Article

Down a Rabbit Hole: How Prior Media Consumption Shapes Subsequent Media Consumption

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Abstract

Consumers often become "stuck in a rabbit hole" when consuming media. They may watch several YouTube videos in the same category or view several thematically similar artistic images on Instagram in a row, finding it difficult to stop. What causes individuals to choose to consume additional media on a topic that is similar to (vs. different from) what they just experienced? The authors examine a novel antecedent: the consecutive consumption of multiple similar media. After viewing multiple similar media consecutively, more consumers choose to (1) view additional similar media over dissimilar media or (2) complete a dissimilar activity entirely, even when the prior consumption pattern is externally induced. The rabbit hole effect occurs because of increased accessibility of the shared category: when a category is more accessible, people feel immersed in it and anticipate that future options within that category will be more enjoyable. The authors identify three characteristics of media consumption that contribute to the rabbit hole effect by increasing category accessibility: similarity, repetition, and consecutiveness of prior media consumption. This research contributes to literature on technology, choice, and variety seeking, and it offers implications for increasing (vs. slowing) similar consumption.

Keywords

choice, similarity, media consumption, categorization, immersion, anticipated enjoyment, persistence

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Technology has drastically changed how consumers behave (Grewal and Stephen 2019; Lamberton and Stephen 2016; Lieberman and Schroeder 2020). With the widespread availability of personal media devices and stable internet connections, consumers can now view media immediately, anywhere, and at any time. The development of new social media and streaming platforms such as YouTube, Instagram, and Netflix has further expanded consumers' access to a variety of complex, immersive media.

Despite the variety of offerings available, consumers on these platforms often feel "stuck in a rabbit hole," sequentially viewing countless videos or images on the same topic, such as cat videos or artistic food photos (Cook 2019; Maher 2020; Muldrew 2019). On other occasions, however, consumers opt to consume media on a topic different from what they just viewed or switch to a different task entirely. What leads consumers to choose to consume media on a similar topic over media on a different topic, or to pursue a different task entirely?

We suggest that the consecutive consumption of multiple similar media leads consumers to choose additional media on a similar topic (vs. a different topic). Importantly, this consumption pattern may be initiated externally. For instance, algorithms are often involved in recommending stand-alone experiences such as independent video clips on YouTube or artistic photos on social media (as opposed to a context such as a TV series that has an overarching storyline and is meant to be consumed sequentially), and such videos may even start to play automatically without prompting from consumers. For example, if a consumer has similar preferences to someone else who previously watched a YouTube music video by a pop musician, then YouTube is more likely to recommend a music video by a pop musician to this person. If the consumer indeed watches this video, then the algorithm may recommend (and automatically start playing) a different yet similar video, and the pattern will repeat. This cycle of viewing can also

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occur outside of a platform's recommendations. A person's partner or roommate may choose to watch several similar videos on a shared TV or send the person different artistic images from social media that share a common theme. Even though the consumer did not choose these experiences, they may still find themselves consecutively consuming similar content.

We propose and demonstrate the "rabbit hole effect": that consuming multiple similar media consecutively causes consumers to choose additional similar media over both dissimilar media or completing a nonmedia task. Furthermore, this effect can occur even if such consecutive viewing is initiated by external means such as a media platform's recommendation algorithm or assignment by an experimenter. We suggest that the rabbit hole effect is a function of increased accessibility of the shared category. When a category is more accessible, consumers become immersed in it and feel engaged and present in the ongoing experience (Csikszentmihalyi 1990; Diehl, Zauberman, and Barasch 2016). By causing a feeling of immersion, category accessibility increases anticipated enjoyment of options within the shared category (Jennett et al. 2008; Tonietto and Barasch 2020; Wu et al. 2013), thus facilitating consumers' choice of similar options.

This research is the first to empirically examine the rabbit hole effect, and it makes theoretical and practical contributions to consumer behavior. First, by examining how prior consecutive consumption shapes future preferences, we contribute to literature on consistency and variety seeking. At times, consumers seek consistency and exhibit stable preferences, such as when they repeatedly choose items that share a common attribute (e.g., preferring fruits as a snack; Fishbach, Ratner, and Zhang 2011). Other times, however, they seek variety to manage satiation (Inman 2001; Kahn and Ratner 2005; McAlister 1982; McAlister and Pessemier 1982; O'Brien and Smith 2019; Ratner, Kahn, and Kahneman 1999; Read and Loewenstein 1995; Simonson 1990). For example, repeatedly consuming jelly beans decreases enjoyment of jelly bean consumption (Redden 2008). Whereas repeatedly consuming identical stimuli may decrease enjoyment, in the modern technological world, media experiences are infused with complexities meant to hold attention and reduce boredom, making it unclear whether people will seek variety in these contexts. We suggest that consecutively consuming similar media that is inherently complex increases choice of similar media.

Second, we develop and test a framework that demonstrates when consumers prefer similar over dissimilar options when consuming media. As accessibility is driven by salience, frequency, and recency of the category (Barsalou 1985; Nedungadi 1990), we propose that these three factors—salience of similarity (i.e., belonging to a specific shared category), repetition (i.e., greater frequency), and consecutive (vs. interrupted) consumption (i.e., greater recency)—contribute to increased category accessibility and, thus, the rabbit hole effect.

Third, in unpacking these key antecedents of the rabbit hole effect, we advance literature on media psychology and contribute to adjacent research on binge-watching behavior (Flayelle et al. 2019, 2020). Prior research has focused on inferences of binge-watching using observational data (Deng and Mela 2018; Schweidel and Moe 2016), exclusively examining binge watching as it pertains to TV consumption (i.e., episodes from a single series; Flayelle et al. 2020). The rabbit hole effect builds on and extends this research to consumption of divisible media (e.g., stand-alone video clips on YouTube, artistic Instagram photos). Whereas prior work associated binge-watching primarily with TV series that have overarching storylines, the rabbit hole effect explains consumption of similar media that do not have a shared storyline. Our contribution to the binge-watching literature lies in (1) providing the first causal empirical evidence that consuming similar media consecutively leads consumers to choose more similar media, (2) disentangling this effect from curiosity, thus generalizing beyond TV shows, and (3) delineating an overarching framework for predicting when consumers are more (vs. less) likely to choose similar options.

Lastly, understanding how consumers' prior media consumption affects future choice is of practical importance to marketers. Having a richer understanding of what determines when consumers prefer similar (vs. dissimilar) options compared with what they previously consumed can allow marketers of media services to better predict consumer preferences and target consumers for particular media promotions (e.g., subscribing to video channels online) or predict which ads will be less likely to disrupt consumer viewing. Furthermore, consumers themselves may get stuck in a rabbit hole, and although they may anticipate enjoying the option they select in the moment, they may make suboptimal choices if planning for future consumption (when they are out of the rabbit hole). By offering insight into when and why this behavior occurs, we provide implications for marketers and consumers who may want to increase (or decrease) it.

Theoretical Background

Seeking Similar Versus Dissimilar Media Options

Research on variety and consistency seeking informs our examination of how consecutively consuming multiple similar media influences consumers' choice of whether to consume additional media on a similar topic or on a different topic. Variety seeking occurs when people switch between options over time (Kahn, Kalwani, and Morrison 1986; McAlister and Pessemier 1982) or select different options within a given choice set (Ratner and Kahn 2002; Simonson 1990). Consumers are likely to variety seek for many reasons, including curiosity (Raju 1980), desire for stimulation or enjoyment (Berlyne 1970; Galak and Redden 2018), or uncertainty about their future preferences (Simonson 1990).

Opposite variety seeking is loyalty and consistency seeking (Jones and Sasser 1995; Oliver 1999). Whereas people sometimes seek the excitement of discovery that comes from variety seeking, too much stimulation can be off-putting, leading people to stick with "old familiars" or to routinize

their behavior (Howard and Sheth 1969; Venkatesan 1973). People desire consistency in their actions (Cooper and Fazio 1984; Festinger 1957) and may infer their preferences from observing themselves making consistent, repeated choices (Bem 1972). Consumers may be especially likely to choose to re-engage in a behavior when they perceive their initial actions as signaling stable preferences (Aronson 1997; Bem 1972; Cialdini, Trost, and Newsom 1995).

Thus, consumers at times prefer to switch to a different option (seek variety), and at other times, they prefer to pursue a similar option (seek consistency). Drawing on these literatures, we examine a novel antecedent that compels consumers to choose similar options, even when prior behavior is externally induced: consecutive consumption of similar media. We refer to an individual's choice option as "similar" when it is in the same category or topic as the individual's previous consumption choices, whereas we refer to a choice option in a different category or a different task as "dissimilar."

Prior research makes opposing predictions about the impact of consecutively consuming similar media options on subsequent choice. On the one hand, research on diminishing sensitivity (McAlister 1982) suggests that enjoyment derived from subsequent consumption decreases when enjoyment is already very high (e.g., watching several music videos could decrease the value of watching an additional music video). Relatedly, repeatedly consuming identical or similar stimuli leads to low arousal (McAlister 1982) and decreased enjoyment (Galak and Redden 2018), which can prompt people to seek something new to increase stimulation (Kahn 1995; Menon and Kahn 1995; Sevilla, Lu, and Kahn 2019). In particular, people tend to become satiated when consuming similar sensory-specific stimuli, such as when they consume food of similar flavors (Inman 2001; Rolls et al. 1981). After eating one type of food, people reported liking a different, similarly flavored food less, with no decrease in liking for a food with a dissimilar flavor (Johnson and Vickers 1993). It is possible, then, that consuming media from the same shared category has a similar effect, prompting people to seek something different from what they just consumed.

However, research on binge-watching might suggest the opposite; that is, consumers may be more likely to choose a similar option after consecutively consuming similar options. Binge-watching is defined as watching multiple episodes of the same TV series in one sitting (Flayelle et al. 2019, 2020). Research on this topic primarily examines TV viewing through observational studies, demonstrating that after watching one episode of a TV series, consumers are more likely to watch an additional episode of the same series rather than switch to a different show (Deng and Mela 2018; Schweidel and Moe 2016). This phenomenon is often referred to as "viewing begets more viewing" (Kubey and Csikszentmihalyi 2002) and is multiply determined. Consumers might binge-watch for enjoyment, pleasure preservation, control, fandom, and/or because they want to know what happens next in a series (Flayelle et al. 2019; Shim and Kim 2018). Indeed, TV shows are often designed with an overarching storyline to

encourage consumers to keep watching to find out how the plot unfolds (Deng and Mela 2018; Shachar and Emerson 2000). As evidence for this mechanism, consumers are more likely to binge-watch shows that end in cliffhangers (Rubenking and Bracken 2018) and those that have more (vs. fewer) continuous storylines (e.g., dramas vs. news or sports programs; Deng and Mela 2018; Shachar and Emerson 2000). Consumers also plan to binge sequentially connected, serialized video content more than independent stand-alone shows (Lu, Karmarkar, and Venkatraman 2017).

Thus, opposite to diminishing sensitivity, research on binge-watching could suggest that consecutively consuming similar media *increases* preference for more similar media. However, existing research does not provide causal evidence of this, instead relying on surveys and observational studies, and it suggests a mechanism contingent on the media content having an overarching storyline. As a result, it is unclear whether viewing causally begets viewing outside the context of TV shows, that is, the large fraction of media that is divisible and consists of small independent parts (Wei and Häubl 2015), such as stand-alone videos on YouTube or viewing artistic images on social media.

We propose a broader phenomenon that extends beyond TV viewing to consumption of stand-alone media, what we term the "rabbit hole effect"—that consecutively consuming similar media causes individuals to choose additional similar media. Furthermore, we reveal that this effect can even occur when externally induced, such that it cannot be explained by existing preferences.

The Role of Category Accessibility and Anticipated Enjoyment in the Rabbit Hole Effect

We suggest that consecutively consuming multiple similar media causes consumers to choose to view additional similar content (i.e., the rabbit hole effect) and theorize that this occurs because of increased accessibility of the shared category. Support for this prediction comes from research suggesting that category accessibility is a function of the salience, frequency, and recency of category exposure (Barsalou 1985; Nedungadi 1990). Thus, when consecutively consuming media from a shared category, the shared category becomes more accessible as it becomes more salient, frequent, and recent, leading to the rabbit hole effect. For example, after viewing several different cat videos, the "cat video" category will be more accessible and top of mind, leading to consumers being more immersed in the "cat video" category.

When a shared category is active and accessible, we suggest that people will perceive themselves to be immersed in that category. This is because the consumer's current "state of mind" lies within the category they most recently consumed (Ülkümen, Chakravarti, and Morwitz 2010). Indeed, accessibility is frequently a driver of immersion, as immersion is the feeling of engagement and presence in a particular ongoing experience (Diehl, Zauberman, and Barasch 2016; Jennett

et al. 2008). For example, making consecutive purchases makes a shopping mindset more accessible, such that people become immersed in the shopping experience (i.e., greater shopping momentum; Dhar, Huber, and Khan 2007). In addition, in a study on task entrenchment, increased accessibility of a boring transcription task increased engagement in the task, with the authors suggesting the underlying mechanism was that accessibility increases immersion (Lieberman, Amir, and Carmon 2021). Building on these findings, we propose that factors affecting category accessibility contribute to the feeling of immersion.

Once a category is accessible and consumers become immersed in it, we propose they will anticipate options within the heightened category to be more stimulating and enjoyable. Indeed, the feeling of immersion, thought of as a precursor to "flow" (Csikszentmihalyi 1990; Jennett et al. 2008; Tonietto and Barasch 2020), is often experienced as pleasurable (Jennett et al. 2008). Immersed consumers become more engaged in an experience and less connected to the outside world (Novak, Hoffman, and Yung 2000). Immersion in turn increases interest, emotional involvement, and enthusiasm for activities (Wu et al. 2013), as well as motivation and persistence (Ryan, Rigby, and Przybylski 2006).

Immersion can also affect anticipated enjoyment by making options within the shared category seem easier to process than other options. Options perceived as easier to process (i.e., more fluent) are perceived as more enjoyable (e.g., Winkielman et al. 2003); that is, people overgeneralize feelings of ease to judgments of enjoyment (O'Brien 2013). Repeated consumption from a shared category itself could further facilitate anticipated enjoyment, as repeated exposure to similar stimuli can cause positive affective responses to the same experience in the future (Bornstein 1989; Zajonc 1980). Perceptual fluency underlies this mere exposure effect, explaining why initially neutral stimuli increase in evaluation the more people view them (Fang, Singh, and Ahluwalia 2007). Repeated consumption of options from a shared category could thus increase anticipated enjoyment of similar options.

Overall, we suggest that heightened category accessibility and immersion from consecutively consuming similar media leads consumers to anticipate choices within this category to be more enjoyable. As a result, consecutive consumption of similar media increases the likelihood that consumers choose media in the same category over media in a different category or a different task entirely (i.e., the rabbit hole effect). We suggest that the rabbit hole effect is independent of consumers' initial interest in the category; that is, the effect occurs even when consumers do not choose the previous behavior themselves, such that the prior consumption experiences do not reflect consumers' preferences. Furthermore, this effect occurs for stand-alone media and thus does not require an overarching narrative structure.

Framework for the Rabbit Hole Effect

The current research provides a framework for understanding when the rabbit hole effect will arise. If the rabbit hole effect

is driven by category accessibility, it should be contingent on factors that make a category more (vs. less) accessible and, correspondingly, more immersive. Because category accessibility is a function of the salience, frequency, and recency of the category (Barsalou 1985; Nedungadi 1990), these three cues should contribute to category accessibility, and thus the rabbit hole effect, when consuming media.

First, with regard to salience of similarity, we propose that category labels increase the accessibility of the shared category. Labels cause people to perceive that different experiences fall within a similar category (Sharif and Woolley 2020; Tajfel 1959; Zhang and Schmitt 1998). When people categorize similar actions together under a unifying label, the category becomes more accessible. Thus, holding the media consumed constant, we predict that labeling consumption choices under a shared category (vs. not) will prompt individuals to choose similar options.

Second, category accessibility should increase as a function of repeated consumption of the category compared to no repetition (i.e., watching five videos vs. one video, which makes the category more frequent). Through repeated activation, repetition of similar media increases accessibility of the shared category and decreases accessibility of other categories (Schwarz et al. 1991; Tversky and Kahneman 1973). Therefore, we predict that repeated (vs. single) consumption will heighten category accessibility and prompt consumers to choose a similar option.

Third, engaging in consecutive (vs. alternating) consumption facilitates recency of the category, reinforcing the specific category and making it more accessible. For example, consumers who watch videos from a shared category consecutively (i.e., three in a row) versus consume in an alternating sequence (i.e., complete a different task in between viewing the three videos) both consume the same amount of video content. However, those in the consecutive condition will have more recently been exposed to more of the shared category at the time of choice. Alternating between tasks disrupts category accessibility further, as people need to switch out of the prior category and into a different category, at which time the different category will be less accessible in people's minds (Dreisbach, Haider, and Rainer 2002; Kiesel et al. 2010). Indeed, immersion in the category increases as people go longer without interruptions (Markman and Guenther 2007). Therefore, we predict that consuming similar media consecutively (i.e., without interruptions) will heighten accessibility of the category, thus causing individuals to choose a similar option.

Manipulating any one of these features (similarity, repetition, or consecutiveness) should affect category accessibility and, thus, the rabbit hole effect. Importantly, however, we do not predict that the rabbit hole effect will occur for identical media consumption. Rather, consumption of identical media (and media that generally lacks complexity) will lead to boredom due to low arousal, increasing consumers' choice of dissimilar options.

Beyond complexity, our theory makes additional predictions for managerially relevant boundary conditions, revealing when

the rabbit hole effect is more (vs. less) likely to occur. First, although ad exposures could disrupt the rabbit hole effect (Schweidel and Moe 2016), we suggest this is less likely to occur for ads on a topic within the shared category. Such ads may even serve to strengthen the rabbit hole effect, facilitating greater choice of similar (vs. dissimilar) options. Second, we expect that a time delay can disrupt category accessibility and immersion, attenuating the rabbit hole effect. Thus, people who consume multiple similar media consecutively may incorrectly predict in the moment what they will prefer to watch later.

Research Overview

We conducted ten real behavior studies and three supplemental studies to test these predictions. Study 1a documents the basic rabbit hole effect by showing that the consecutive consumption of two similar videos (music or nature videos) makes consumers more likely to choose another similar video than a dissimilar video. Study 1b extends this effect to similar artistic images on social media. Studies 2–4c test the role of accessibility in the rabbit hole effect by manipulating salience of similarity, repetition, and consecutiveness of consumption. By manipulating similarity, we find that emphasizing a shared category label (vs. not) increases individuals' choice of a similar (vs. dissimilar) option, holding media content constant (Study 2). By manipulating repetition, we find that people consuming multiple similar videos (vs. only one) are more immersed in the category and more likely to choose a similar (vs. dissimilar) option (Study 3). Finally, by manipulating shared category recency, we show that people consuming similar media in a consecutive order (vs. alternating with another task) are more likely to choose a similar (vs. dissimilar) option (Study 4a), are more immersed in the category (Study 4b), and have more accessible thoughts related to the category (Study 4c).

Examining the underlying process, we document that consecutive consumption increases consumers' immersion in the underlying category, which increases anticipated enjoyment of the specific category and, in turn, affects choice (Study 5). Our final studies serve as an additional test of process and offer key managerial implications. We examine whether advertisements can promote (vs. disrupt) the rabbit hole effect when they are within the shared consumption category (Study 6), as well as how immediacy of the next consumption decision (within the consumption episode vs. after a two-day delay) affects consumer's choice of similar options (Study 7). Sample size was determined in advance and preregistered in ten studies. We based sample size on a heuristic of 150–200 per cell or on pilot tests of our study manipulations. Data and materials are available at OSF: https://osf.io/gfajh/.

Studies 1a–b: Initial Demonstration of the Rabbit Hole Effect

In Study 1a, participants watched two different videos (two nature videos or two music videos) and then chose what to watch next: either a different nature video or a different music video. Both options featured content the participants had not yet viewed. Study 1b conceptually replicated Study 1a using different images from social media (five art or food images). Thus, these studies tested the basic rabbit hole effect: that consecutively viewing multiple media from a shared category increases the likelihood that consumers will proceed to choose a similar (vs. dissimilar) option.

Study 1a Method

We preregistered Study 1a (aspredicted.org/DZQ_JDA) and recruited 302 Amazon Mechanical Turk (MTurk) workers ($M_{age} = 37.72$ years; 38.1% female). We randomly assigned participants to a condition in a two-cell (video category: nature vs. music), between-subjects design. Participants in both conditions watched two different one-minute video clips from YouTube featuring either nature (lions and hurricanes) or music (by two different artists[1]), depending on condition. To ensure that participants perceived the videos as part of the same category, each video clip was labeled ("nature video" or "music video"). Then, participants were asked to choose their next video from two options: a nature video (on a different topic) or a music video (by a different artist). Participants actually viewed the chosen one-minute clip before exiting the study.[2]

Study 1a Results

A logistic regression of choice on condition was significant ($B = -1.09$, SE = .24, $p < .001$, OR = 2.04). Participants were more likely to choose the music video in the music (vs. nature) video condition (music = 59.3% vs. nature = 32.9%). Similarly, participants were more likely to choose the nature video in the nature (vs. music) video condition (nature = 67.1% vs. music = 40.70%).[3]

Study 1b: Extending the Rabbit Hole Effect to Artistic Images on Social Media

In Study 1b, participants viewed five different images from social media (art or food images) and then chose what to

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[1] The first music video was a clip of "Shape of You" by Ed Sheeran and the second was a clip of "Look What You Made Me Do" by Taylor Swift.
[2] We preregistered additional measures (perceived similarity and familiarity of music and nature videos), but due to a glitch in the survey, we collected these measures only in the nature video condition ($M_{nature\_familiar} = 4.92$; $M_{music\_familiar} = 4.59$; $M_{nature\_similar} = 5.64$, $M_{music\_similar} = 2.22$).
[3] In both conditions, significantly more participants chose to watch another video in the same category than would be expected by chance (nature video condition: z = 4.14, $p < .001$; music video condition: z = 2.20, $p = .027$). Note that the rabbit hole effect is not contingent on consumers choosing a similar option at rates greater than chance, as choice is also a reflection of media popularity. We present a comparison to 50% in Studies 1a–b for robustness, as condition reflects counterbalanced stimuli (rather than a manipulation of accessibility as in subsequent studies).

view next: a different art or food image. This study thus tests for the generalizability of the rabbit hole effect: that consecutively viewing multiple images on the same topic makes consumers more likely to choose a similar (vs. dissimilar) option.

Study 1b Method

We preregistered this study (aspredicted.org/SUJ_ZSQ) and recruited 301 MTurk workers ($M_{age} = 39.89$ years; 43.2% female). We randomly assigned participants to a condition in a two-cell (image category: art vs. food), between-subjects design. Participants in both conditions viewed five different images from Instagram featuring stylized images of either art or food, depending on condition (see Web Appendix A). To ensure that participants perceived the images as part of the same category, each image was labeled ("art image" or "food image"). Participants chose the next image to view from two options: an art or food image. Before viewing their chosen image, we measured participants; perceived similarity of the two choice options to the previously viewed images as a manipulation check (1 = "not at all similar," and 7 = "very similar").

Study 1b Results

We first confirmed that the art image appeared more similar to prior images in the art (vs. food) condition ($M_{art} = 5.39$, SD = 1.69; $M_{food} = 2.57$, SD = 1.59; t(299) = 14.86, $p < .001$, d = 1.72) and that the food image appeared more similar to prior images in the food (vs. art) condition ($M_{food} = 6.33$, SD = 1.29; $M_{art} = 3.19$, SD = 1.55; t(299) = 19.12, $p < .001$, d = 2.20).

Moving to our main hypothesis, a logistic regression of choice on condition was significant (B = 1.28, SE = .24, $p < .001$, OR = 3.60). Participants were more likely to choose the art image in the art (vs. food) condition (art = 62.9% vs. food = 32.0%). Similarly, participants were more likely to choose the food image in the food (vs. art) condition (food = 68.0% vs. art = 37.1%).[4]

Discussion of Studies 1a–b

Studies 1a–b served as an initial test of our hypothesis that the consecutive consumption of multiple media in the same category increases the likelihood that consumers will choose additional media in the same (vs. different) category. First, a greater proportion of participants who were assigned to watch two different nature (music) video clips chose to watch another nature (music) video next (Study 1a). Second, a greater proportion of participants who were assigned to view different art (food) images chose to view another art (food) image next (Study 1b).

Thus, we offer empirical evidence for the rabbit hole effect in two settings in which consecutive consumption was externally induced.

Study 2: Manipulating Accessibility via Category Salience

Studies 1a–b documented the rabbit hole effect: that consecutive consumption of similar media leads consumers to seek a similar (vs. dissimilar) option. We theorize that this effect is a result of heightened accessibility of the shared category; that is, when the category is accessible, people feel immersed in it, which increases anticipated enjoyment of similar options. Studies 2–4 independently manipulate the three proposed components of prior consumption that contribute to greater accessibility of the shared category: similarity, repetition, and consecutiveness.

Study 2 examines the first factor, similarity, while holding the other two factors constant (i.e., repeated and consecutive consumption). We propose that consumers will be more likely to choose a similar video over a dissimilar video when they perceive that their prior consumption experiences belong to a shared category (vs. do not). To isolate the role of similarity in Study 2, we held the video content constant and manipulated the category label. Building on research demonstrating that arbitrary labels can affect similarity via categorization cues (Sharif and Woolley 2020; Tajfel 1959; Zhang and Schmitt 1998), we manipulated similarity by labeling two different videos as either "educational videos" or simply "videos." We predicted that the shared category would be more salient, and thus accessible, for participants who watched consecutive videos labeled "educational videos" (vs. "videos"), leading them to be more likely to choose another educational video over a video in a different category to watch next.

Method

We recruited 403 MTurk workers ($M_{age} = 37.41$ years; 58.8% female). Participants were randomly assigned to a condition in a two-cell (label: "educational video" vs. "video"), between-subjects design. All participants watched a one-minute clip from a *National Geographic* video about mountain lions and a one-minute clip of a science experiment on YouTube. We manipulated whether the two video clips shared a specific category label ("Educational Video 1" and "Educational Video 2") or not ("Video 1" and "Video 2"). After watching the two videos, participants chose between two options for the next video: either "an educational video about sick remedies" or "a music video."[5] Participants then watched their chosen one-minute clip.

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[4] In both conditions, significantly more participants chose to view another image in the same category than would be expected by chance (art condition: z = 3.09, $p = .002$; food condition: z = 4.33, $p < .001$).

[5] A separate posttest confirmed that these two choice options were perceived as similarly attractive (1 = "less enjoyable," and 5 = "more enjoyable"); ($M_{education\_video} = 4.07$, SD = .95; $M_{music\_video} = 3.93$, SD = 1.16; t(83) = .61, $p = .542$).

Results

As predicted, when prior video consumption shared an "educational" category label, more people selected the educational (vs. music) video option than when prior consumption did not share a specific category label (60.4% vs. 49.8%; B = .43, SE = .20, p = .032, OR = 1.54).

Discussion

Holding the actual viewing experience constant, this study manipulated category accessibility via the salience of similarity of prior consumption experiences. We find that participants are more likely to prefer a similar option over a dissimilar option when the prior videos belonged to a shared category. This study thus demonstrates that the rabbit hole effect is contingent on the shared category being salient and thus more accessible.

We note one limitation of this study is that the two choice options (i.e., "an educational video about sick remedies" vs. "a music video") differed in their descriptiveness. This was true across conditions and thus should not explain our finding; however, in future studies, we hold constant the amount of description in the choice options. Furthermore, we conceptually replicated this effect in a supplemental study (Supplemental Study S1 in Web Appendix B), which broadened the scope from a choice between two videos to a choice between two tasks: watching a similar video or completing a word search task. Having demonstrated that manipulating salience of similarity leads to the rabbit hole effect, our next study examines a second proposed contributor to the effect: repetition, operationalized as watching one versus multiple similar videos.

Study 3: Manipulating Accessibility via Category Repetition

In Study 3, we examine how repetition, another factor affecting category accessibility via frequency, contributes to the rabbit hole effect. Participants watched either five consecutive video clips in a shared category or one video clip in that category before choosing their next activity—watching a similar video or switching to a different task. As frequency is a driver of category accessibility (Barsalou 1985; Nedungadi 1990), we predicted that participants who watched five similar videos (vs. one video) would be more likely to choose a similar option next. Furthermore, expanding on Study 2, we assessed immersion in the category. That is, we expected that manipulating category accessibility via repetition would lead people to feel immersed in the particular video category.

Method

We preregistered this study (aspredicted.org/ZLX_UIF) and recruited 1,016 MTurk workers (M$_{age}$ = 36.44 years; 42.3%

female).[6] We randomly assigned participants to a condition in a two-cell (five videos vs. one video), between-subjects design.

In the five videos condition, participants watched five, 30-second music videos, each featuring a different musical artist, with the order randomized between participants. In the one video condition, participants viewed one music video randomly selected from those in the five videos condition. All participants then chose their next activity from among two options: watch another music video (i.e., similar option) or complete a word search task (i.e., dissimilar option). Participants learned that both tasks would take about the same amount of time, and they saw an example of the word search task so that they were familiar with both experiences.

After choosing between another music video and a word search task, but before starting the chosen task, we measured category immersion (r = .95) by asking "do you currently feel like you are in a state of mind of watching music videos" and "do you currently feel that you are in a 'music video' mindset?" (1 = "not at all," and 9 = "very much"). We also measured four items preregistered as exploratory to assess anticipated disruption of watching a video versus completing a word search task (α = .90): "which of these would be more disruptive to your current mindset," "which of these is more likely to disrupt the mood you are currently in," "which of these tasks do you think would require more mental energy/effort to start," and "which task would require you to "shift gears" more to initiate?" (1 = "music video," 5 = "both," and 9 = "word search").

Results

A logistic regression of choice on condition revealed that more participants in the five (vs. one) video condition chose to watch another music video (M$_{five}$ = 70.3%, M$_{one}$ = 64.0%; B = .29, SE = .13, p = .033, OR = 1.33). Notably, people preferred a video in both conditions; however, importantly for our theory, increased accessibility due to repetition increased preference for the video over the word search task in the five (vs. one) video condition. Furthermore, we found that repetition affected category immersion. Participants reported being more immersed in the category in the five (vs. one) video condition (M$_{five}$ = 6.31, SD = 2.45; M$_{one}$ = 5.81, SD = 2.51; B = .50, SE = .16, t(1,014) = 3.20, p = .001, d = .20). Increased immersion mediated the effect of repetition on participants choosing the similar option (B$_{indirect}$ = .56, SE = .14, 95% CI = [.30, .84]; 10,000 bootstrap samples).[7]

Discussion

Repetition, a factor that drives category accessibility, both (1) increased participants' likelihood of choosing a similar option

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[6] We preregistered a larger sample size in this study to have enough power to detect a small effect size, which we expected after conducting pilot tests of the repetition manipulation.

[7] Examining our exploratory four-item scale, participants expected the music video to be less disruptive and require less energy to start in the five (vs. one) video condition (M$_{five}$ = 7.06, SD = 1.89; M$_{one}$ = 6.52, SD = 2.07; t(1,014) = 4.30, p < .001, d = .26), which is consistent with the idea that repetition increases category accessibility and immersion.

over a dissimilar option and (2) increased immersion. Also, participants' preference for similarity was greater in the five videos condition than in the one video condition. We conceptually replicated this effect in a supplemental study (Supplemental Study S2 in Web Appendix B), manipulating repetition through the use of three videos versus one video.

Thus far, we have demonstrated that the rabbit hole effect is rooted in similarity of prior consumption experiences (Study 2, Supplemental Study S1) and repetition of those similar experiences (Study 3, Supplemental Study S2). We theorize that a third contributor is consecutiveness of multiple similar consumption experiences, which involves the recency with which individuals consume media in the shared category. In our prior studies, repeated consumption experiences were all consecutive. Our next set of studies manipulates consecutiveness via the sequence of video consumption, holding similarity and repetition constant. We expected that consumers would be more likely to choose a similar option if they repeatedly consumed similar media consecutively (one after the other) than if the similar consumption was interrupted.

Studies 4a–c: Manipulating Accessibility via Consecutiveness

Studies 4a–c tested the third proposed contributing factor to the rabbit hole effect: consecutiveness of consumption. As recency is another factor of accessibility (Barsalou 1985; Nedungadi 1990), we experimentally manipulated recency of consumption of the shared video category by presenting participants with video sequences in which the topics were either consecutive or alternating.

In Study 4a, we recruited students to watch two episodes each from two series on Netflix. In the consecutive condition, students watched the two episodes from one series and then the two episodes from the other series; in the alternating condition, students alternated between the two series (i.e., Series 1, Episode A, then Series 2, Episode A, and so on). Students then chose a fifth episode to watch from any episode on Netflix. In Study 4b, we utilized video clips from YouTube. Unlike Netflix shows, YouTube videos often lack an overarching storyline from one video to the next; most are independent, short-form videos with a stand-alone narrative (i.e., they are divisible; Wei and Häubl 2015). Study 4b thus verifies that the role of consecutive consumption in the rabbit hole effect cannot be explained by consumers' curiosity about what happens next in the plot. Study 4c manipulated consecutive (vs. alternating) consumption and assessed category accessibility directly via a thought listing task. If consecutive consumption of videos from a shared category increases category accessibility, this should manifest as increased accessibility of thoughts related to the video category. However, because assessing accessibility could itself be disruptive (Cheng and Cairns 2005), we only assessed choice in Studies 4a–b.

Study 4a: Consecutive (vs. Alternating) Consumption of Netflix Episodes

We preregistered this study (aspredicted.org/AJE_QWS) and predetermined a sample size of 100 participants.[8] We recruited 129 undergraduate students from a large university in the Mid-Atlantic region for this online study in which they would watch five 20- to 30-minute episodes on Netflix. Participants needed to have a personal subscription to Netflix to be eligible and needed to complete this study within a 2.5-hour time frame at home in one sitting, without a break longer than 10 minutes. As preregistered, we excluded participants who ignored instructions to choose episodes they had not seen before (n = 19; this did not differ by condition), leaving a final sample of 110 participants (M_{age} = 23.28 years; 70.0% female).

Participants learned that they would watch five episodes from several series that they had not viewed before. The first four episodes had to consist of two episodes from one series and two episodes from a different series. The fifth episode could come from any series. Specifically, we randomly assigned participants to a condition in a two-cell (consecutive vs. alternating condition), between-subjects design. In the consecutive condition, participants viewed episodes from two series in a row: Series 1, Episode A; Series 1, Episode B; Series 2, Episode A; Series 2, Episode B. In the alternating condition, participants alternated between the two series: Series 1, Episode A; Series 2, Episode A; Series 1, Episode B; Series 2, Episode B. Participants then chose what to watch for their fifth and final episode from any episode on Netflix they had not viewed before. After watching all five episodes, participants self-reported which episodes they watched and uploaded a screenshot of their viewing history. At this point, we measured several items preregistered as exploratory, which are reported in Web Appendix C.

Study 4a Results

We conducted a logistic regression of participants' choice for their fifth show on condition. Specifically, we examined whether the fifth episode belonged to Series 2 (i.e., the series of the most recent, fourth episode in both conditions). As predicted, participants in the consecutive condition were significantly more likely to choose an episode from Series 2 (43.9%) than those in the alternating condition (18.9%; B = 1.21, SE = .44, p = .006, OR = 3.36). Notably, participants could choose *any* episode on Netflix (with a few constraints) for their final episode, so they had many more dissimilar options.[9]

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[8] Although this sample size was smaller than in our previous studies, it was sufficient for us to detect a medium-to-large effect. We anticipated a larger effect size in this study because it utilized stimuli from television series with overarching storylines (unlike our other studies, which relied on stand-alone, independent video clips).

[9] A total of 23 participants uploaded a screenshot that did not confirm the self-reported order in which they watched their Netflix episodes or revealed that they failed to view the episodes in the assigned order. The results are qualitatively the same when we exclude these individuals ($M_{consecutive}$ = 50.0% vs. $M_{alternating}$ = 17.1%; B = 1.58, SE = .51, p = .002, OR = 4.86).

To provide additional evidence that this effect was driven by a preference for a similar option among those in the consecutive condition, rather than by a preference for alternating tasks among those in the alternating condition, we examined whether condition had an effect on the likelihood of choosing another Series 1 episode as the fifth episode, as this choice would preserve the pattern of alternating tasks. Results indicate that participants did not significantly differ in their likelihood of choosing a Series 1 episode in the consecutive condition (29.8%) compared with the alternating condition (43.4%; B = −.59, SE = .40, p = .141, OR = .55).

Study 4b: Consecutive (vs. Alternating) Consumption of Stand-Alone Media

Study 4b conceptually replicated Study 4a using video clips from YouTube. Participants watched three videos on a similar topic either consecutively after completing three word search tasks, or they alternated between word search tasks and videos. Participants then selected whether to watch another video (i.e., similar option) or do another word search task (i.e., dissimilar option). After their choice, we measured immersion in the accessible category.

Study 4b Method

We preregistered this study (aspredicted.org/OHR_ANY) and recruited 811 U.S. participants from Prolific ($M_{age} = 31.19$ years; 51.9% female). Participants selected an overarching video topic from four options (funny kid videos, baby animal videos, music videos, or cat videos) and indicated how much they liked watching this video topic (0 = "not at all," and 6 = "very much").

Participants completed three word search tasks (30 seconds each) and watched three video clips on their chosen topic (30 seconds each). Task order was determined by randomized condition in a two-cell (consecutive vs. alternating), between-subjects design. Participants in the consecutive condition completed three similar tasks consecutively: three word search tasks and then three video tasks. Participants in the alternating condition alternated between the two task types (word search, video, word search, video, word search, video). All participants then chose whether to watch a similar video or complete a word search task. Before completing their chosen task, we measured immersion using the two-item scale from Study 3 (r = .88).

Study 4b Results

A logistic regression of choice on condition revealed participants in the consecutive (vs. alternating) condition were significantly more likely to choose another video over another word search task ($M_{consecutive} = 55.0\%$; $M_{alternating} = 45.0\%$; B = .40, SE = .14, p = .005, OR = 1.49).

Furthermore, manipulating consecutiveness of consumption increased immersion ($M_{consecutive} = 6.40$, SD = 1.96; $M_{alternating} = 5.94$, SD = 2.22; t(809) = 3.12, p = .002, d = .22), which

mediated the effect of consumption sequence on choice ($B_{indirect} = .25$, SE = .08, 95% CI = [.10, .43]).[10]

Study 4c: Assessing Category Accessibility via a Thought Listing Task

We suggest that the rabbit hole effect is driven by heightened accessibility of the shared category; that is, when a category is more accessible, people become immersed in it and find it more enjoyable. Thus far, we have demonstrated that manipulating factors associated with accessibility—salience, frequency, and recency of the category—leads to the rabbit hole effect. Furthermore, we have demonstrated that greater repetition (Study 3) and consecutiveness of consumption (Study 4b) increases perceived immersion in the shared category.

Study 4c further examines the role of accessibility by measuring it via a thought listing task. We reasoned that if consecutiveness increases accessibility of the category, this would manifest as increased accessibility of thoughts related to the video category. However, because assessing accessibility through a thought listing paradigm could break categorical immersion (Cheng and Cairns 2005), we did not assess choice in this study.

Study 4c Method

First, we recruited 449 U.S. participants from MTurk ($M_{age} = 41.62$ years; 50.3% female). We then proceeded in a fashion identical to Study 4b. Participants selected a video category from four options and completed video and word search tasks in a consecutive or alternating order. After completing their sixth task, they expected to make a choice of what they wanted to complete next.

At this point, we measured accessibility of the video category via a thought listing paradigm adapted from prior research (Berger and Fitzsimons 2008; Cacioppo, Von Hippel, and Ernst 1997). We asked participants to "list six types of videos people can watch on YouTube." They wrote six open responses, and on the next screen, they were asked to code the responses they listed as either "related to the video category" they had just watched or "not related to the video category." As our measure of accessibility, we summed the number of responses participants coded as relating to a video topic from the category of videos they previously watched.

Study 4c Results

As predicted, participants in the consecutive condition generated more thoughts related to their specific video category

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[10] We measured the four exploratory items from Study 3, assessing anticipated disruption and perceived effort of task switching (α = .80). We found a marginally significant effect such that those in the consecutive (vs. alternating) condition anticipated greater disruption from the word search task ($M_{consecutive} = 6.26$, SD = 1.61; $M_{alternating} = 6.05$, SD = 1.65; t(809) = 1.77, p = .077, d = .12).

(M = 1.52, SD = 1.04) than participants in the alternating condition (M = 1.32, SD = .89; B = .20, SE = .09, t(447) = 2.19, p = .029). Because this was a count measure, we also report results of an ordinal logistic regression (B = .37, SE = .18, p = .041).

Discussion of Studies 4a–c

Studies 4a–c examined a third factor associated with category accessibility: recency of consumption (Barsalou 1985; Nedungadi 1990). In particular, we found that the rabbit hole effect occurs when similar, repeated consumption of episodes is consecutive (i.e., the shared category as a whole is more recent). In Study 4a, participants who consecutively watched multiple episodes from the same TV series were more likely to choose a similar option than participants who watched those episodes nonconsecutively. In Study 4b, consumers were more likely to choose a similar (vs. dissimilar) option when their prior, similar, and repeated consumption experiences were consecutive (vs. alternating). Finally, Study 4c demonstrated that thoughts related to the video topic were more accessible when consumers' prior consumption was similar, repeated, and consecutive than when consumption was nonconsecutive.

Furthermore, results of Studies 4a–c have important implications for interventions to disrupt the rabbit hole effect if it is undesirable, or to slow down or spread out consumption. Our results suggest that if consumers are encouraged by an education campaign or a media platform to alternate between consumption experiences (rather than "binge" on a single series or video topic), they may seek out a dissimilar option, a point we return to in the "General Discussion" section. Having documented that the rabbit hole effect results from manipulating three factors associated with accessibility—salience of similarity, repetition, and consecutiveness of consumption—we next examine why heightened accessibility leads to the rabbit hole effect.

Study 5: Anticipated Enjoyment Underlies the Rabbit Hole Effect

The primary objective of Study 5 was to examine why category accessibility drives the rabbit hole effect. Studies 3 and 4b find that when the category is more accessible, consumers are more immersed in the category. Because immersion in experiences increases enjoyment (Jennett et al. 2008; Tonietto and Barasch 2020; Wu et al. 2013), we predicted that category accessibility causes people to choose similar options because they anticipate those options to be more enjoyable than dissimilar ones. We accordingly measured anticipated enjoyment of choice options as a mediator. We tested for serial mediation such that consecutive consumption of similar options increases immersion, which then increases anticipated enjoyment of a similar (vs. dissimilar) choice option, which in turn affects choice. Expanding beyond our prior studies, we compared

choice after similar consumption with both (1) choice after different consumption (i.e., after consuming two different videos with different category labels) and (2) choice after no prior video consumption.

Beyond this primary objective, we also examined whether media complexity serves as a boundary of this effect. Whereas we expected participants to be more likely to choose a similar video after consecutively consuming similar videos (vs. no prior videos), we did not expect participants to be more likely to choose an identical option after consecutively consuming identical videos (vs. no prior videos). Consumers seek an optimal level of stimulation (Kahn 1995; Menon and Kahn 1995; Sevilla, Lu, and Kahn 2019), and identical consumption is likely to lead to satiation (i.e., increased boredom, decreased arousal). We thus examined how choice after similar consumption and identical consumption compared to choice after no prior video consumption, which reflects baseline interest.

Lastly, to provide additional managerial implications of this effect, after participants selected the video they wanted to watch from the two choice options, they were able to watch their chosen video for as long as they wanted (up to two minutes). Thus, participants who were enjoying the video could watch for longer, but this came at the cost of not finishing the study earlier and moving on to other work tasks. If watching similar videos consecutively causes people to get "stuck" in a rabbit hole, they may be more likely to continue watching their chosen (similar video) relative to those who previously watched identical videos or different videos.

Method

We preregistered this study (aspredicted.org/IDT_RWS) and recruited 796 MTurk workers (M_{age} = 40.73 years; 44.7% female). We randomly assigned participants to a condition in a four-cell (similar vs. different vs. identical vs. no prior videos), between-subjects design.

Participants in the similar condition watched a two-minute clip about volcanoes and a two-minute clip about sloths labeled "Educational Video 1" and "Educational Video 2," respectively. Participants in the different condition watched a two-minute clip of a *Saturday Night Live* sketch and a two-minute clip about "funny things kids do," labeled "SNL Video 1" and "Funny Things Kids Do Video 2." We used different videos with different category labels to ensure that participants perceived the videos to be as dissimilar to the upcoming choice of an educational video option as possible.

Participants in the identical condition watched two identical two-minute video clips about black panthers labeled "Educational Video About Black Panthers 1" and "Educational Video About Black Panthers 2." Participants in the no prior videos condition did not watch any videos before their choice. All participants then made a choice between two video options. In the similar, different, and no prior videos conditions, these options were labeled "watch an educational video" or "watch a music video." In the identical condition,

the educational video option was labeled "watch the same educational video about black panthers again."

We measured anticipated enjoyment by assessing how stimulating and how boring (reverse scored) participants anticipated the two choice options to be (1 = "not at all," and 7 = "very much"). Specifically, to examine the extent to which people anticipated that the educational (vs. music) video would be more enjoyable, we formed a composite score (r = .67) by taking the difference for the two stimulating questions (i.e., the response for the education option minus the response for the music option) and averaging that difference score with the reverse-coded difference score for the two boring questions (i.e., the response for the music option minus the response for the education option). Higher scores indicate that people anticipated the educational (vs. music) video as more enjoyable (more stimulating, less boring).

We also measured immersion in a similar fashion to Studies 3 and 4b, with one main change: Instead of measuring how prior consumption affected people's state of mind, we measured beliefs about whether the educational (vs. music) video option would allow people to maintain their state of mind, asking "to what extent did you feel like this video would allow you to maintain your current state of mind?" and "to what extent did you feel like this video would be disruptive to your current state of mind?" (reverse scored) for each video option. We computed a composite score following the procedure with the enjoyment measure (r = .76), such that higher scores indicate greater anticipated immersion (i.e., ability to maintain mindset, less disruptive) if choosing the educational (vs. music) video. For raw scores for all items by condition, see Web Appendix C.

In all conditions except the no prior video condition, we measured perceived similarity between the previously viewed videos and each choice option (1 = "not at all," and 7 = "very much"). We computed a difference score (i.e., the response for the education option minus the response for the music video option) to examine how consumers perceived the similarity of the educational video relative to the music video option. Participants then watched their chosen video. The video lasted 120 seconds. Participants had the option to advance the video at any point to complete the study, and we divided the number of seconds participants watched by 120 seconds as our measure of the proportion of video watched. This measure was exploratory (i.e., not preregistered).

Results

Similarity. Participants in the similar (vs. different) video condition perceived the educational (vs. music) video as significantly more similar to the previous videos they watched ($M_{similar}$ = 2.90, SD = 2.39; $M_{different}$ = −1.22, SD = 1.90; t(602) = 17.70, $p < .001$). There was no significant difference between the similar and identical video conditions ($M_{identical}$ = 2.91, SD = 2.65; t(602) = .07, $p = .946$), suggesting participants perceived the educational (vs. music) video option as equally similar to

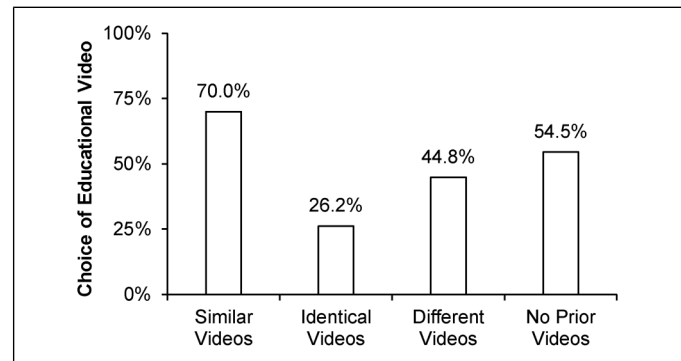**Figure 1.** Choice of educational (vs. music) video.

their prior consumption in both the similar and identical conditions.

Choice. We conducted a logistic regression of choice of educational (vs. music) video on three dummy variables representing condition, with the similar video condition as the reference group. As predicted, participants in the similar condition were significantly more likely to choose the educational video than participants in all other conditions (similar = 70.0% vs. different = 44.8%; B = −1.05, SE = .21, $p < .001$, OR = .35; vs. identical = 26.2%; B = −1.88, SE = .22, $p < .001$, OR = .15; vs. no prior videos = 54.5%; B = −.67, SE = .21, $p = .002$, OR = .51; Figure 1). Follow-up analyses reveal that relative to those in the no prior video condition, those in the identical condition were significantly *less* likely to choose the educational video, which represented choice of an identical option for this group (B = 1.21, SE = .22, $p < .001$, OR = 3.36).

Immersion. Participants reported that the educational (vs. music) video would facilitate greater immersion in the similar condition than in the other three conditions ($M_{similar}$ = 1.87, SD = 2.39 vs. $M_{different}$ = −.76, SD = 2.15; t(792) = −12.69, $p < .001$; vs. $M_{identical}$ = 1.14, SD = 1.87; t(792) = −3.51, $p < .001$; vs. $M_{no\_prior\_videos}$ = .09, SD = 1.83; t(792) = −8.45, $p < .001$).

Anticipated enjoyment. Moving to our anticipated enjoyment mechanism, people expected the educational video (vs. music video) to be more enjoyable in the similar condition than in the three other conditions ($M_{similar}$ = .68, SD = 2.14 vs. $M_{different}$ = −.31, SD = 1.90; t(792) = −5.10, $p < .001$; vs. $M_{identical}$ = −.13, SD = 1.96; t(792) = −4.18, $p < .001$; vs. $M_{no\_prior\_videos}$ = −.14, SD = 1.73; t(792) = −4.13, $p < .001$). We suggest the rabbit hole effect occurs because heightened category accessibility in the similar condition increases immersion, leading consumers to anticipate that other options in this category will be more enjoyable. In line with this, we find evidence for serial mediation through increased immersion and increased enjoyment, predicting choice (similar vs. different: B = −.59, SE = .11, 95% CI = [−.83, −.41]; vs. identical: B = −.16, SE = .06, 95% CI = [−.29, −.06]; vs. no prior videos: B = −.40, SE = .08, 95% CI = [−.57, −.27]).

Proportion of video watched. To test whether participants get "stuck" in a rabbit hole, we assessed the proportion of time participants watched their chosen video as a function of condition. Participants in the similar condition watched a greater proportion of their chosen video (M = 78.07%, SD = 34.16%) than those in the different condition (M = 67.83%, SD = 35.98%; t(792) = 2.86, p = .004) and the identical condition (M = 66.27%, SD = 38.95%; t(792) = 3.29, p = .001). There was no difference between the similar and no prior video conditions (M = 74.87%, SD = 34.49%; t(792) = −.88, p = .378), likely because those in the no prior video condition spent less time in the survey and thus had more time to spend watching the video.

Discussion

This study replicated the rabbit hole phenomenon and provides further insight into the underlying process. First, people in the similar condition believed an educational (vs. music) video would enable them to feel more immersed in the video category compared with those in the different, identical, or no prior video consumption conditions. Furthermore, participants in the similar condition anticipated an educational (vs. music) video would be more enjoyable than did those in the different, identical, or no prior video consumption conditions. Indeed, we find evidence for the proposed serial mediation in that similar consecutive consumption increased immersion in the shared category, which increased anticipated enjoyment of the educational video category, which drove greater choice of this option relative to the other three conditions.

This study also offers two new comparisons. We find that watching two similar educational videos increased choice of a similar educational video option relative to baseline (i.e., watching no prior videos), whereas watching two identical educational videos *decreased* selection of an identical educational video option relative to baseline. Beyond choice, we find consecutive similar consumption affects persistence: Those in the similar condition watched a greater proportion of their selected video than those in the different and identical conditions.

Finally, in providing evidence for the mechanism by which accessibility drives individuals to choose a similar option, this study offers connections to prior work on optimal stimulation level. Prior research finds that consumers avoid too little and too much stimulation, and they seek variety in part to maintain an optimal level of stimulation (Menon and Kahn 1995; Sevilla, Lu, and Kahn 2019). This theory likely explains the difference in participants' choice of an educational video in the similar versus identical conditions; that is, more people in the identical condition sought out a dissimilar music video option to increase their stimulation. However, we find that people expect the similar educational video option to be more stimulating and less boring in the similar condition than in all other conditions. Thus, rather than similarity increasing satiation in this condition, similarity increased people's interest in this video category. As such, we provide new insight into when and why consuming similar media affects consumers' preference for

additional similar options, compared to when they have previously consumed different options or no media at all. In our final two studies, we further examine the underlying process as well as additional managerial implications of these results.

Study 6: When Ads Do (vs. Do Not) Disrupt the Rabbit Hole Effect

Study 6 examines how viewing advertisements after consecutively consuming similar videos influences the rabbit hole effect. Participants were exposed to two nature advertisements either after viewing two nature videos (similar ad condition) or after viewing two music videos (dissimilar ad condition). If the rabbit hole effect occurs because prior media consumption increases category accessibility (through salience of similarity, frequency, and recency), then advertisements that are dissimilar to the category of media previously consumed should attenuate the rabbit hole effect; in other words, people who view a dissimilar ad should no longer seek out a similar option because accessibility of the category and immersion in the category has been disrupted. However, advertisements that are in a similar category as prior media could instead facilitate the rabbit hole effect by further heightening category accessibility.

In testing how ad exposure affects consumer choice after consecutively consuming similar media, we build on research that finds TV advertisements can disrupt binge-watching behavior (Schweidel and Moe 2016). By manipulating whether participants perceived the ads to be similar to prior video consumption, we tested the prediction that ads are less likely to disrupt the rabbit hole effect when they fall within the same category as prior media.

Method

We preregistered this study (aspredicted.org/LBF_WUF) and recruited 597 MTurk workers (M$_{age}$ = 39.60 years; 51.3% female). We randomly assigned participants to a condition in a four-cell (video category: nature–no ad vs. music–no ad vs. nature–similar ad vs. music–dissimilar ad), between-subjects design.

All participants watched two video clips: either two nature clips (a mountain lion video and a cheetah video) labeled "Nature Video 1" and "Nature Video 2" or two music video clips (two different musical artists) labeled "Music Video 1" and "Music Video 2." Participants in the two ad conditions viewed two nature ads after viewing the two video clips. Both ads were related to the nature category but were not labeled (for stimuli, see Web Appendix A). Thus, in the nature condition, the two ads were in a similar category to the prior videos participants watched. In the music video condition, the two ads were in a dissimilar category to the prior videos. The other half of participants did not view ads before making their choice of what to watch next.

Participants then chose their next video from two options labeled "nature video" or "music video." Participants viewed the entirety of their chosen clip.
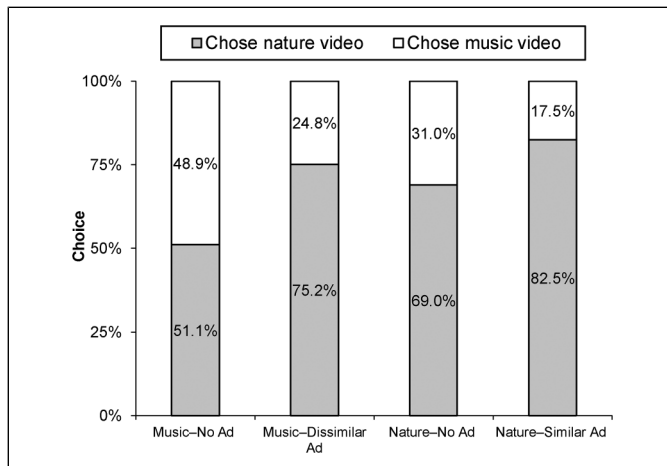
Figure 2. Choice of nature (vs. music) video.

Results

First, we compared video choice between the two non-ad conditions (music vs. nature), which revealed a significant effect (B = .76, SE = .24, p = .002, OR = 2.13). Participants were more likely to choose the music video in the music (vs. nature) no-ad condition (music = 48.9%; nature = 31.0%). In other words, people were more likely to choose the nature video in the nature (vs. music) no-ad condition (nature = 69.0%; music = 51.1%; Figure 2).[11]

We next focus on specific comparisons between the no-ad and ad conditions. Comparing the music–no ad condition with the music–dissimilar ad condition (in which participants watched two music videos before viewing two nature ads), we found a significant effect: More participants selected the music video over the nature video in the music–no ad condition (48.9%) than in the music–dissimilar ad condition (24.8%; B = 1.06, SE = .27, p < .001, OR = 2.90). This suggests that viewing ads in a different category from what was previously consumed (i.e., viewing nature ads after viewing music videos) can disrupt the rabbit hole effect.

Furthermore, comparing the nature–no ad condition with the nature–similar ad condition (in which participants watched two nature videos before seeing two nature ads) also revealed a significant effect. This time, fewer participants selected the nature video in the nature–no ad condition (69.0%) than in the nature–similar ad condition (82.5%; B = .75, SE = .26, p = .004, OR = 2.11). This demonstrates that viewing similar ads can further nudge people down the rabbit hole.[12]

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[11] Unlike some prior studies, we do not observe a majority of participants in the music condition selecting a music video, which may reflect that the music videos were less popular (indeed, the music videos were four years old when the study was run). Thus, our key focus is comparing the non-ad conditions with the two ad conditions.

[12] We also preregistered the following analysis: Fewer people selected a nature video in the music–no ad condition (51.1%) than in the nature–similar ad condition (82.5%; B = 1.50, SE = .27, p < .001, OR = 4.49).

Discussion

This study provides additional evidence that accessibility of the shared category drives the rabbit hole effect. When consumers view an advertisement dissimilar to their previous media experiences, thus making the shared category less accessible, the rabbit hole effect attenuates. However, when the advertisement is similar to consumers' previous media experiences such that the shared category becomes more accessible, the rabbit hole effect increases. People were more likely to choose an option from the shared category of prior consumption when viewing two ads that fell within that category than when they did not view additional ads (i.e., nature vs. nature–similar ads). This has implications for increasing media consumption and potentially for increasing ad viewership (e.g., preventing zipping and zapping; Deng and Mela 2018). When people view advertisements similar to what they previously viewed, it is less likely to disrupt their media consumption. In our final study, we provide additional managerial implications of this effect by measuring how a time delay after consecutive similar consumption affects choice.

Study 7: The Role of Immediacy in a Choice Between Videos

We find that repeated consumption of media from a shared category facilitates individuals' choice of a similar (vs. dissimilar) option due to increased accessibility of the underlying category. In particular, we previously manipulated salience of similarity, frequency, and recency. Study 7 provides an additional test for this process by manipulating recency using a time delay. Participants first watched two videos from a shared category and then chose a video to watch later in the week from among four options. Thus, we first measured choice immediately after participants had just consumed multiple similar experiences. We then examined whether a time delay that decreased recency of the shared category attenuated preference for similarity. We followed up with the same participants two days later and again asked which video they wanted to watch. We expected preference for a similar option to be weaker after a time delay disrupted choice, as the category should be less accessible due to decreased recency of consumption.

Notably, this study tests a practical implication of the rabbit hole effect. Heightened category accessibility may lead consumers to choose options in the moment that they will be less interested in subsequently. For example, someone who watched a couple of nature videos could preorder additional nature videos to watch the next week. However, because the nature category will no longer have heightened accessibility when the next week arrives, the consumer may prefer something else instead. Overall, we predicted an effect of choice timing on video selection: In the moment, consumers prefer a similar option to a greater extent than after a two-day delay.

Method

We preregistered this study (aspredicted.org/ERC_URX) and recruited 400 participants for a two-part experiment. A total
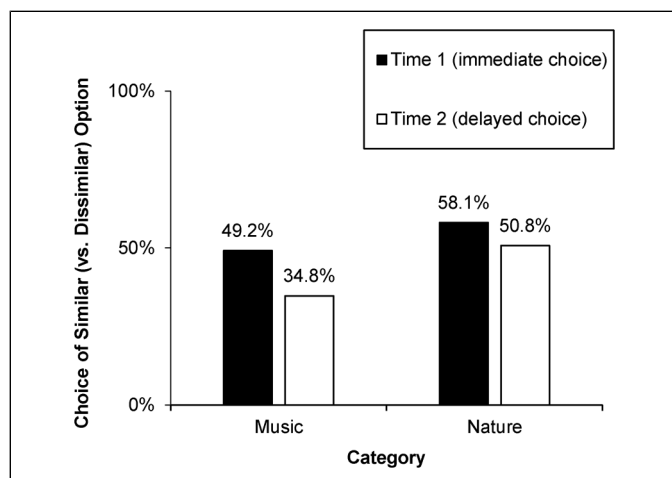
Figure 3. A time delay mitigates the rabbit hole effect.

of 256 participants completed the full experiment ($M_{age} =$ 37.75 years; 57.0% female) and were included in the final analysis.[13]

This study employed a 2 (video category: music vs. nature; between-subjects) × 2 (consumption recency: immediate vs. delayed; within-subject) mixed model design. Participants watched two one-minute video clips from the same category (music or nature). Immediately after finishing the second video, participants chose one video topic to watch later in the week from among four options: nature, music, comedy, or food. Two days later, participants received a follow-up survey and were asked again which one-minute video clip they wanted to watch from the four options (they were not reminded of their prior choice). They then watched the entirety of the selected video. Importantly, category accessibility and immersion from watching the first two videos should affect the more recent, but not delayed, choice.

Results

We conducted a logistic regression of video selection on video category (music vs. nature) × consumption recency (immediate vs. delayed), controlling for random participant effects. As predicted, we found a main effect of recency: Participants were more likely to choose another video on the same topic as the first two videos when deciding immediately after the original consumption experience (53.5%) than when deciding after a two-day delay (42.6%; B = 1.14, SE = .31, p < .001; Figure 3). There was no significant interaction (B = −.79, SE = .60, p = .187), implying a similar effect across video categories. Indeed, the effect of choice timing was evident in both video category conditions: People were less likely to choose another music video in the music video condition at Time 2

(34.8%) than at Time 1 (49.2%) and less likely to choose another nature video in the nature video condition at Time 2 (50.8%) than at Time 1 (58.1%).

Discussion

Study 7 demonstrates that the rabbit hole effect attenuates when there is a time delay between individuals' similar, repeated, consecutive consumption and choosing their next experience. Participants assigned to watch two similar videos were more likely to choose another similar video when prior consumption was more recent (i.e., immediate) than when choosing two days later. After a time delay, participants exhibited a weaker preference for the video on a topic they had previously consumed—and been interested in consuming more of—two days earlier. A time delay thus increases the percent of people exiting the rabbit hole by reducing accessibility of the shared category.

The results of this study may initially appear at odds with prior research on variety seeking, specifically regarding how making multiple choices simultaneously (vs. sequentially) affects choice. For example, prior research demonstrates that when making choices simultaneously for sequential consumption (i.e., choosing three snacks to have over the next three days), people prefer to diversify their selection relative to choices made sequentially (i.e., deciding each day what snack to have that day; Simonson 1990). Variety seeking in Simonson (1990) is driven by consumers in the simultaneous condition selecting multiple different options to reduce risk of committing to the same option for the next three days (given uncertainty about preferences). In our study, however, participants do not choose multiple options at once. In fact, when choice is immediate, they believe they will prefer options within the shared category that they previously consumed even more. However, this choice does not reflect stable preferences, and a delay that disrupts category accessibility and immersion decreases preference for this option.

The fact that participants' preferences in our study changed over time has implications for managers aiming to predict consumer choice, as well as for consumers planning their own consumption. If consumers make choices for the future on the basis of their preferences in the moment, they may end up with consumption experiences that do not actually match their future preferences (e.g., an hour, day, or week later). For example, if a consumer consecutively watches all the episodes of one season of a TV series in one sitting and then has an opportunity at that time to purchase the next season to watch later in the week, the feeling of being immersed in the series may influence consumers to make the purchase. But unfortunately, they may be less interested in watching the next season when the time comes.

General Discussion

Across ten real behavior studies and three supplemental studies, we provide empirical evidence of the "rabbit hole effect" in media consumption, revealing that consumers are more likely to choose similar media (vs. dissimilar media or a different task) after consecutively consuming multiple similar media.

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[13] These 256 participants did not differ significantly on any of our observed measures from participants who completed only the first survey (not included in subsequent analyses), suggesting that our final sample did not differ from our original sample.

We document the basic rabbit hole effect in the context of consumption of complex media, including videos (Study 1a) and images (Study 1b). We further reveal that this effect is less likely to occur when media is less complex, such as when individuals consume identical media (Study 5) or short stories that lack complexity (see Supplemental Study S3).

We suggest that the rabbit hole effect occurs because, as people consume consecutive media from a shared category, the category becomes more accessible. Heightened accessibility of the category leads people to become immersed in the category —they are in the state of mind of the accessible category and desire to maintain it. In other words, consumers in this situation anticipate that future options within the category will be more enjoyable than other options. As category accessibility is a function of the salience, frequency, and recency of the category (Barsalou 1985; Nedungadi 1990), we reveal that salience of similarity (Study 2; Supplemental Study S1), frequency (Study 3; Supplemental Study S2), and recency (i.e., consecutiveness [Studies 4a–b]; delay between consumption and choice [Study 7]) of past media experiences lead to the rabbit hole effect.

In addition to demonstrating that factors associated with category accessibility (e.g., salience of similarity, frequency, and recency) have an impact on the rabbit hole effect, we also directly test the category accessibility process by measuring it via a thought-listing task (Study 4c) and via perceived immersion (Studies 3, 4b, and 5). In particular, Study 5 reveals evidence for serial mediation: Increased immersion and anticipated enjoyment mediate the effect of category accessibility on choice. We also provide evidence that heightened accessibility drives the rabbit hole effect by demonstrating that interruptions can reduce the effect, including interruptions such as dissimilar ads (Study 6) or a time delay (Study 7).

Theoretical and Managerial Contributions

Our findings contribute to research on variety seeking (Kahn and Ratner 2005; McAlister and Pessemier 1982; Ratner, Kahn, and Kahneman 1999; Simonson 1990) and consistency seeking (Jones and Sasser 1995; Oliver 1999). We provide an overarching framework for predicting when consumers are more likely to choose an option that is similar (vs. dissimilar) to their past experiences: the consecutive consumption of similar media. In doing so, we demonstrate how past consumption of media experiences, even if externally induced, can affect subsequent media consumption.

In particular, we speak to the literature on sensory-specific satiation (Rolls et al. 1981), which finds that people are more likely to seek variety in sensory attributes versus nonsensory attributes (e.g., taste vs. brand; Inman 2001). This research demonstrates that for stimuli resulting in a physiological response (i.e., food consumption), consumption of identical and similar flavors are both likely to facilitate variety seeking. In contrast, we find that for stimuli that involve less of a physiological response (i.e., media consumption), there is a divergence between similar and identical consumption. Similar consecutive consumption increases subsequent choice of similar options, whereas identical consumption decreases it (this latter finding is consistent with prior research on consumption of identical songs; Ratner, Kahn, and Kahneman 1999). We find that after consecutively consuming similar media, but not identical media, consumers are more likely to choose additional similar media over a dissimilar option.

Furthermore, we advance literature on media psychology and contribute to adjacent research on binge-watching behavior (Flayelle et al. 2019, 2020). The rabbit hole effect builds on and extends binge-watching research to consumption of divisible media (e.g., stand-alone video clips on YouTube, artistic images on Instagram). Whereas prior work identifies binge-watching as occurring primarily for TV series with overarching storylines, the rabbit hole effect explains consumption of similar media that do not have such continuity. Our contribution to the binge-watching literature lies in providing a causal test for this phenomenon and disentangling this effect from curiosity, thus generalizing the effect beyond TV shows. We independently tested three factors affecting category accessibility, and we causally demonstrate that these factors have an impact on the rabbit hole effect. As such, we find that consumers' choice of similar options is driven by prior consecutive consumption of similar stand-alone media, a context in which prior research suggests binge-watching may be less likely to occur (Deng and Mela 2018; Lu et al. 2017; Shachar and Emerson 2000).

These findings also offer managerial implications for companies that want to encourage consumers to engage more with their media content. We find that consumers are more likely to choose a similar option over a dissimilar option after consuming several similar experiences consecutively. Thus, if a media company, such as Instagram, YouTube, or Netflix, wants consumers to spend more time on their platform, they may want to jointly utilize these three strategies by encouraging consumers to perceive their prior consumption as falling within the same shared category, or by recommending bundles of media options that encourage repeated consecutive consumption of similar topics. By building similarity, repetition, and consecutiveness jointly into their offerings, companies providing complex media content can facilitate consumers' consumption of subsequent, similar content.

Relatedly, this research has implications for companies aiming to improve their recommendation systems by predicting consumer preferences more accurately. Companies should ensure that their recommendation algorithms consider whether consumers have watched similar shows, whether they watched multiple similar shows, and whether they watched these shows recently (i.e., in short succession). A consumer who watched only one video might be less interested in watching similar videos than a consumer who watched several videos on the same topic, as we find in Study 3. Similarly, if a consumer is alternating between watching episodes in different series, or videos on different topics, they may prefer to receive recommendations for wholly new options rather than recommendations similar to what they most recently watched, which we find in Studies 4a–b. Furthermore, if there is a delay between viewings,

companies may be better off recommending something unrelated to what the consumer saw previously, as consumers may be less interested in viewing similar media after experiencing a delay between viewings, as we find in Study 7. Although some companies may have one of these factors built into their algorithm (e.g., incorporating the number of videos an individual has viewed on a similar topic when predicting their future preferences), they can further optimize their algorithms by ensuring all three of the factors that contribute to the rabbit hole effect are taken into consideration simultaneously.

In addition, this research provides implications for how to slow down media consumption, which may also be beneficial for media companies (e.g., those with subscription services). For one, subscription services could encourage consumers to space out the consumption of a series by extending the minimum length of their subscription packages, thereby discouraging consumers from binging a series in, for example, one week and then canceling their service. Also, building on Study 4a, consumers themselves may be more likely to spread out media consumption across different TV series if they start watching two separate series at the same time. Viewing episodes from two series in an alternating sequence is less likely to lead to the rabbit hole effect and reduces the likelihood of consumers finishing either series within a short window, potentially extending the length of their subscription service. Furthermore, in our study, consumers who alternated between episodes from two different series were more likely to start watching a third series than those who watched episodes from each series consecutively. Platforms can promote variety seeking and increase the likelihood that consumers will search for and discover new series by encouraging consumers to watch shows in an alternating sequence.

Beyond consequences for marketing managers, this work is also relevant for consumer welfare—namely in slowing down media consumption. Although consumers may anticipate enjoying similar consumption in the moment and seek out additional similar options, we do find evidence that consumers get "stuck" in a rabbit hole—they persist in watching videos (rather than quitting and pursuing tasks that could be more lucrative; Study 5). They also make choices in the moment for their future self that are inconsistent with what they actually end up preferring in the future (Study 7). Our research suggests that consumers can reduce their risk of falling down the rabbit hole by adding interruptions into their consumption experience. Before sitting down to watch YouTube videos, consumers can plan another task that they will do after watching one or two videos (or that they can do while they watch), thereby decreasing the consecutiveness of their video consumption and reducing accessibility of the category. This suggestion parallels research on food overconsumption, which finds that segmentation cues, such as coming across a single red chip when eating a stack of regular potato chips, can reduce food intake by potentially disrupting an automated eating experience (Geier, Wansink, and Rozin 2012).

Lastly, this research has implications for advertisers. Prior research on binge-watching finds that advertisements shown during a viewing session can reduce binge-watching behavior (Schweidel and Moe 2016). Expanding on this, we find that ads tend to disrupt the rabbit hole effect when they are unrelated to the shared category, but they can perpetuate the effect when they fall within the shared category. Note that this effect may be specific to ads that do not evoke psychological reactance, similar to the ads used in our Study 6. This finding has implications for increasing media and ad viewership (e.g., preventing zipping and zapping; Deng and Mela 2018). When consuming similar media, it is possible that consumers attend more to ads that fall within the shared media category. Furthermore, when ads are similar in content to media that viewers are consuming, disdain for the ads may decrease, especially if the ad is perceived as irrelevant to the viewer. For example, someone with no need for a food processor may experience less psychological reactance to an ad for one that they see during a cooking show than one they see during a nature program.

Directions for Future Research

This research demonstrates the rabbit hole effect in consumption of similar complex media. Although we primarily focus on consumption of video content, we also demonstrate that this effect extends to artistic images on social media (Study 1b). Future research can further test potential moderators of this effect. For example, Supplemental Study S3 (Web Appendix B) demonstrates that the rabbit hole effect does not hold for stand-alone short stories, which were pretested to be less complex. It is possible that people anticipate media lacking complexity will be less enjoyable on further consumption. Alternatively, reading short stories may require more active, effortful attention than watching videos or viewing images, and active involvement may moderate the rabbit hole effect. It is also possible that consumers find reading short stories to be less enjoyable than watching videos (or viewing images) in general. People are unlikely to anticipate future options as being enjoyable if their current consumption is unpleasant. Indeed, part of the reason why people sought a different (vs. identical) option after identical consumption in Study 5 is because they anticipated that an identical option would be less enjoyable than a different option. Therefore, another possible moderator of the rabbit hole effect could be the enjoyment of the past media consumption. Thus, more research is needed to examine potential moderators of this effect.

An additional question pertains to the role of immersion versus flow in the underlying process (Csikszentmihalyi 1990; Novak, Hoffman, and Yung 2000). Flow is the experience of complete focus, concentration, and loss of self-consciousness that arises when a task requires a high level of skill and challenge (Novak, Hoffman, and Yung 2000). We measured flow in two studies and received mixed results. In Study 4a (see Web Appendix C), we find a significant effect of our accessibility manipulation on flow, although flow did not predict individuals' choice of a similar (vs. dissimilar) option. In Supplemental Study S2 (see Web Appendix B), we find no significant effect of our accessibility manipulation on

flow. On the one hand, measuring flow may disrupt flow, making it difficult to find effects on this variable (Cheng and Cairns 2005). On the other hand, unlike immersion, being in a state of flow typically requires clear goals, which may be lacking when people are consuming videos (Jennett et al. 2008). Thus, although it appears flow may play less of a role in the underlying process we document, future research is needed to declare this definitively.

Conclusion

We are the first to define and empirically test the rabbit hole effect within media consumption, revealing a framework for when consumers are more versus less likely to choose options similar to what they previously consumed. In doing so, our research offers insights both for companies that may benefit from facilitating or disrupting this phenomenon and consumers who wish to get stuck in fewer rabbit holes in the future.

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Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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