this article's OSF repository and web appendix F) available at the time of data collection and checked the ones they owned. This question thus captured participants' distance to completion. Participants also reported their monthly disposable income, which we again controlled for in all our analyses.

Results and Discussion

The Effect of Desire for Control on the Number of Gacha Pulls Is Contingent on the Distance to Completion. In further support of hypotheses 2 and 2b, a floodlight analysis (PROCESS model 1, 5,000 resamples) revealed that the number of owned characters moderated the effect of trait desire for control on the number of *gacha* pulls (log-transformed due to skewness 4.16). The interaction effect suggested moderation (unstandardized $B = 0.01$, 95% CI: [0.03×10^{-2}, 1.58×10^{-2}], $t(495) = 2.05$, $p = .04$, $R^2 = 0.07$), with a Johnson–Neyman point at 15.87 owned characters (unstandardized $B = 0.08$, 95% CI: [0.00, 0.17], $t(495) = 1.96$, $p = .05$; see left-side panels in figure 3) (Streicher, Estes, and Büttner 2021). Thus, for the 20.4% of the sample owning more than 15.87 characters, those higher in trait desire for control also completed more *gacha* pulls, supporting our preregistered main-effects hypothesis. However, for participants who owned 15.87 or fewer characters (79.6% of our sample), desire for control did not predict the number of *gacha* pulls. In other words, desire for control's effect diminished when the collection was further from completion (i.e., as the number of owned items decreased).

The Effect of Desire for Control on Expenditure on the Event Is Contingent on the Distance to Completion. In further support of hypotheses 2 and 2b, floodlight analysis (PROCESS model 1, 5,000 resamples) also revealed that the number of owned characters moderated the effect of trait desire for control on the expenditure on the event (log-transformed due to skewness 14.61). The interaction effect suggested moderation (unstandardized $B = 0.03$, 95% CI: [0.01, 0.04], $t(495) = 3.32$, $p = .001$, $R^2 = 0.09$), with a Johnson–Neyman point at 13.35 owned characters (unstandardized $B = 0.15$, 95% CI: [0.00, 0.30], $t(495) = 1.96$, p

$= .05$; see right-side panels in figure 3). Again, for those who owned more than 13.35 characters (24.8% of our sample), those who were higher in trait desire for control also spent more on the event, further supporting our preregistered main-effects hypothesis. However, for those who owned 13.35 or fewer characters (75.2% of our sample), desire for control did not predict expenditure. In other words, the effect of desire for control diminished when the collection was further from completion.

As preregistered, we controlled for participants' income in all analyses above. The exclusion of income, however, did not qualitatively change the results (web appendix G).

Employing lab and field data, respectively, studies 4 and 5 provided further support for hypotheses 2 and 2b and, in so doing, also offered additional support for our theorization that structure-seeking underlies the motivation effect of desire for control on engagement in collecting. Indeed, the driving force of desire for control diminishes when acquiring a collection item does not contribute significantly to structure (i.e., when the collection is far from completion).

GENERAL DISCUSSION

Summary of Findings

Across six lab and field studies, we demonstrated with converging evidence that the fundamental human desire for control motivates consumers' engagement in collecting behavior, which we define as the act of acquiring items that belong to an existing collection (hypothesis 1). We demonstrated this effect through a web-scraped dataset (pilot study) as well as field and lab studies 1 and 2. We further demonstrated that structure-seeking underlies the motivational role of desire for control in engagement in collecting (hypothesis 2), such that the effect diminishes when structure-seeking is difficult (hypothesis 2a; study 3). Further supporting this claim, since items far from (vs. close to) completion contribute less to the manifestation of such a structure, we also demonstrated that the motivational role of desire for control in engagement in collecting also diminishes when the collection is far from completion (hypothesis 2b; studies 4 and 5).

The empirical results reported in this article were robust in both field and lab data and across different types of collectibles, set sizes, trait and state desire for control, and sample populations. Thus, the reported studies not only supported our hypothesizing but also yielded strong conceptual replications, generalizability, and construct validity.

Theoretical Contributions

Desire for Control: A Fundamental Yet Overlooked Psychological Motivation for Collecting. As an integral element of human cultures and societies, collecting reflects

FIGURE 3

STUDY 5: NUMBER OF OWNED CHARACTERS MODERATES DESIRE FOR CONTROL'S EFFECTS ON NUMBER OF GACHA PULLS
AS WELL AS EXPENDITURE ON EVENT
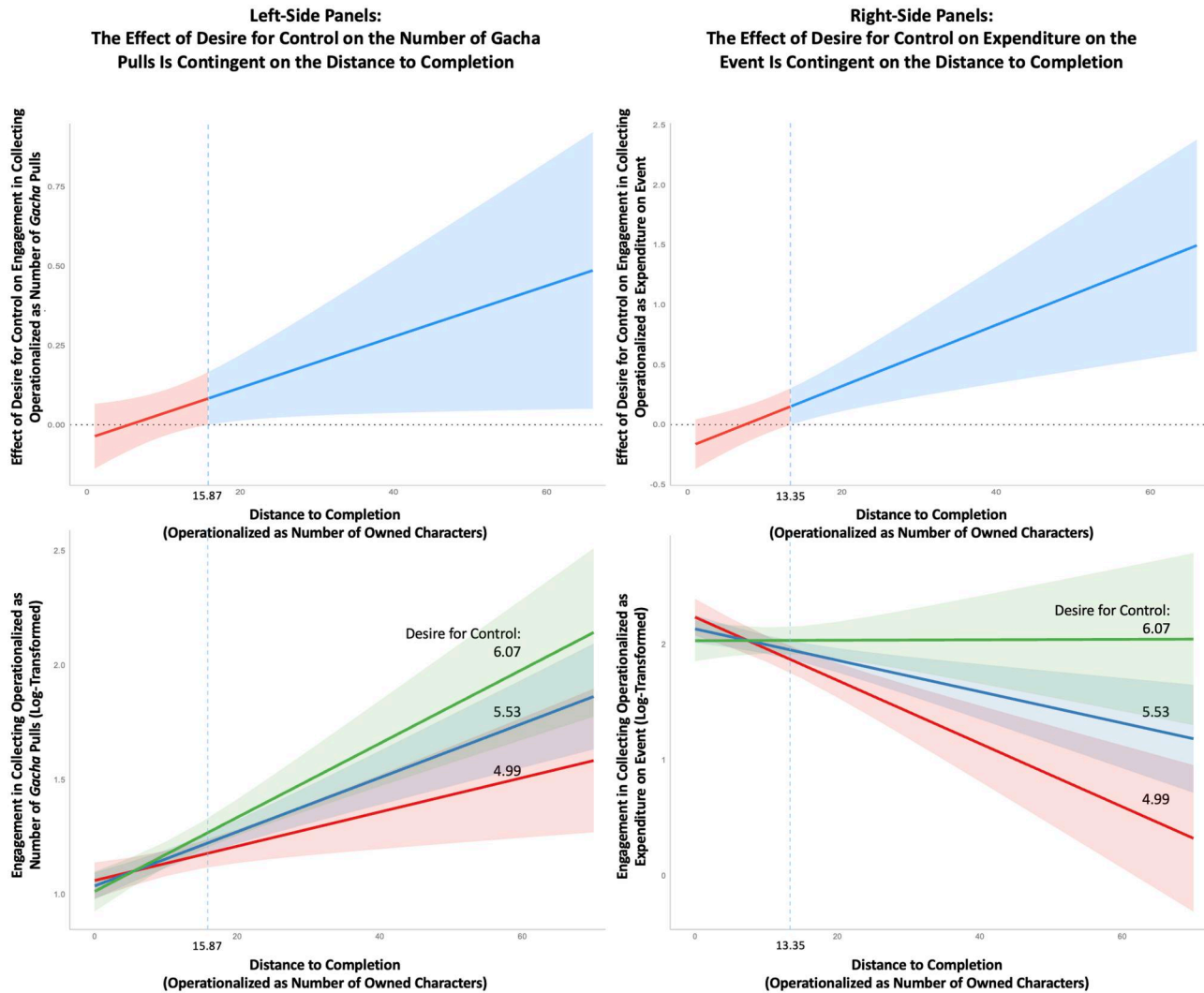
NOTE.—In the upper panels, solid lines depict the effect of desire for control on engagement in collecting (engagement in collecting was operationalized as number of *gacha* pulls on the left and as expenditure on event on the right), and dotted vertical lines indicate Johnson–Neyman points where these effects shift from statistical non-significance to significance by conventional standards. The lower panels show distance to completion moderating the effect of desire for control on engagement in collecting (engagement in collecting was operationalized as number of *gacha* pulls on the left and as expenditure on event on the right). The motivational effect of desire for control on engagement in collecting diminishes when the collection is far from (vs. close to) completion. The shaded areas in all panels represent 95% confidence intervals.

a broad spectrum of fundamental motivations. Qualitative research has identified a variety of motivations ranging from personal (Belk 1988; Belk et al. 1988, 1991) to social (Belk and Wallendorf 1994; Formanek 1991; Hughes and Hogg 2006) and even existential (Belk and Wallendorf 1994; Rigby and Rigby 1944) in nature. Likewise,

experimental research has also shed light on motivations including productivity (Keinan and Kivetz 2011), justification of excessive possessions (Gao et al. 2014), and the need for completeness (Barasz et al. 2017).

Adding to this literature, the present research demonstrates that desire for control can emerge as a powerful—yet largely

overlooked—driver for collecting. This less-documented psychological function of collecting is particularly relevant in a world wherein personal control is often threatened by armed conflicts, climate change, economic instability, pandemics, rampant spread of mis- and disinformation, and social upheaval. By showing that collections can be leveraged as a coping mechanism in such a world, this work helps unpack the significance and pervasiveness of collecting behavior both in the marketplace and throughout human history.

Collecting Strategies: When to (and Not to) Engage?. From the standpoint of this research, consumers' engagement in collecting can be thought of as an endeavor toward collection completion. The tendency for collectors to strive for completion is pervasive and intense (Barasz et al. 2017; Danet and Katriel 1989; Gao et al. 2014; Ruan et al. 2024). Not surprisingly, the extant literature on collecting has identified numerous potential reasons for this drive, including the pursuit of perfection (Danet and Katriel 1989; Formanek 1991), the symbolic completion of the self (Belk et al. 1988, 1991), and the avoidance of incompleteness (often from a Gestalt perspective; Barasz et al. 2017; Bauer et al. 2022; Shaddy and Fishbach 2017).

Completion, however, is not the only approach to collecting. Collecting behaviors other than engagement also exist, such as intentionally leaving a collection incomplete or expanding its scope (Bal 1994; Belk et al. 1988). The theoretical question to ask, then, is when and why collectors engage in collecting over alternative approaches. By exploring the link between desire for control, structure, and engagement in collecting, this work sheds light on the structured nature of engagement (and, by extension, completion) and identifies desire for control as an important predictor of this approach to collecting. In so doing, this work enables us to better understand the dynamics and nuances of collecting behavior and helps predict whether, when, and why consumers will acquire items belonging to an existing collection, delay such acquisition, or incorporate items beyond the collection's current scope. To this end, trait desire for control can help identify who is more likely to engage in collecting; state desire for control, on the other hand, sheds light on when such engagement is likely to take place, as does a collection's distance from completion.

Note that we do not intend to claim that desire for control is the only reason for collection completion—indeed, consumers may be motivated to complete their collections without the involvement of desire for control. Nor do we argue that all collection completion is driven by structure-seeking. Rather, we aim to add to the understanding of the rich tapestry of collection behavior and to pave the way for a more nuanced and comprehensive understanding of collection completion (and, for that matter, non-completion).

The Structured Nature of Collecting. Consumer researchers have long recognized the structured nature of collecting and have come to consider it a defining characteristic thereof (Belk et al. 1988; Belk and Wallendorf 1994). How this feature influences consumer behavior, however, is much less understood. Employing experimental methods, this work underscores the important role structure plays in one psychological function of collecting.

A related theoretical question arises concerning the extent to which consumers pay attention to a collection's inner structure. Our findings indicate that desire for control's effect on engagement decreases when the structure becomes less salient (e.g., in studies 4 and 5 when fewer items are owned) or less accessible (e.g., in study 3, when the knowledge needed to understand the structure is lacking). Conversely, these findings also suggest that bringing consumers' attention to the structure underlying collection items could amply this effect. We are hopeful that future research can offer deeper insights into the structured nature of collecting and how collectors' attention to structure can be directed, enhanced, or repressed.

Collecting, Structure, and Goals. Consumer engagement in collecting can be construed as a form of goal pursuit. Consequently, findings from studies 4 and 5 can be thought of as goal-gradient (Kivetz et al. 2006; Nunes and Drèze 2006), where engagement intensifies as the collection nears completion. The question this research asks, however, is "why *this* goal?" Indeed, collectors can pursue a variety of goals while collecting. For instance, our studies suggest alternative goals such as broadening the collection's range (e.g., by embracing a new genre of music or historical sites from a different country) or acquiring items of higher value (like a renowned musical recording or a popular tourist spot). Such goals could encourage collectors to act beyond engagement, seeking items outside the current collection's boundaries.

Our findings, however, indicate that desire for control drives consumers toward a goal that helps fulfill the collection's structure. In so doing, our research contributes to the recent research stream exploring intricacies of goal pursuit regarding collection, sets, and structure. For example, Gao et al. (2014) found that the goal to collect is triggered after the structure's emergence, while Ruan et al. (2024) observed that consumers assign greater value to a nearly complete set than to a complete one. Hence, while this body of research recognizes the operation of goal-related processes within collecting behavior, our research is adding more nuance to debate that includes the goal's onset (Gao et al. 2014), the goal's non-normative consequences (Ruan et al. 2024), and the goal's content (our research).

Practical Implications

For Consumers. Our findings could help consumers cope with the loss of control and its negative consequences, such as compulsive consumer behavior (Meany,

Conceição, and Mitchell 2014), maladaptive consumption (Chang et al. 2021; Reimann and Jain 2021), stress and depression (Pittman and Pittman 1979), meaninglessness (Newcomb and Harlow 1986), and learned helplessness (Seligman, Maier, and Geer 1968). Consumers who desire control may benefit psychologically from acquiring collection items and working toward the completion of their collections. Collecting is thus particularly relevant in times of chaos and rapid change because consumers may find meaning and comfort in it.

On the other hand, collecting may also serve as a form of unhealthy escapism, offering temporary solace instead of actual solutions. Thus, our findings can help consumers become more self-aware about their motivations and aid in better decision-making, consumption, and financial management—particularly for those prone to excessive collecting. Future research should further examine the links between collecting and the well-being of control-desiring consumers.

For Marketing Practitioners. Our findings provide valuable insights for marketing practitioners by showing that desire for control motivates engagement in collecting. First, presenting products as part of a collectible set can be effective when consumers' desire for control is high. This can occur in various contexts, such as preparing for a significant test (e.g., the SAT or GMAT), buying safety-related products (e.g., home-security products), undertaking complex tasks (e.g., tax preparation), or facing threatening situations (e.g., a global pandemic). For example, instead of selling test preparation books as separate volumes, a publisher could market them as a completable set (e.g., "You'll feel more confident when you get the complete series of GMAT preparation books").

Second, our data reveal that the longitudinal desire for control can predict engagement in collecting (studies 1 and 5). This finding could guide targeted marketing and consumer segmentation. While directly measuring trait desire for control might be challenging, it can be inferred from other individual difference measurements or explicit behavior. For instance, desire for control is positively correlated with dominance and lack of deference (Burger 1992), as well as achievement-oriented behaviors (Burger 1985). High achievers or competitive gamers, for instance, may thus be an ideal target audience for collectible products. Moreover, targeted marketing may be more effective in groups higher in desire for control, such as men (vs. women; Gebhardt and Brosschot 2002) or individuals with higher education levels (Burger 1992). However, targeting such individuals or groups based on gender, ethnicity, economic status, or health conditions could also raise ethical concerns, which we will address later.

Third, practitioners can introduce situational desire for control in real-world scenarios. For instance, this desire can be made salient to potentially boost engagement in collecting by reminding consumers about the overwhelming nature of modern life, employing fear appeals, or using humor involving unpredictability.

In addition, our findings identify several collection-building tips for practitioners to leverage structure. First, shared features tying different items together are essential if marketers aim to facilitate consumers' quest for control, as a weak link between items may impede the perception of structure (as shown in study 3). Some useful tools thus include an overarching theme (e.g., U.S. national park posters), narratives that connect individual items (e.g., *Star Wars* characters), or similar product design (e.g., coins following the same design template).

Second, other than commonality, collection items also need to be distinct from each other in some way (known as the rule of "no two alike"; Danet and Katriel 1989). Indeed, research in bundling has noted that item variety and complementarity greatly impact consumers' preference for a given bundle (Mittelman et al. 2014; O'Donnell, Critcher, and Nelson 2023; Leszczyc and Häubl 2010). We argue that at least part of this effect is attributable to structure, which can be evoked by different yet complementary products within a bundle.

Third, our findings suggest that it is advisable for marketers to actively manage the perception of an endpoint and the distance to it. For instance, marketers may introduce subsets in a collection (e.g., "all California national parks") to make a very large collection look more "completable." Moreover, starting consumers off with a small number of items (vs. with zero endowment) could also enhance engagement (Gao et al. 2014; Zhang and Huang 2010).

For Policy Makers. Notwithstanding its benefits, our findings also suggest a dark side to collecting. While collecting is typically considered a largely harmless hobby, mass-produced collectibles may well rely on a predatory business model that profits from consumers' desire for control. Perhaps not coincidentally, in practice, it is common for this business model to include mechanisms that evoke desire for control, such as random, gambling-like systems (e.g., so-called loot boxes, which yield random in-game items to players) or fear-of-missing-out tactics (e.g., limited editions). This combination of collection elements and heightened desire for control, both purposefully built into products, can lead to (over-) expenditures to the disadvantage of the consumer (as indicated in studies 1 and 5) and even to addiction, especially in vulnerable populations such as adolescents, young adults, and people addicted to gambling.

Additionally, targeting those with high desire for control may prove deeply problematic. For instance, high desire for control can be associated with traumatic childhood experiences like alcoholic parents (Burger 1995) or sexual abuse (Everill and Waller 1995), as well as physical or

mental conditions such as cardiovascular disease (Burger 1992) and obsessive-compulsive disorder (Moulding and Kyrios 2007). Moreover, women, ethnic minorities, and low-income individuals often report a low sense of control (Caplan and Schooler 2007; Meyers-Levy and Loken 2015; Shaw and Krause 2001). How desire for control manifests in these control-relevant populations remains an area for future studies. Here, it suffices to say that when individuals from a marginalized, control-deprived population seek to regain some control, there is potential for exploitation.

In conclusion, we urge that the potential psychological and societal consequences of this business model should be subjected to both public scrutiny and future research and that policy makers should step up to consider regulating its operation.

Limitations and Future Research Directions

Other Related Collecting Behavior and Motivations. We believe the perspective and concepts employed in this research can also help us understand and explain other collecting approaches and the psychological functions they may serve. To begin, beyond engagement, structure-seeking may also be reflected in the choice of an unfavored but fitting item; careful curation, arrangement, and display of collection items; frustration over the incompleteness of a collection; or disposal of items that are "out of place."

Additionally, depending on the context, desire for control might prompt a need for socializing with others (e.g., under ostracism), affirming self-identity (under self-ambiguity), or transcending death (under mortality salience), each of which could in turn lead to engagement. Conversely, said motivations might give rise to desire for control. This may not be the case in our research due to experimental control, but future studies could explore how desire for control intersects with other motives related to collecting.

The Developmental Perspective on Collecting Behavior. Although we recruited only adult participants, collecting behaviors are also readily and extensively observable among children. Most children collect (Long and Schiffman 1997), and Clifford (1988) insightfully suggests that they do so to create a world that they can call their own. Interestingly, desire for control also emerges early in development as a fundamental human motivation (Skinner 1995). It would be interesting to examine how collecting behavior develops in children; explore its link to children's emerging desire for control; and, importantly, offer insight for marketing efforts.

Desire for Control versus Feeling of Control. In our lab studies, we typically induced desire for control by lowering participants' feeling of control. This manipulation is grounded in and supported by the compensatory control literature (Friesen et al. 2014; Kay et al. 2008, 2009; Landau

et al. 2015), and the manipulation checks in our studies confirmed that this manipulation successfully elicited desire for control. However, it is important to recognize the complex interrelation and conceptual distinction between desire for and feeling of control. For example, longitudinal low perception of control is in fact likely to result in a decreased desire for control, a concept famously known as learned helplessness (Abramson, Seligman, and Teasdale 1978). This theoretical nuance helps explain why situational desire for control may not affect self-esteem in the short term (as observed in study 3), yet long-term desire for control is positively linked with self-esteem (Burger 1995). While the intricate connections and distinctions between desire for and feeling of control fall beyond the purview of this study, we call for future research to investigate the subtleties of these constructs and explore their ramifications.

CONCLUSION

Building on rich psychological theory, rigorous experimental methods, and ample field data, we have discovered that engaging in collecting can serve as a tool that consumers develop, consciously or unconsciously, to create structure in their lives and, in turn, to cope with their desire for control. Beyond its marketing and psychological significance, this finding also presents a philosophical perspective into the meaning of collecting to humanity and the human condition. That is, the seemingly mundane and inconsequential action of acquiring items that belong to a collection may in fact be an expression of the human struggle for order and a strenuous effort to defy chaos and randomness. Collecting, which has been pervasive throughout recorded history, should thus be considered a longstanding human endeavor to find "one way of living within chaos and transforming it [...] into sense" (Pearce 1992, 55), aiming to exert human control upon the world by creating order and structure where there is none.

DATA COLLECTION STATEMENT

The first and second authors jointly designed the reported studies. The first author collected all data, with the help of several research assistants and a hired programmer, and conducted the data analyses under the supervision of the second and third authors. The three authors jointly wrote this article. Data reported in the pilot study were scrapped from Indiegogo in 2021. Data reported in studies 1 and 5 were collected via Credamo in 2024 and 2021, respectively. Data reported in studies 2 and 4 were collected via CloudResearch in 2022 and 2023, respectively. Data reported in study 3 were collected in the behavioral lab of Eller School of Management, University of Arizona, in 2018. Data reported in the web appendix study were collected via CloudResearch Connect in 2024.

Data collection for studies 1 through 5 was terminated once a fixed, predetermined sample size was reached, always before the commencement of data analyses. However, due to factors beyond our control, such as typical response rates or how platforms determine when the requested number of participants has been reached, data collection from the behavioral lab and online platforms may result in fewer or more participants than originally planned. Participants in all studies provided consent either to a disclosure form or a protocol approved by an institutional review board. Unless stated otherwise, all complete, usable observations were included in the data analyses. All human subjects provided their consent to protocols approved by the institutional review boards at the authors' universities. Materials, data, and code are available on the Open Science Framework: https://osf.io/jsepb/?view_only=cec67a7f6b074ceebd22 e36748cf2d58.

REFERENCES

Abramson, Lyn Y., Martin E. Seligman, and John D. Teasdale (1978), "Learned Helplessness in Humans: Critique and Reformulation," *Journal of Abnormal Psychology*, 87 (1), 49–74.

Art Basel and UBS (2020), *The Impact of COVID-19 on the Gallery Sector: A 2020 Mid-Year Survey, 118*, Basel & Zurich, Switzerland: Art Basel & UBS.

Bal, Mieke G. (1994), "Telling Objects: A Narrative Perspective in Collecting," in *The Cultures of Collecting*, ed. John Elsner and Roger Cardinal, London, UK: Reaktion Books, 97–115.

Barasz, Kate, Leslie K. John, Elizabeth A. Keenan, and Michael I. Norton (2017), "Pseudo-Set Framing," *Journal of Experimental Psychology. General*, 146 (10), 1460–77.

Baudrillard, Jean (1994), "The System of Collecting," in *The Cultures of Collecting*, ed. John Elsner and Roger Cardinal, London, UK: Reaktion Books, 7–24.

Bauer, Christoph, Katie Spangenberg, Eric R. Spangenberg, and Andreas Herrmann (2022), "Collect Them All! Increasing Product Category Cross-Selling Using the Incompleteness Effect," *Journal of the Academy of Marketing Science*, 50 (4), 713–41.

Belk, Russell W. (1988), "Possessions and the Extended Self," *Journal of Consumer Research*, 15 (2), 139–68.

Belk, Russell W. (1995), *Collecting in a Consumer Society*, London; New York: Routledge.

Belk, Russell W. and Melanie Wallendorf (1994), "Of Mice and Men: Gender Identity in Collecting," in *Interpreting Objects and Collections*, ed. Susan M. Pearce, New York, NY; London, UK: Routledge, 240–53.

Belk, Russell W., Melanie Wallendorf, John Sherry, Morris Holbrook, and Scott Roberts (1988), "Collectors and Collecting," in *NA—Advances in Consumer Research*, ed. Micheal J. Houston, Provo, UT: Association for Consumer Research, 548–53.

Belk, Russell W., Melanie Wallendorf, John F. Sherry Jr., and Morris B. Holbrook (1991), "Collecting in a Consumer Culture," in *SV—Highways and Buyways: Naturalistic Research from the Consumer Behavior Odyssey*, ed. Russell W. Belk, Provo, UT: Association for Consumer Research, 178–215.

Belleflamme, Paul, Thomas Lambert, and Armin Schwienbacher (2013), "Individual Crowdfunding Practices," *Venture Capital*, 15 (4), 313–33.

Braun, Christian (2016), "How Big Are the Collectible Markets? Are We Really Spending $200 Billion Every Year on Them?," *hobbyDB*. Last Accessed January 26, 2019. https://blog.hobbydb.com/2016/04/16/how-big-are-the-collectible-markets/.

Brislin, Richard W. (1970), "Back-Translation for Cross-Cultural Research," *Journal of Cross-Cultural Psychology*, 1 (3), 185–216.

Burger, Jerry M. (1985), "Desire for Control and Achievement-Related Behaviors," *Journal of Personality and Social Psychology*, 48 (6), 1520–33.

Burger, Jerry M. (1987), "Desire for Control and Conformity to a Perceived Norm," *Journal of Personality and Social Psychology*, 53 (2), 355–60.

Burger, Jerry M. (1992), *Desire for Control: Personality, Social, and Clinical Perspectives*, New York, NY: Plenum.

Burger, Jerry M. (1995), "Need for Control and Self-Esteem," in *Efficacy, Agency, and Self-Esteem*, ed. Michael H. Kernis, New York, NY: Springer, 217–33.

Burger, Jerry M. and Harris M. Cooper (1979), "The Desirability of Control," *Motivation and Emotion*, 3 (4), 381–93.

Caplan, Leslie J., and Carmi Schooler (2007), "Socioeconomic Status and Financial Coping Strategies: The Mediating Role of Perceived Control," *Social Psychology Quarterly*, 70 (1), 43–58.

Carey, Catherine (2008), "Modeling Collecting Behavior: The Role of Set Completion," *Journal of Economic Psychology*, 29 (3), 336–47.

Chang, Sylvia Seo Eun, Shailendra Pratap Jain, and Martin Reimann (2021), "The Role of Standards and Discrepancy Perfectionism in Maladaptive Consumption," *Journal of the Association for Consumer Research*, 6 (3), 402–13.

Clifford, James (1988), *The Predicament of Culture: Twentieth-Century Ethnography, Literature, and Art*, Cambridge, MA: Harvard University.

Cutright, Keisha M. (2012), "The Beauty of Boundaries: When and Why We Seek Structure in Consumption," *Journal of Consumer Research*, 38 (5), 775–90.

Cutright, Keisha M. and Adriana Samper (2014), "Doing It the Hard Way: How Low Control Drives Preferences for High-Effort Products and Services," *Journal of Consumer Research*, 41 (3), 730–45.

Danet, Brenda and Tamar Katriel (1989), "No Two Alike: Play and Aesthetics in Collecting," *Play & Culture*, 2 (3), 253–77.

Davis, Johnny (2020), "Coronavirus and the Booming Vintage Watch Market," *Esquire*. Last Accessed September 9, 2020. https://www.esquire.com/uk/style/a32359484/coronavirus-booming-vintage-watch-market/.

DeCharmes, Richard (1968), *Personal Causation*, New York: Academic Press.

Deci, Edward L. and Richard M. Ryan (2008), "Self-Determination Theory: A Macrotheory of Human Motivation, Development, and Health," *Canadian Psychology/Psychologie Canadienne*, 49 (3), 182–5.

Dorward, Leejiah J., John C. Mittermeier, Chris Sandbrook, and Fiona Spooner (2017), "Pokémon Go: Benefits, Costs, and Lessons for the Conservation Movement," *Conservation Letters*, 10 (1), 160–5.

Elliott, Hannah (2020), "While Used Cars Pile up in Lots, the Classics Are Busy Changing Hands," *Bloomberg*. Last

Accessed September 11, 2020. https://www.bloomberg.com/news/articles/2020-04-16/coronavirus-crashes-the-car-industry-winners-emerge-in-classics.

Everill, Joanne and Glenn Waller (1995), "Disclosure of Sexual Abuse and Psychological Adjustment in Female Undergraduates," *Child Abuse & Neglect*, 19 (1), 93–100.

Eysenck, Hans J. (1942), "The Experimental Study of the 'Good Gestalt'—A New Approach," *Psychological Review*, 49 (4), 344–64.

Fan, Tingting, Leilei Gao, and Yael Steinhart (2020), "The Small Predicts Large Effect in Crowdfunding," *Journal of Consumer Research*, 47 (4), 544–65.

Faraji-Rad, Ali, Shiri Melumad, and Gita Venkataramani Johar (2017), "Consumer Desire for Control as a Barrier to New Product Adoption," *Journal of Consumer Psychology*, 27 (3), 347–54.

Fiske, Susan T. (2013), *Social Beings: Core Motives in Social Psychology*, Hoboken, NJ: Wiley.

Fiske, Susan T. and Shelley E. Taylor (1991), *Social Cognition*, New York, NY, England: Mcgraw-Hill.

Formanek, Ruth (1991), "Why They Collect: Collectors Reveal Their Motivations," *Journal of Social Behavior and Personality*, 6 (6), 275–86.

Friesen, Justin P., Aaron C. Kay, Richard P. Eibach, and Adam D. Galinsky (2014), "Seeking Structure in Social Organization: Compensatory Control and the Psychological Advantages of Hierarchy," *Journal of Personality and Social Psychology*, 106 (4), 590–609.

Gao, Leilei, Yanliu Huang, and Itamar Simonson (2014), "The Influence of Initial Possession Level on Consumers' Adoption of a Collection Goal: A Tipping Point Effect," *Journal of Marketing*, 78 (6), 143–56.

Gebhardt, Winifred A. and Jos F. Brosschot (2002), "Desirability of Control: Psychometric Properties and Relationships with Locus of Control, Personality, Coping, and Mental and Somatic Complaints in Three Dutch Samples," *European Journal of Personality*, 16 (6), 423–38.

Hamerman, Eric J. and Gita V. Johar (2013), "Conditioned Superstition: Desire for Control and Consumer Brand Preferences," *Journal of Consumer Research*, 40 (3), 428–43.

Han, Jerry J. and Susan M. Broniarczyk (2021), "Multitasking as Consumer Compensatory Control," *Journal of Consumer Research*, 48 (3), 456–73.

Hechler-Fayd'herbe, Nannette and Adriano Picinati di Torcello (2022), "*Collectibles amid Heightened Uncertainty and Inflation*, Credit Suisse Research Institute and Deloitte Luxembourg." Last Accessed August 7, 2022. https://www2.deloitte.com/lu/en/pages/art-finance/articles/collectibles-amid-heightened-uncertainty-inflation.html.

Hiramatsu, Ayako (2020), "Comparison of Users' Attitude to Probability Notices on Random Type Item Providing Systems," *Information Engineering Express*, 6 (1), 39–49.

Hughes, Nia and Margaret K. Hogg (2006), "Conceptualizing and Exploring Couple Dyads in the World of Collecting," in *NA—Advances in Consumer Research Volume 33*, ed. Connie Pechmann and Linda Price, Duluth, MN: Association for Consumer Research, 124–31.

Kay, Aaron C., Danielle Gaucher, Jamie L. Napier, Mitchell J. Callan, and Kristin Laurin (2008), "God and the Government: Testing a Compensatory Control Mechanism for the Support of External Systems," *Journal of Personality and Social Psychology*, 95 (1), 18–35.

Kay, Aaron C., Jennifer A. Whitson, Danielle Gaucher, and Adam D. Galinsky (2009), "Compensatory Control: Achieving Order through the Mind, Our Institutions, and the Heavens," *Current Directions in Psychological Science*, 18 (5), 264–8.

Keinan, Anat, and Ran Kivetz (2011), "Productivity Orientation and the Consumption of Collectable Experiences," *Journal of Consumer Research*, 37 (6), 935–50.

Keinan, Giora (2002), "The Effects of Stress and Desire for Control on Superstitious Behavior," *Personality and Social Psychology Bulletin*, 28 (1), 102–8.

Kivetz, Ran, Oleg Urminsky, and Yuhuang Zheng (2006), "The Goal-Gradient Hypothesis Resurrected: Purchase Acceleration, Illusionary Goal Progress, and Customer Retention," *Journal of Marketing Research*, 43 (1), 39–58.

Koffka, Kurt (1935), *Principles of Gestalt Psychology*, New York, NY: Harcourt Brace.

Köhler, Wolfgang (1947), *Gestalt Psychology: An Introduction to New Concepts in Modern Psychology*, New York, NY: Liveright.

Kuppuswamy, Venkat and Barry L. Bayus (2018), "Crowdfunding Creative Ideas: The Dynamics of Project Backers," in *The Economics of Crowdfunding: Startups, Portals, and Investor Behavior*, ed. Douglas Cumming and Lars Hornuf, New York, NY: Springer, 151–82.

Lakić, Nikola, Andrija Bernik, and Andrej Čep (2023), "Addiction and Spending in Gacha Games," *Information*, 14 (7), 399.

Landau, Mark J., Aaron C. Kay, and Jennifer A. Whitson (2015), "Compensatory Control and the Appeal of a Structured World," *Psychological Bulletin*, 141 (3), 694–722.

Landis, J. Richard, Eugene R. Heyman, and Gary G. Koch (1978), "Average Partial Association in Three-Way Contingency Tables: A Review and Discussion of Alternative Tests," *International Statistical Review/Revue Internationale de Statistique*, 46 (3), 237–54.

Laurin, Kristin and Aaron C. Kay (2017), "The Motivational Underpinnings of Belief in God," *Advances in Experimental Social Psychology*, 56, 201–57.

Lechner, Michael (2010), "The Estimation of Causal Effects by Difference-in-Difference Methods," *Foundations and Trends in Econometrics*, 4 (3), 165–224.

Lembregts, Christophe and Mario Pandelaere (2019), "Falling Back on Numbers: When Preference for Numerical Product Information Increases after a Personal Control Threat," *Journal of Marketing Research*, 56 (1), 104–22.

Long, Mary M. and Leon G. Schiffman (1997), "Swatch Fever: An Allegory for Understanding the Paradox of Collecting," *Psychology and Marketing*, 14 (5), 495–509.

Mardon, Rebecca and Russell Belk (2018), "Materializing Digital Collecting: An Extended View of Digital Materiality," *Marketing Theory*, 18 (4), 543–70.

Markus, Hazel (1977), "Self-Schemata and Processing Information about the Self," *Journal of Personality and Social Psychology*, 35 (2), 63–78.

McIntosh, William D. and Brandon J. Schmeichel (2004), "Collectors and Collecting: A Social Psychological Perspective," *Leisure Sciences*, 26 (1), 85–97.

Meany, Gavin, Eva Conceição, and James E. Mitchell (2014), "Binge Eating, Binge Eating Disorder and Loss of Control Eating: Effects on Weight Outcomes after Bariatric Surgery," *European Eating Disorders Review: The Journal of the Eating Disorders Association*, 22 (2), 87–91.

Meldner, Richard (2022), "Trading Cards Are Booming on eBay Australia in 2022," *eSeller365*. Last Accessed August 7,

2022. https://www.eseller365.com/trading-cards-booming-ebay-australia-2022/.

Meyers-Levy, Joan and Barbara Loken (2015), "Revisiting Gender Differences: What We Know and What Lies Ahead," *Journal of Consumer Psychology*, 25 (1), 129–49.

Milakovic, Hrvoje (2022), "How Many People Play Genshin Impact in 2022?," *Fiction Horizon*. Last Accessed April 30, 2022. https://fictionhorizon.com/how-many-people-play-genshin-impact/.

Mittelman, Mauricio, Eduardo B. Andrade, Amitava Chattopadhyay, and C. Miguel Brendl (2014), "The Offer Framing Effect: Choosing Single versus Bundled Offerings Affects Variety Seeking," *Journal of Consumer Research*, 41 (4), 953–64.

Moulding, Richard and Michael Kyrios (2007), "Desire for Control, Sense of Control and Obsessive-Compulsive Symptoms," *Cognitive Therapy and Research*, 31 (6), 759–72.

Mueller, Rich (2020), "eBay Sports Card Sales Have Skyrocketed during COVID-19," *Sports Collectors Daily*. Last Accessed September 9, 2020. https://www.sportscollectorsdaily.com/ebay-sports-card-sales-have-skyrocketed-during-covid-19/.

Neuberg, Steven L. and Jason T. Newsom (1993), "Personal Need for Structure: Individual Differences in the Desire for Simpler Structure," *Journal of Personality and Social Psychology*, 65 (1), 113–31.

Newcomb, Michael D. and Lisa L. Harlow (1986), "Life Events and Substance Use among Adolescents: Mediating Effects of Perceived Loss of Control and Meaninglessness in Life," *Journal of Personality and Social Psychology*, 51 (3), 564–77.

Nunes, Joseph C. and Xavier Drèze (2006), "The Endowed Progress Effect: How Artificial Advancement Increases Effort," *Journal of Consumer Research*, 32 (4), 504–12.

O'Donnell, Michael, Clayton R. Critcher, and Leif D. Nelson (2023), "Bundle Selection and Variety Seeking: The Importance of Combinatorics," *Journal of Consumer Research*, 49 (5), 861–81.

Olson, Jerry C. and Philip A. Dover (1978), "Attitude Maturation: Changes in Related Belief Structures over Time," in *NA—Advances in Consumer Research*, ed. Kent Hunt, Ann Abor, MI: Association for Consumer Research, 333–42.

Otnes, Cele and Pauline Maclaran (2015), *Royal Fever: The British Monarchy in Consumer Culture, British Monarchy in Consumer Culture*, Oakland, CA: University of California.

Pearce, Susan M. (1992), *Museums, Objects, and Collections: A Cultural Study*, Leicester, UK: Leicester University.

Pearce, Susan M. (1994a), *Interpreting Objects and Collections*, New York, NY; London, UK: Routledge.

Pearce, Susan M. (1994b), "The Urge to Collect," in *Interpreting Objects and Collections*, ed. Susan M. Pearce, New York, NY; London, UK: Routledge, 157–59.

Pittman, Nancy L. and Thane S. Pittman (1979), "Effects of Amount of Helplessness Training and Internal–External Locus of Control on Mood and Performance," *Journal of Personality and Social Psychology*, 37 (1), 39–47.

Leszczyc, Peter T. L. Popkowski and Gerald Häubl (2010), "To Bundle or Not to Bundle: Determinants of the Profitability of Multi-Item Auctions," *Journal of Marketing*, 74 (4), 110–24.

Reddit (2019), "[PROMO] Results of a Research Survey on Why People Spend Money on Gacha Games," *r/gachagaming*. Last Accessed March 27, 2023. www.reddit.com/r/gacha-gaming/comments/ee6t9t/promo_results_of_a_research_survey_on_why_people/.

Reimann, Martin and Shailendra Pratap Jain (2021), "Maladaptive Consumption: Definition, Theoretical Framework, and Research Propositions," *Journal of the Association for Consumer Research*, 6 (3), 307–14.

Rigby, Douglas and Elizabeth Rigby (1944), *Lock, Stock and Barrel: The Story of Collecting*, Philadelphia, PA: J.B. Lippincott.

Rippé, Cindy B., Suri Weisfeld-Spolter, Yuliya Yurova, and April Kemp (2021), "Pandemic Pedagogy for the New Normal: Fostering Perceived Control During COVID-19," *Journal of Marketing Education*, 43 (2), 260–76.

Ruan, Bowen, Evan Polman, and Robin J. Tanner (2024), "The One-Away Effect: The Pursuit of Mere Completion," *Journal of Consumer Research*, 50 (5), 945–61.

Rutjens, Bastiaan T., Frenk van Harreveld, Joop van der Pligt, Loes M Kreemers, and Marret K. Noordewier (2013), "Steps, Stages, and Structure: Finding Compensatory Order in Scientific Theories," *Journal of Experimental Psychology General*, 142 (2), 313–8.

Seligman, Martin E., Steven F. Maier, and James H. Geer (1968), "Alleviation of Learned Helplessness in the Dog," *Journal of Abnormal Psychology*, 73 (3), 256–62.

Shaddy, Franklin and Ayelet Fishbach (2017), "Seller Beware: How Bundling Affects Valuation," *Journal of Marketing Research*, 54 (5), 737–51.

Shaw, Benjamin A. and Neal Krause (2001), "Exploring Race Variations in Aging and Personal Control," *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, 56 (2), S119–24.

Shea, Bill (2022), "State of the Sports Card Boom: After Sky-High Surge, Is the Market Still Healthy?," *The Athletic*. Last Accessed August 7, 2022. https://theathletic.com/3447519/2022/07/26/sports-card-baseball-market/.

Siddiqui, Shakeel and Darach Turley (2006), "Extending the Self in a Virtual World," in *NA—Advances in Consumer Research*, ed. Connie Pechmann and Linda Price, Duluth, MN: Association for Consumer Research, 647–48.

Skinner, Ellen A. (1995), *Perceived Control, Motivation, & Coping*, Thousand Oaks, CA: Sage.

Skinner, Ellen A., Michael Chapman, and Paul B Baltes (1988), "Control, Means-Ends, and Agency Beliefs: A New Conceptualization and Its Measurement during Childhood," *Journal of Personality and Social Psychology*, 54 (1), 117–33.

Spencer, Steven J., Mark P. Zanna, and Geoffrey T. Fong (2005), "Establishing a Causal Chain: Why Experiments Are Often More Effective than Mediational Analyses in Examining Psychological Processes," *Journal of Personality and Social Psychology*, 89 (6), 845–51.

Statista (2021), "Top Media Franchises by Revenue 2021." Last Accessed February 24, 2022. https://www.statista.com/statistics/1257650/media-franchises-revenue/.

Stewart, Susan (1984), *On Longing: Narratives of the Miniature, the Gigantic, the Souvenir, the Collection, On Longing*, Baltimore, MD: Johns Hopkins University.

Streicher, Mathias C., Zachary Estes, and Oliver B. Büttner (2021), "Exploratory Shopping: Attention Affects In-Store Exploration and Unplanned Purchasing," *Journal of Consumer Research*, 48 (1), 51–76.

Thompson, Megan M., Michael E. Naccarato, Kevin C. H. Parker, and Gordon B. Moskowitz (2001), "The Personal Need for Structure and Personal Fear of Invalidity Measures: Historical Perspectives, Current Applications, and Future

Directions," in *Cognitive Social Psychology: The Princeton Symposium on the Legacy and Future of Social Cognition*, ed. Gordon B. Moskowitz, Mahwah, NJ: Lawrence Erlbaum Associates, 19–39.

Wagemans, Johan, Jacob Feldman, Sergei Gepshtein, Ruth Kimchi, James R. Pomerantz, Peter A. van der Helm, and Cees van Leeuwen (2012), "A Century of Gestalt Psychology in Visual Perception: II. Conceptual and Theoretical Foundations," *Psychological Bulletin*, 138 (6), 1218–52.

White, Robert W. (1959), "Motivation Reconsidered: The Concept of Competence," *Psychological Review*, 66 (5), 297–333.

Whitson, Jennifer A. and Adam D. Galinsky (2008), "Lacking Control Increases Illusory Pattern Perception," *Science (New York, N.Y.)*, 322 (5898), 115–7.

Wnuk, Anna, Tomasz Oleksy, and Dominika Maison (2020), "The Acceptance of Covid-19 Tracking Technologies: The Role of Perceived Threat, Lack of Control, and Ideological Beliefs," *PloS One*, 15 (9), e0238973.

Woods, Orlando (2024), "The Affective Embeddings of Gacha Games: Aesthetic Assemblages and the Mediated Expression of the Self," *New Media & Society*, 26 (2), 823–38.

Zhang, Ying and Szu-Chi Huang (2010), "How Endowed versus Earned Progress Affects Consumer Goal Commitment and Motivation," *Journal of Consumer Research*, 37 (4), 641–54.

Zylberberg, Shawn (2020), "Auction Houses Shift Online but See Continued Demand for Collectible Wines," *Wine Spectator*. Last Accessed September 11, 2020. https://www.winespectator.com/articles/auction-houses-shift-online-but-see-continued-demand-for-collectible-wines.