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Planning-to-Binge: Time Allocation for Future Media Consumption

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Data availability statement: Data and materials for all studies have been made publicly available at ResearchBox.org (https://researchbox.org/604). Study stimuli are also included in the Supplement. All data were analyzed using the programming language R. Analysis code is available by emailing the corresponding author. The only exception is Study 4B; due to the proprietary nature of the data, it is not publicly available.

ABSTRACT

The prevalence of streaming media has led firms to embrace the phenomenon of "binge-watching" by offering entire multi-part series simultaneously. Such "on-demand" availability allows consumers to choose how to allocate *future* viewing time, but such decisions have received little attention in the literature. Across several studies, we show that individuals can *plan* binging in advance by allocating time in ways that aggregate episode consumption. Thus, we expand our understanding of media consumption to a new timepoint, distinct from "in-the-moment" viewing. We demonstrate that planning-to-binge preferences are flexible and shaped by perceptions of the media of interest. In particular, they are greater for content whose episodes are perceived as more sequential and connected, as opposed to independent. Since our framework focuses on the media's structural continuity, it applies across hedonic and utilitarian time use, motivations, and content, including "binge-learning" plans for online education. Furthermore, increased plans to binge can be triggered by merely framing content as more sequential vs. independent. Finally, consumers are willing to spend both money and time for the future opportunity to binge, and more so for sequential content. These findings suggest ways media companies may strategically emphasize content structure to influence consumer decisions and media viewing styles.

Keywords: Experiential consumption, digital media, time allocation, binge-watching

Public Significance Statement: This study finds that consumers can make plans to binge-watch media content ahead of time, and that "planning-to-binge" preferences are greater for content framed to have more sequential, interconnected episodes. Our findings illustrate opportunities for

how firms might promote, curate, and price their content portfolios based on content structure

across a variety of media domains ranging from entertainment to education.

INTRODUCTION

When the media platform Netflix released the highly-anticipated period drama

Bridgerton in December 2020, all 8 episodes went live at once. It was one of the firm's dramatic

endorsements of "on-demand" media, in which consumers have the option of choosing not only

when to view a program, but also how much of it to view at one time. It thus also reflected the

potential desire to "binge-watch," which is generally thought of as a pattern of media

consumption in which viewers watch multiple episodes continuously in one sitting. While the

increasing shift in media consumption from the provider's schedule to the individual viewer's

preferred timing might be seen as giving consumers more control, binge-watching is frequently

described in terms of indulgent (or over-indulgent) behavior, with comparisons drawn to binge

eating or binge drinking. The latter, in turn, have been attributed to lapses in self-control and

impulsivity in the moment (e.g., Gold, Frost-Pineda, & Jacobs, 2003) or desires to escape from

self-awareness (e.g., Heatherton & Baumeister, 1991). Indeed, to capitalize on those indulgence

mechanisms, in 2016, Netflix famously introduced an auto-play feature, encouraging viewers to

continue watching in the moment, with other streaming platforms following suit.

In this current work, we expand the scope of media consumption research by proposing

that consumers are capable of *planning* aggregated consumption in an adaptive manner by

allocating *future* blocks of time to consume media content. Examining planning focuses on a

distinct timepoint and frame of decision-making from the actual viewing experience, offering a

contrast to the earlier maladaptive view arising from immediate and impulsive binge-watching.

We specifically explore how consumers plan to aggregate vs. spread out the volume of their

media consumption. Planned consumption can reflect consumers making a more nuanced

tradeoff between experience, duration, and frequency. Moreover, consumption planning is an

important area of research, influenced by a range of factors including variety and happiness

(Etkin & Mogilner, 2016), efficiency (Tonietto & Malkoc, 2016), savoring experiences (Shah &

Alter, 2014), and changes in utility (Herrnstein & Prelec, 1991; Loewenstein & Prelec, 1993).

Therefore, considering planning in the context of media consumption opens up distinct

psychological questions about the motivations and mechanisms that may be involved.

Our work makes three central contributions: First, we expand the research on on-demand

media consumption from the more momentary indulgent phenomenon of binge-watching to a

potentially planned behavior, including evidence to support this perspective. Second, we

demonstrate that planning preferences are moderated by perceptions of the media's structure,

which allows us to rule out hedonic vs. utilitarian distinctions regarding time use, motivations,

and content. Third, we demonstrate practical suggestions for how firms might curate their

content portfolios in ways that allow them to target a range of consumption styles and

preferences.

Beyond Self-Control: Planning-to-Binge Preferences

Binge-watching or binge consumption has been defined in several ways across the

scholarly literature and industry. Its scope ranges from watching more than one episode of a

program at a time (e.g., Pittman & Sheehan, 2015; Deloitte, 2016) to finishing all available

episodes in a single viewing session (Rubenking & Bracken, 2018; Jurgensen, 2013). In a similar

vein, Woolley and Sharif (2022) document a "rabbit hole" effect where people are likely to

continue to consume media on topics that are similar to what they had recently experienced.

While these descriptions vary, they all involve the idea that more than one episode is consumed

in a single sitting (Flayelle et al., 2020). We thus precisely define "planning-to-binge" as the

preference for aggregating more than one episode of a multi-part media series *in advance* of the consumption experience. This incorporates two key characteristics of binging identified in prior research, namely viewer autonomy or self-scheduling, and continuous consumption flow (see Merikivi et al., 2019 for a review).

With the recent proliferation of streaming media, there is mounting evidence that consumers plan aggregated consumption ahead of time. For example, the website www.bingeclock.com calculates the number of hours, days, or even weeks that it might take to continuously binge every episode of a TV series, presumably to allow individuals to set that time aside for this purpose. Media outlets also facilitate planning-to-binge by compiling lists of "Best Shows to Binge" on Netflix or Hulu (Travers, 2017). Thus, there are many opportunities for platforms to encourage or discourage plans to binge ahead of time, for example, with different advertising messages, content release schedules, and pricing plans.

Studying and measuring consumer plans to binge also builds upon research suggesting that binge-watching can be an intentional behavior (Pittman & Sheehan, 2015), correlated with relatively "upstream" constructs such as intentions, outcome expectations, and anticipated regret (Walton-Pattison, Dombrowski, & Presseau, 2018). Moreover, recognizing that aggregated viewing sessions can be a planned and intentional behavior opens up investigation into motivations beyond those related to lapses in self-control or purely negative individual traits such as low self-regulation and procrastination (Merrill & Rubenking, 2019). For example, prior work has explored positive motivations for media consumption such as transportation into narrative worlds (Green, Brock, & Kaufman, 2004) and enhancing social engagement (Flayelle, Maurage, & Billieux, 2017).

We explicitly evaluated whether consumers are capable of planning to binge in a pre-registered pilot study (https://aspredicted.org/blind.php?x=P2N_M8J). We asked 192 participants (M_{Age} = 38, 34% female) on Amazon's Mechanical Turk (MTurk) platform to list the name of the next streaming show they were planning to watch, and to fill in a 6-day calendar with their viewing plans. As pre-registered, we quantified the degree of planning-to-binge for each participant's calendar by computing its "clumpiness" over time, a precise approach to quantifying binging that yields a number between 0 (most spread out) and 1 (entirely continuous; Kumar & Srinivasan, 2015; LaTour & Noel, 2021; Zhang, Bradlow, & Small, 2015; see Supplement for details). Figure 1(a) illustrates the least clumpy calendar possible in this setting (clumpiness = .07), a moderately clumpy calendar (.36), and the most clumpy calendar (.69).
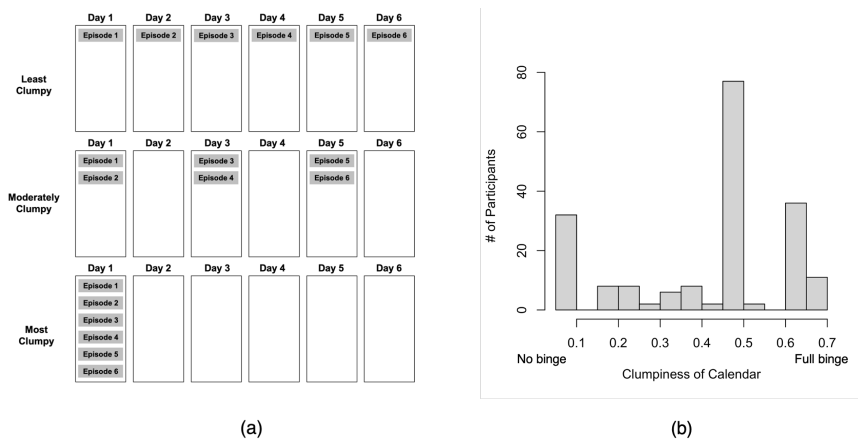

Figure 1: (a) Pilot study calendar examples and (b) Calendar clumpiness distribution

Note that the slightly modified version of the clumpiness equation that we adapted from Zhang, Bradlow, & Small (2015) was invariant to participants' planned start day. For example, someone who planned to watch two episodes per day on Days 1, 3, and 5 would have the same clumpiness value as someone who planned to watch them on Days 2, 4, and 6.[1] Figure 1(b) plots the distribution of clumpiness values. We found that 142 out of 192 (74%) of participants'

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[1] We thank an anonymous reviewer for pointing this out.

calendars were clumpier than a "null distribution" (with mean clumpiness .30) constructed by generating 100,000 random calendars (significantly greater than 50%; Chi-squared(1) = 43.13, p < .001, Cohen's *h* = .50). These results demonstrate that consumers can plan to binge by aggregating episodes, both within and across days.

Notably, the depicted moderately clumpy calendar in Figure 1(a) was the most commonly created one among the study participants. 94% of calendars were less clumpy than the most clumpy or "full binge" calendar, suggesting that consumption plans are not as trivial as simply deciding to watch all the content in one sitting. This provides further evidence in support of our more nuanced definition of planning-to-binge. As shown in Figure 1(b), most participants' planning-to-binge preferences lie somewhere in the middle of the no binge vs. full binge extremes, and so there is potentially room for firms to influence these preferences up or down.

The Role of Content Structure in Planning-to-Binge Preferences

On the one hand, the idea of planning-to-binge seems to conflict with prior planned consumption findings suggesting that people often prefer to savor good experiences by delaying them and deriving additional pleasure from anticipation (Loewenstein, 1987) or spreading them out over time (Loewenstein & Prelec, 1993). On the other hand, research on satiation and hedonic adaptation has shown that people are bad at anticipating the benefits of taking breaks (e.g., spreading out consumption) for both independent and continuous experiences (Galak, Kruger, & Loewenstein, 2013; Nelson, Meyvis, & Galak, 2009). To reconcile these streams of literature, we propose that the anticipated utility gains from savoring vs. binging media may depend on the perceived characteristics of the content itself. In the marketplace, Netflix has approached this question by dividing its content by genre, suggesting that irreverent comedies

and political dramas are "savored," while horrors and thrillers are "devoured" (Koblin, 2016; Netflix, 2016). We instead investigate whether there are structural features of media content that influence consumer decisions specifically at the anticipatory or planning stages.

We propose a cross-genre hypothesis that savoring versus planning-to-binge preferences depend on the perceived structural continuity of the individual episodes of an experience.[2] We hypothesize that when episodes are seen as "independent" or distinguished by points of closure with standalone narratives, consumers prefer to spread them out. However, when episodes are seen as "sequential" or contain interconnected episodes making up an overarching and linearly progressing narrative, consumers prefer to allocate longer viewing sessions. This approach uniquely offers us a way to resolve some of the predictions from prior literature that might otherwise appear to conflict. Preferences to spread out independent episodes are consistent with prior findings demonstrating planned savoring of pleasurable and independent stimuli (e.g., fancy dinners in Loewenstein & Prelec, 1993; distinct vacation sites and art performances in Shah & Alter, 2014). In parallel, preferences to binge more sequential episodes are consistent with people's strong preferences for meaningful sets over less orderly or random selections (e.g., Evers, Inbar, & Zeelenberg, 2014), as well as making progress towards completing a set or interrupted tasks (Barasz et al., 2017; Klinger, 1975; Lewin, 1926; Martin & Tesser, 1996; Ovsiankina, 1928).

A key advantage of our proposed structural hypothesis is that it avoids dependence on the hedonic characteristics typically associated with indulgent or impulsive consumption (Babin, Darden, & Griffin 1994; Dhar & Wertenbroch, 2000), making it appropriate for understanding a

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[2]The term "episodes" is used here to denote different consumption occasions or opportunities within a domain of experiential products, for example the literal episodes of a TV show, separately listed media clips, or the video lectures within an online course.

wide range of consumer motivations and media platforms. Our studies demonstrate that plans to binge based on independent vs. sequential content expectations are not affected by alternate uses of time or hedonic vs. utilitarian motivations for the same content.

Along these lines, streaming platforms feature content types that range from entertainment programs (e.g., Netflix, Hulu) to structured educational courses (e.g., Coursera, edX), with an increasing selection of options that fall somewhere in between (e.g., YouTube). In the educational space, students cluster their consumption of lectures into multi-episode sittings, which has been described as "binge-learning" (Davis et al., 2016; Dourado, 2013; Reich & Ruiprez-Valiente, 2019; LaTour & Noel, 2021) and has been enabled by the rise of on-demand digital education. Notably, the in-the-moment motivation for spending more time in class appears to be more consistent with an enhanced level of self-control than the traditional binge-watching model of a failure of self-control. Thus, our framework offers broad benefits by stepping away from the time of viewing, allowing us to understand how firms might manage this overall media landscape separately from its "genre."

Managerial Implications of Planning-to-Binge Preferences

Across our experiments, we demonstrate that consumers are capable of planning-to-binge (pilot study) and when considering their future viewing, can thoughtfully anticipate the potential benefits of aggregating consumption (Study 1). Planning-to-binge preferences are impacted by the perceived sequential vs. independent structure of the media content (Studies 1 and 2), and not hedonic vs. utilitarian time use (Study 3A) or motivations (Study 3B). In particular, our framework applies to both entertainment and educational settings (Studies 4AB). As summarized in Table 1, across our studies we utilize multiple methodological approaches and measures that

distinguish binging from total consumption volume and are consistent with binging being

defined as the aggregation of content consumption within a session or sitting.

Table 1: Summary of different quantification methods for planning-to-binge preferences

Study	Measure	More Planning-to-Binge	Less Planning-to-Binge
Pilot	Create calendar	More clumpy calendar	Less clumpy calendar
1	Binary Categorization	Watch all-at-once	Watch one-by-one
2	Create calendar	More clumpy calendar	Less clumpy calendar
3A	11-point Likert scale	Watch all-at-once	Watch one-by-one
3B	Number of sessions	Fewer sessions	More sessions
4A	11-point Likert Scale	Watch all-at-once	Watch one-by-one
4B	Time between lecture video submissions or continuous sessions	Less time	More time
5A	WTP for content to be available immediately	More $	Less $
5B	Choose calendar	More clumpy (and *delayed*) calendar	Less clumpy (and *immediate*) calendar
6	11-point Likert Scale	Watch all-at-once	Watch one-by-one

The effect of sequential vs. independent episodes on planning-to-binge preferences

suggests that media companies can take content structure into account when making strategic

decisions regarding the promotion, pricing, and release timing of content. For example, we offer

evidence of the value consumers place on the ability to plan aggregated viewing, showing that

they are willing to pay, in terms of both money and time, for the ability to binge in the future,

and more so for sequential (vs. independent) media (Studies 5AB). Several of our experiments

also suggest that the same content can be *framed* as more sequential or more independent; thus,

content providers may choose promotions aligned with desired viewing patterns.

Streaming media firms also have to consider tradeoffs between offering subscription-

based content and "ad-supported streaming" (de Looper, 2022). Our framework predicts that

when consumers are aware of required ad breaks, firms may actually be creating points of

disruption (if not closure) in the consumer's experience, reframing content as more independent.

Consistent with this, in Study 6, we show that the effect of perceived content structure on

planning-to-binge preferences is moderated by the information about unskippable ads. While

planning-to-binge preferences for independent content remain largely the same with or without

ads, consumers are less likely to plan-to-binge sequential content anticipated to include ads,

thereby diminishing the difference in future viewing preferences between the two types of

content. This offers a complement to prior work documenting a negative effect of ads on in-the-

moment binge-watching (Schweidel & Moe, 2016) by further distinguishing between the types

of content (i.e., independent vs. sequential) that may be impacted in anticipatory planning

decisions. Overall, firms can use our framework to select and/or feature content that connects

with their existing strategy around the timing of consumer interactions, or to develop strategic

plans for promotion that best support the features of their preferred business model.

TRANSPARENCY AND OPENNESS

Data and materials for all studies have been made publicly available at ResearchBox.org

(Lu, Karmarkar, & Venkatraman, 2022; https://researchbox.org/604&PEER_REVIEW_passcode

=WHJCDO). Study stimuli are also included in the Supplement. All data were analyzed using

the programming language R. Analysis code is available by emailing the corresponding author.

The only exception is Study 4B; due to the proprietary nature of the data, it is not publicly

available. All studies were approved by appropriate institutional review boards at the University

of Pennsylvania, Carnegie Mellon University, and the University of California San Diego.

STUDY 1: CONSUMER PERCEPTIONS OF BINGE MOTIVATIONS

Given that people can plan to aggregate their viewing time in advance (as demonstrated

in the pilot), Study 1 offers a first investigation into the factors that impact these preferences. We

asked participants to generate reasons for why they might anticipate binging, as well as specific

shows they might plan to binge ahead of time (see also Panda & Pandey, 2017). This design

further allows us to build upon previous research suggesting the relevance of advance or pre-

defined motivations for binge-watching (Pittman & Sheehan 2015; Merrill & Rubenking, 2019;

Rubenking & Bracken, 2018) and to explore our hypothesis that popular television shows that

were perceived to be more sequential were also perceived as more "bingeable" by viewers.

Design and Method

This study's design, hypothesis, and analysis plan were pre-registered

(https://aspredicted.org/LF4_ZSL). We recruited 200 participants in the United States on

Amazon's Mechanical Turk (MTurk) platform (M_{Age} = 35, 37% female). All participants viewed

the titles of 100 currently available TV shows across a range of genres, determined from TV

Guide's list of top 100 shows in 2019. Importantly, the shows came from a variety of networks

(31 unique providers), ranging from those that offered either traditional scheduled TV release,

online streaming options, or both.

Participants were first asked to select all the shows that they were familiar with, or had

watched before, to create individually targeted stimuli sets. They were then randomly assigned to

one of two categorization tasks: a consumption pattern task or a continuity task. Participants in

the consumption pattern task condition categorized all the shows they had marked as familiar to

them as either "One-by-one" or "Binge-watch." One-by-one was defined as wanting to "watch

just one episode of the show each day or each week," while Binge-watch was defined as wanting

to "watch multiple episodes or even an entire season of the show in a single sitting." Participants

in the continuity task condition categorized all the shows they had marked as familiar by

dragging them into boxes that were labeled "Independent" or "Sequential" using their computer

mouse. Independent shows were defined as "those that may differ in content from episode to episode, or the episodes can be watched in any order because they have self-contained story lines." Sequential shows were defined as "those whose episodes make up an overall story-arc and should be watched in chronological order." One question that arises is whether this language sufficiently captures the future planning mindset. To ensure the robustness of these effects, in Supplemental Study A, we replicated the following findings with a question that explicitly asked how participants would *plan* to watch the episodes in the consumption pattern task.

Additionally, all participants indicated which of the familiar shows they particularly loved or hated by dragging those titles into boxes that were labeled "Love It" or "Hate It." Participants were not required to assign all the shows to a category and could choose to drag over only a subset. Finally, all participants listed up to 5 factors that would make them more likely to binge-watch a TV show. They were also asked to name up to 3 shows for which they would wait for multiple episodes to be released in order to binge the episodes all at once, and up to 3 shows for which they would set aside time to watch all the episodes in a season together. Note that they could list any shows they wanted and were not restricted to the 100 shows presented in the categorization part of the study.

Reasons for Binging

We first investigate participants' self-reported motivations for binging. Participants in our sample generated a total of 509 factors (M = 2.55, SD = 1.45) for why they would be more likely to binge-watch a TV show. A research assistant, naïve to the objectives of the study, categorized the responses as either "in-the-moment/impulsive" reasons or "planned" reasons. A total of 231 responses (45%) were categorized as "in-the-moment" responses (e.g., need to know what

happens next, really into the show, episodes end in a cliffhanger), while 201 (39%) were

categorized as "planned" (e.g., wait for all episodes to be available, plan to watch with a friend,

nothing else to do today) and the remaining 77 (15%) were categorized as ambiguous (e.g.,

entertainment, knowledge). These findings demonstrate that consumers' perceptions of on-

demand media consumption do include planning ahead, and that they can and do allocate time in

the future for such viewing.

Table 2: Examples of participant responses of factors that impact binge-watching in Study 1

Category	Sample Reasons
Lovability (40%)	*"If the story is compelling"* *If I really love the show"* *"It deals with story elements that I truly love, like time and space travel"*
Availability (19%)	*"All episodes available at the time I begin watching"* *"My subscription or trial is ending and I want to the finish the show first"* *"Multiple seasons ready to view on streaming"*
Time (17%)	*"If I have the time to do it, say an entire day empty"* *"If I have a lot of free time"* *"Because I'm bored"*
Mood (7%)	*"If I'm sick and in bed for the day"* *"If the weather is bad"* *"If I am feeling down or depressed, I may binge watch more"*
Social (7%)	*"If I need to catch up because my friends watched already"* *"If I plan to have a binge day with my partner"* *"It is talked about a lot on social media and I don't want anything spoiled"*
Cliffhanger (4%)	*"Cliff hangers at the end of episodes"* *"A new season was released from where a cliffhanger ended last season"* *"It has endings that hook you in"*
Continuity (5%)	*"If it has a complicated story that's easier to follow by binge watching"* *"If the story is coherent and connected in every episode"* *"Events are unfolding in a sequential and interesting manner"*

We conducted a more detailed analysis of the responses by further classifying them into 7

independent categories with the following percentage frequencies (note that 1% of comments did

not fall into a clear category): Lovability (40%), Availability (19%), Time (17%), Mood (7%),

Social (7%), Cliffhanger (4%), and Continuity (5%). Table 2 lists several examples of category

entries. Lovability is the most common category and includes several subcategories such as

positive comments about a show's production quality, the storyline, and the person's level of

engagement. Time and Availability (including multi-episode availability) made up 17% and 19%

of the responses, respectively, reflecting the additional relevance of planning and the opportunity

to complete a set of episodes for binge-watching.

These responses can be added to previous work that identified various motivations for television series consumption and binge-watching that can vary across the population, including social, entertainment/pleasure, relaxation, and immersion-related reasons (e.g., Green, Brock, & Kaufman, 2004; Flayelle, Maurage, & Billieux, 2017; Flayelle et al., 2019; Woolley & Sharif, 2022). This experiment provides additional novel insight by allowing participants to self-generate reasons rather than focusing on relatively negative traits such as low self-regulation and anticipated regret (e.g., Merrill & Rubenking, 2019; Walton-Pattison, Dombrowski, & Presseau), and demonstrates consumers' ability to identify the benefits of multiple-episode viewing in their plans.

Sequential vs. Independent Perceptions

In the above analysis, continuity appeared as a key factor for binging in 5% of responses. Therefore, we sought to further evaluate the relationship between binging and continuity across the 100 shows presented to participants in the main categorization task. On average, participants indicated familiarity with 14.73 (SD = 35.44) of the 100 presented shows. As pre-registered, for the continuity condition, we calculated a "Sequential Index" for each show by determining the percentage of participants who had classified the show as sequential (rather than independent). For any particular show, this percentage was based on a subsample of the total participants in the condition, since each participant only categorized shows that they were familiar with. For the consumption pattern condition, we calculated a "Bingeable Index" for each show in a similar manner. Thus, both the Sequential and Bingeable Indices for each show could range continuously from 0 to 1 (i.e., 0% to 100% of participants who were familiar with the show, respectively). Comparing these two indices provided an initial test of whether consumers could

identify their likelihood to binge-watch sequential shows compared to independent ones

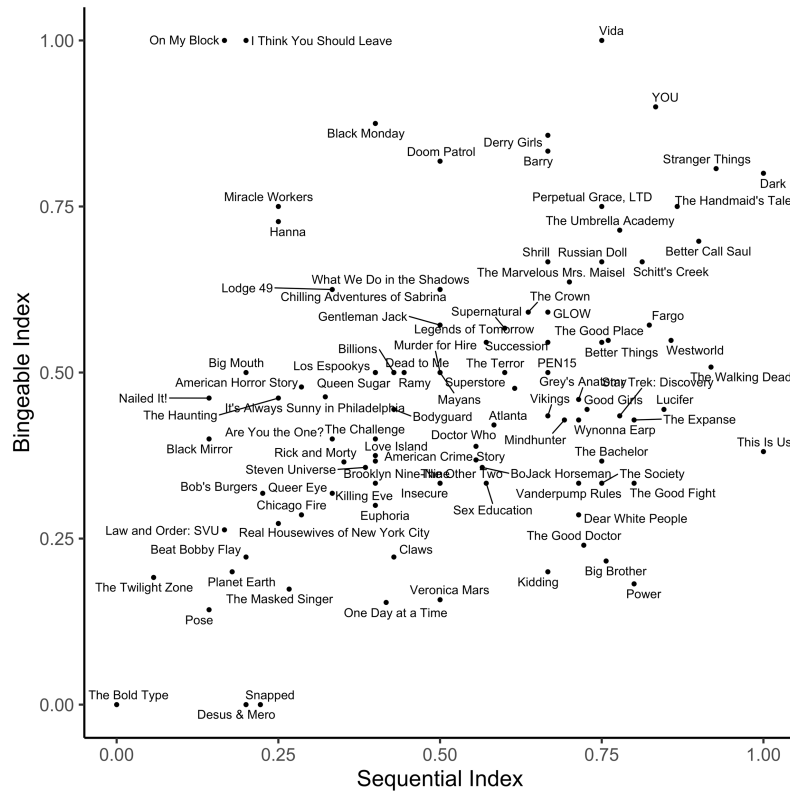separately from the moment of consumption.

Figure 2: Correlation between Sequential and Bingeable Indices of shows in Study 1

As illustrated in Figure 2, we found a significant positive correlation between the

Sequential Index and the Bingeable Index (r = .33, t(98) = 5.86, p < .001). The shows that we

selected were relatively new at the time – on average 15% of participants rated each show as

familiar (ranging from 2%-49%). However, we found the correlation to hold even if we restricted

our analysis to the more popular shows based on a median split (r = 0.62, t(46) = 5.35, p < .001).

Among this subsample, the average familiarity percentage was 23% of participants (ranging

from 11-49%). (See Supplemental Study B for an independent replication of this finding with an

alternative set of TV shows where 43% of participants were familiar with each show on average,

ranging from 9-77%.)

It is possible that this relationship instead reflected individual enjoyment or popularity of the shows within this particular sample. To control for this, we ran a linear regression with the Bingeable Index as the dependent variable and each show's Sequential Index, "lovability," and "popularity" as the independent variables (model adjusted-R^2 = .19, $F(3,96)$ = 8.74, $p < .001$, Cohen's f^2 = .23). Lovability was defined as the percentage of participants who categorized the show as one that they loved, while popularity was defined as the percentage of participants who marked the show as familiar. We still found a significant positive effect of the Sequential Index (β = .26, t = 3.08, p = .003), providing stronger support that consumers anticipate content perceived as more sequential to be more bingeable. We also found a significant positive effect of lovability (β = .46, t = 3.15, p = .002), consistent with many of participants' self-stated reasons for binging being related to loving the show. Finally, we found a negative effect of popularity (β = -.37, t = 2.09, p = .039), which may reflect more niche shows being considered particularly worthy of setting aside additional viewing time by the few people who watch them.[3]

Figure 2 illustrates that several shows such as *Stranger Things* and *YOU* with high Bingeable Indices were released on Netflix with entire seasons made available at once. However, there are also shows with high Bingeable Indices such as *The Handmaid's Tale* and *Westworld* whose episodes were originally released weekly on a "traditional" television schedule. The common factor across these bingeable shows is how sequential the episodes are perceived to be, rather than the way they were originally released and/or designed for consumption by the network.

Finally, participants also listed 284 total shows that they would set aside time to watch (M = 1.42, SD = 1.21), with this total including repeat titles listed by multiple participants. Out

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[3]We thank an anonymous reviewer for this insight.

of the 284 total shows listed, 146 of the responses were novel titles that did not overlap with the 100 shows used as stimuli in the categorization task. Participants also listed 309 total shows (M = 1.55, SD = 1.25), including repeats, for which they would wait for multiple episodes to be released in order to binge-watch, with 171 new titles. These responses provide further evidence that viewers can independently consider plans for future binging in ways that are not limited to, or restricted by, the information provided by the survey itself.

Discussion

Consistent with the pilot study, Study 1 demonstrated that people can make plans to aggregate media viewing, effectively anticipating binge-watching. Indeed, when asked to introspect on their motivations for binge-watching, the percentage of reasons related to planning ahead to binge was comparable to the percentage of in-the-moment reasons (39% and 45% respectively). Taken together, these data emphasize that people recognize benefits in the ability to choose multi-episode viewing sessions and allocate that time in advance. In contrast to binging occurring as a failure of self-control, the motivations underlying anticipated binging reinforce the usefulness of understanding the phenomenon of planning to binge.

The study's results additionally illustrate the emergence of a positive association between the anticipated potential or intention to binge and sequential content. This moderating factor presents firms with potentially useful strategic information about projected viewing patterns of various media offerings. Thus, to more firmly establish causality between the structure of the content and planning-to-binge, the following experiments manipulate the perceived independent or sequential nature of a particular piece of programming.

STUDY 2: SEQUENTIAL VS. INDEPENDENT FRAMING EFFECTS ON
CLUMPINESS OF PLANNED CALENDARS

In Study 2, we directly tested whether participants' planning-to-binge preferences depend on the structure of the offered media, controlling for content and prior exposure. To do so, we framed a novel piece of media (i.e., a science fiction television show) as having either sequential episodes or as having independent episodes.

Design and Method

We recruited 192 students and community affiliates at a large U.S. university ($M_{Age} = 23$, 65% female). The experiment used a within-subjects design, which allowed us to control for any possible individual differences in binging preferences (Schweidel & Moe, 2016; Shim & Kim, 2018). All participants were presented with descriptions of both independent and sequential versions of a 6-episode science fiction show with 20-minute episodes, with the order of presentation counterbalanced.

For the independent show, participants were told: "Each episode is a self-contained story about what future space explorers might encounter on other planets in the universe. Each episode features a different cast of characters and a different story." For the sequential show, participants were told: "Each episode takes you through the story arc of a team of future space explorers as they journey to another planet in the universe that may hold extraterrestrial life. Each episode takes you through the development of the characters in the mission and another step through their journey to make contact." For each version of the show, similar to the pilot study, participants designed calendars that reflected how they would want to schedule viewing time in the future for the six episodes by placing episode labels onto a blank 6-day calendar.

Results and Discussion

Across conditions, participants created calendars that showed significant clumpiness, conceptually replicating our pilot study. For the independent show, 67% of participants created a clumpier calendar compared to the benchmark (Chi-squared(1) = 20.67, p < .001, Cohen's h = .34). Similarly, for the sequential show, we found that 85% of participants created a calendar that was more clumpy than the random null calendar benchmark (significantly greater than 50%; Chi-squared(1) = 94.92, p < .001, Cohen's h = .79). Thus, participants' preferred plans for media consumption included some form of aggregation or binge-type behavior.

We also examined whether planning-to-binge preferences depended on the structure of the content. We conducted a 2 (within-subject episode continuity: independent vs. sequential) × 2 (order of presentation: independent first vs. sequential first) repeated measures ANOVA on the clumpiness of participants' calendars. We found a main effect of episode continuity (F(1,190) = 80.03, p < .001, η^2 = .30) such that participants created more clumpy calendars when the show was described as sequential ($M_{Independent}$ = .38, SD = .21; $M_{Sequential}$ = .50, SD = .18; paired-t(191) = 8.90, p < .001, Cohen's d = .64).
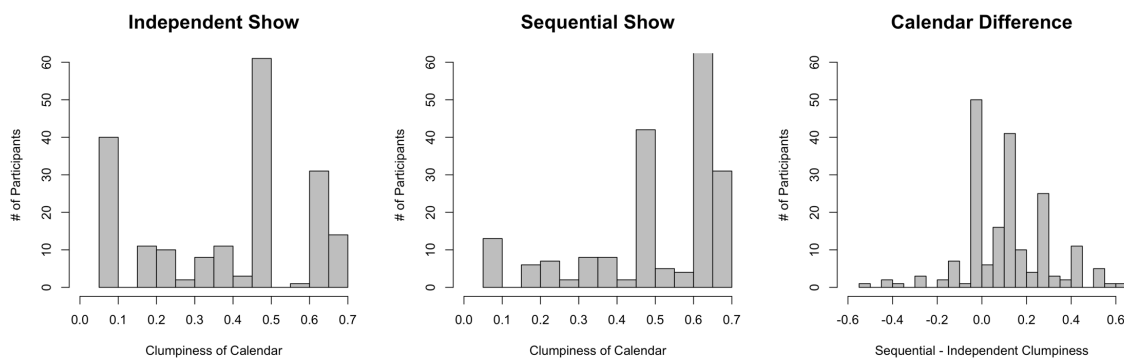

Figure 3: Distribution of clumpiness of calendars created by participants in Study 2

Figure 3, which plots the distributions, illustrates that the calendar clumpiness can vary on a continuum, with most of the independent vs. sequential differences being driven by a shift

away from the least clumpy calendars for the sequential show. Additionally, we found that 65%

of participants created a clumpier calendar for the sequential show, while only 11% created a

clumpier calendar for the independent show (the remaining 24% created equivalent calendars).

There was a significant effect of the presentation order ($F(1,190) = 36.08$, $p < 0.001$, $\eta^2 =$

.16), but no significant interaction ($F(1,190) = 2.96$, $p = 0.09$, $\eta^2 = .02$). Examining the data

suggests that participants create an "average" calendar for the first condition they encounter, and

then adjust the clumpiness of their calendars up or down depending on the order. Specifically,

participants who first saw the independent show adjusted the clumpiness of their calendar

designs *up* for the subsequent sequential show, while those who first saw the sequential calendar

adjusted clumpiness *down* for the independent show (see Supplement for details).

In summary, in Study 2, consumers were more likely to make plans aligned with binging

a television series when the episodes were described as sequential (vs. independent), holding all

other characteristics the same. Furthermore, the flexibility of our definition allows us to consider

relative shifts in the allocation of future time, rather than restricting future binging to an all-or-

nothing definition. Since the present study employed a within-subjects design, we additionally

examined these effects using a between-subjects choice-based design and replicated these results

(Supplemental Study C). The experimental designs of Studies 1 and 2 used media that is

primarily entertainment and also may have allowed participants to make the implicit assumption

that they should plan their time around maximizing enjoyment. However, we propose that our

findings are not tied to this goal. Thus, we next sought to evaluate whether the effect of content

structure on the likelihood of binging is driven by hedonic or utilitarian motivations related to the

usage of time.

STUDY 3A: BEST USE OF TIME VS. ENJOYMENT IN THE MOMENT

In Study 3A we tested whether our results are consistent regardless of whether participants are explicitly asked to focus on making the best use of their future time (i.e., a relatively utilitarian motive) or anticipated enjoyment in-the-moment (i.e., hedonic motive). In addition, while the calendar design in Study 2 allowed participants to plan their time concretely and provided a continuous measure of planned aggregated viewing (i.e., clumpiness), here we demonstrated that the sequential vs. independent effect holds when participants are simply asked to indicate on an 11-point Likert scale whether they would want to aggregate vs. spread out consumption.

Design and Method

This study's design, hypothesis, and analysis plan were pre-registered (https://aspredicted.org/K1H_Q5Y). We recruited 804 adults through MTurk (M_{Age} = 40, 45% female). Participants were told to imagine that they were planning on watching a 10-episode science fiction show available for streaming on Netflix and randomly assigned to a condition in a 2 (episode continuity: independent vs. sequential) × 2 (planning focus: time-use vs. enjoyment) between-subjects design. To describe the episode continuity of the shows, participants were presented with the same descriptions as in Study 2. Specifically, in the independent condition, it was described that each episode of the show had a "self-contained story" and "featured a different cast of characters." In the sequential condition, it was described that each episode "takes you through the story arc" of the same set of characters. In the time-use condition, participants were instructed to indicate how they would "plan ahead to watch the episodes to make the best use of [their] time," while in the enjoyment condition they were told to indicate

how they would "watch the episodes to maximize their enjoyment in the moment." Participants

were then asked to rate how they would want to allocate their time to watch the episodes on an

11-point scale (e.g., 0 = watch all episodes separately, 5 = watch a few episodes together, 10 =

watch all episodes at once). This served as our measure of participants' planning-to-binge

preferences for the given show.

All participants then rated how enjoyable and useful they thought that watching the show

would be on 7-point Likert scales, as well as their perceptions of the utilitarian vs. hedonic nature

of the media on a 9-point scale from "practical" to "frivolous" (Karmarkar, Shiv, & Knutson,

2015). Participants also reported the optimal time (in minutes) that they would want to spend in a

single viewing session. Finally, they answered a few questions on demographics (e.g., age,

gender), as well as four 7-point Likert scale questions about how busy they were on a daily basis.

Since binging (in-the-moment) has often been characterized as an individual difference

trait (Schweidel & Moe, 2016; Shim & Kim, 2018), we separately measured the *average*

tendency to binge-watch by asked participants to rate how they would typically watch a show on

an 11-point scale (described above). As pre-registered, we controlled for this individual-level

tendency to binge by subtracting the average binging rating from the planned binging rating for

the science fiction show to create a "normalized" binge-plan rating measure. This is conceptually

similar to how Nelson, Meyvis, and Galak (2009) control for scaling effects by having

participants rate their enjoyment of a focal TV show relative to an alternative program.

Results and Discussion

A 2-way ANOVA on the normalized binge-plan rating revealed a main effect of episode

continuity ($F(1, 800) = 12.48$, $p < .001$, $\eta^2 = .02$), but no main effect of planning focus ($F(1, 800)$

= .06, p = .810, η^2 = .00), and no interaction (F(1, 800) = .11, p = .743, η^2 = .00).[4] As shown in

Figure 4, which plots the normalized binge ratings across study conditions, individuals prefer

planning-to-binge sequential over independent content both when explicitly told to consider the

utility of their time ($M_{Independent}$ = -.35, SD = 1.76; $M_{Sequential}$ = .01, SD = 1.32; t(399) = 2.32, p =

.021, Cohen's d = 0.23) or their enjoyment in-the-moment ($M_{Independent}$ = -.41, SD = 1.87;

$M_{Sequential}$ = .02, SD = 1.34; t(401) = 2.67, p =.008, Cohen's d = 0.27).
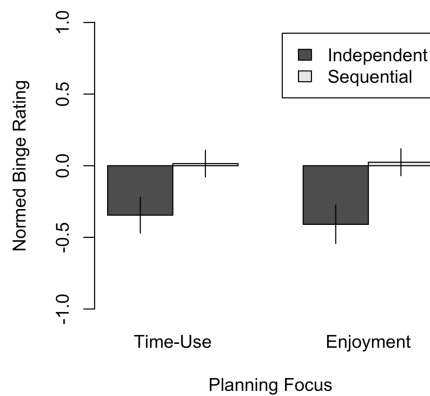

Figure 4: Comparison of normalized binge ratings across conditions in Study 3A

We also examined whether the independent and sequential versions of the shows differed

on any of the other measures. There was no significant difference in terms of expected

enjoyment ($M_{Independent}$ = 5.39, SD = 1.44; $M_{Sequential}$ = 5.54, SD = 1.29; t(802) = 1.63, p = .103,

Cohen's d = 0.12), usefulness ($M_{Independent}$ = 4.59, SD = 1.78; $M_{Sequential}$ = 4.60, SD = 1.64; t(802)

= .11, p = .914, Cohen's d = 0.01), or practicality/frivolousness ($M_{Independent}$ = 6.53, SD = 2.11;

$M_{Sequential}$ = 6.67, SD = 1.92; t(802) = .93, p = .353, Cohen's d = 0.07). Consistent with our main

planning-to-binge effect, participants in the sequential condition reported longer optimal session

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[4]The main effect of episode continuity also holds if we instead use the "raw" planning-to-binge rating as the
dependent variable (F(1, 799) = 25.39, p < .001, η^2 = .03) and the average tendency to binge-watch rating as a
covariate.

viewing times in minutes ($M_{Independent}$ = 78.53, SD = 80.54; $M_{Sequential}$ = 94.45, SD = 88.15; t(802) = 2.67, p = .008, Cohen's d = 0.19). An ANCOVA on the normalized binge rating, with the covariates consisting of the enjoyment, usefulness, and practical/frivolous ratings, as well as a composite measure of reported daily busyness, still revealed a robust main effect of episode continuity (F(1, 800) = 12.58, p < .001, η^2 = .02), no main effect of planning focus (F(1, 800) = .06, p = .810, η^2 = .00), and no interaction (F(1, 800) = .11, p = .671, η^2 = .00).

STUDY 3B: HEDONIC VS. UTILITARIAN CONSUMPTION MOTIVATIONS

In Study 3A, we demonstrated that the effect of content on plans to binge is not affected by focusing on relatively hedonic vs. utilitarian uses of time. In Study 3B, we further tested the robustness of the effects of sequential/independent framing to more explicit hedonic vs. utilitarian anticipated content consumption purposes, namely leisure vs. education.

Design and Method

We recruited 682 adults through MTurk (M_{Age} = 34, 46% female). Participants were randomly assigned to one of four conditions in a 2 (episode continuity: independent vs. sequential) × 2 (perceived purpose of content: hedonic vs. utilitarian) between-subjects design. All participants were told to imagine that they were planning on watching a fictional BBC murder mystery series set in Victorian England that consisted of 12 episodes that were each 30 minutes long. In the independent condition, participants were told that "Each episode can be watched on its own and features a self-contained murder mystery that is solved by the end of the episode." In the sequential condition, they were told that "Each episode contributes to an over-arching murder mystery that is solved by the end of the series. The videos should be watched in

chronological order." Participants in the hedonic condition were further told to imagine that they

were watching the show in their future leisure time, while participants in the utilitarian condition

were told to imagine that they were watching the show as part of an upcoming assignment for a

European history class.

      After reading the description of the content, participants first indicated how they would

want to allocate future viewing time across separate sessions to watch the 12 episodes of the

show. They could choose from the following options: 12 sessions (30 minutes each), 6 sessions

(1 hour each), 4 sessions (1.5 hours each), 3 sessions (2 hours each), 2 sessions (3 hours each), or

1 session (6 hours total). The degree of planning-to-binge was characterized by the number of

anticipated sessions; fewer sessions corresponded to more binging. All participants then rated the

show on expected enjoyment and usefulness (7-point Likert scales) and practicality/frivolousness

(9-point scale). Participants also rated the show on familiarity, answered some demographic

questions, rated how often they binge-watched TV shows, and reported their daily busyness.

Results and Discussion

      As a manipulation check, we first determined that participants in the hedonic motivation

condition rated the show as more frivolous (on the 9-point practical/frivolous scale) compared to

participants in the utilitarian motivation condition ($M_{Hedonic} = 6.52$, $SD = 1.89$; $M_{Utilitarian} = 4.81$,

$SD = 1.92$, $t(680) = 11.82$, $p < .001$, Cohen's $d = .91$). A 2-way ANOVA on the prospective

number of preferred viewing sessions revealed a significant main effect of episode continuity

($F(1, 678) = 6.06$, $p = .014$, $\eta^2 = .01$), but no main effect of perceived purpose (i.e., hedonic vs.

utilitarian; $F(1, 678) = 1.34$, $p = .247$, $\eta^2 = .00$) and no significant interaction ($F(1, 678) = .46$, p

$= .496$, $\eta^2 = .00$). Figure 5 plots the average number of preferred sessions across all conditions,

with fewer sessions corresponding to more planned binging. Participants exhibited greater

planning-to-binge preferences for the sequential content by choosing fewer prospective sessions

regardless of whether the motivation was framed as hedonic ($M_{Independent}$ = 6.22, SD = 3.37;

$M_{Sequential}$ = 5.75, SD = 3.35, t(345) = 1.30, p = 0.196, Cohen's d = 0.14) or utilitarian ($M_{Independent}$

= 6.10, SD = 3.57; $M_{Sequential}$ = 5.28, SD = 3.32; t(333) = 2.18, p = .030, Cohen's d = 0.24).
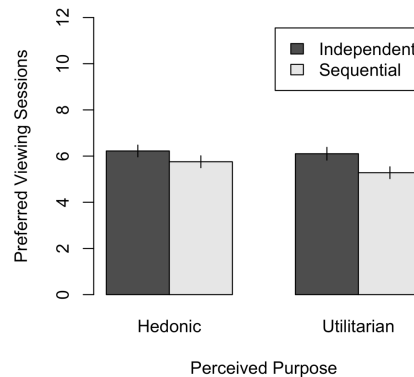

Figure 5: Comparison of number of preferred viewing sessions across conditions in Study 3B

Our findings were robust to treating the dependent variable as discrete using an ordered

logistic regression on participants' session choices (i.e., the 12-session choice was numbered "1,"

the 6-session choice was numbered "2," etc., so higher numbers corresponded to more planning-

to-binge). There was a significant positive effect of sequential episode continuity (β = .48, t =

2.39, p = .017), no significant effect of hedonic purpose (β = -.12, t = .59, p = .554), and no

significant interaction (β = -.21, t = .74, p = .457). In summary, participants in the sequential

condition were more likely to select a choice that allowed them to watch more episodes together

(in fewer sessions).

Together, these findings suggest that greater planning-to-binge preferences for sequential

(vs. independent) media hold across anticipated hedonic and utilitarian time use and

consumption motivations. In a follow-up study with a design similar to Study 3A, we

additionally found this effect to be robust to whether participants were asked to consider

watching a new show or re-watching a familiar show (Supplemental Study D). We next sought to

confirm that these effects apply to the overarching category of streaming and/or on-demand

media by directly addressing planning for aggregated consumption of educational media,

drawing from work on binge-learning (Davis et al. 2016; Dourado 2013; LaTour and Noel 2021).

STUDY 4A: PLANNING-TO-BINGE ONLINE EDUCATIONAL CONTENT

The online educational platform Coursera offers a number of different full-length classes

across a range of subjects. For example, their business curriculum includes classes on topics like

Marketing and Accounting, and due to the nature of business education, the same students

commonly enroll in both types of classes. The designs of existing introductory Marketing and

Accounting classes on Coursera align with our independent vs. sequential distinction, with the

Marketing course featuring lectures on relatively independent topics and the Accounting course

featuring lecture videos that build off of one another. Thus, in Study 4A, we examined whether

consumers also plan-to-binge educational course content based on the design of the actual

classes that Coursera offers.

Design and Method

We recruited 102 adults through MTurk (M_{Age} = 35, 39% female). Using a within-

subjects design, all participants were presented with descriptions of two online business courses,

Marketing and Accounting, with the order counterbalanced. Participants learned that each course

consisted of 6 lecture videos (20-minute length). In line with the real courses offered by Coursera

(see also Study 4B), the Marketing course was framed as more independent while the

Accounting course was framed as more sequential. Specifically, the Marketing lectures were described as "developed independently of one another, so they each cover a different topic in a different way," with different professors for each lecture and watchable in any order. In contrast, the Accounting lectures were described as "developed sequentially, so they each build off of one another," with each lecture taught by the same professor and recommended to be watched in the given order. To measure their planning-to-binge preferences, participants were asked to indicate how they would want to watch the lecture videos on a 10-point scale ranging from watching all the lectures separately (i.e., on different days), to watching all the lectures at once (i.e., in a single 2-hour session).

Results and Discussion

We conducted a 2 (within-subject lecture continuity: independent Marketing course vs. sequential Accounting course) × 2 (order of presentation: Marketing first vs. Accounting first) repeated measures ANOVA on planning-to-binge preferences. Under these conditions, we found a significant main effect of lecture continuity ($F(1,100) = 13.18$, $p < .001$, $\eta^2 = .12$). Participants once again rated higher planning-to-binge preferences for the sequential (Accounting) course compared to the independent (Marketing) course ($M_{Marketing} = 5.22$, $SD = 3.45$; $M_{Accounting} = 6.26$, $SD = 3.22$; paired-$t(101) = 3.64$, $p < .001$, Cohen's $d = .36$). While there was a main effect of order ($F(1,100) = 4.45$, $p = .037$, $\eta^2 = .04$), there was no significant interaction between order and lecture continuity ($F(1,100) = .10$, $p = .758$, $\eta^2 = .00$). Similar to Study 2, participants who first saw the Marketing course adjusted their planning-to-binge preferences up when rating the subsequent Accounting course, while those who first saw the Accounting course adjusted their planning-to-binge preferences down for the Marketing course.

While the independent Marketing and sequential Accounting courses described to participants in this study accurately represented the true nature of the existing classes on the Coursera platform, it might raise a question of whether our results were influenced by the specific course topics. To address this, we replicated the continuity effects of Study 4A in Supplemental Study E using stimuli that "reversed" the course framing such that Accounting was described as independent and Marketing was described as sequential. Collectively, these experiments demonstrate that plans for consuming educational media are affected by the same independent/sequential framing as hedonic media, and that this impact is not dependent on the specific subject matter.

STUDY 4B: BINGE-WATCHING ONLINE EDUCATIONAL CONTENT (FIELD DATA)

Up to this point, we demonstrated effects strictly constrained to planning decisions about future consumption. Study 4A demonstrated plans for aggregated viewing of academic content based on course descriptions from the Coursera platform and replicated the moderating effects of more independent vs. more sequential content structure. To take advantage of this connection, in Study 4B we used field data to test whether these types of plans were predictive of actual consumption patterns on Coursera. Specifically, we compared binge consumption patterns within-subjects among a set of learners who took both the more independently structured class (Marketing) and the more sequentially structured class (Accounting).

Data Sample

We obtained clickstream data from students enrolled in two courses offered through Coursera: Introduction to Marketing ("Marketing") and Introduction to Financial Accounting ("Accounting") during Fall 2013. Note that Lu, Bradlow, and Hutchinson (2022) used a similar

dataset to examine patterns of goal progress, while our work is focused on comparing within-person binging of two specific courses that differed by lecture continuity. The Marketing course was taught over 6 weeks by three separate professors and consisted of 83 lectures ranging from 5-30 minutes in length. Each week was referred to as a "module" with the lectures offered in one week being represented independently of the material from other weeks. In contrast, the Accounting course was taught over 6 weeks by a single professor and consisted of 69 lectures. Each week, the material built on the lectures from the previous week and contributed to an overarching case study (see Supplement for examples of lecture titles). Based on the structural differences in the course designs, we categorized Marketing as an independent set of episodes (i.e., lectures) and Accounting as a more sequential set of episodes, mirroring the stimuli in Study 4A. We hypothesized that the patterns observed for planning-to-binge would align with patterns observed in actual consumption, and thus students would be more likely to binge-watch the more sequential Accounting lectures compared to the more independent Marketing lectures.

We analyzed a sample of 553 learners who had completed *both* Marketing and Accounting within the time period covered by the data, paid for both of the courses, and watched at least two lectures of each course (note that we include this condition because it is technically possible, albeit rare, for a student to complete a course without watching any lectures and only taking the quiz assessments). This allowed us to control for heterogeneity more generally, and for binge-learning preferences as an individual difference.

Analysis and Results

In this empirical analysis, we used two methods to quantify binging preferences within each course. Note that since students in the sample had taken both courses, we were able to

conduct a within-subjects analysis, thus controlling for individual differences. First, we

examined how rapidly each student tended to watch the next video lecture in the series. This is

similar to the characterization of binge-watching in Schweidel and Moe (2016), which

considered a viewer's tendency to continue to the next episode of the same show on Hulu rather

than taking a break or switching shows. Specifically, we examined the time in between lecture

video "submissions," recorded when a student reached 80% of a lecture video, as an indicator of

inter-episode time. In this case, more binging corresponded to *less* time in between lecture video

submissions. On average, the time between lecture video submissions was significantly longer

(i.e., consumption was more spread out) in the independent Marketing course compared to the

sequential Accounting course ($M_{Marketing}$ = 23.49 hours, SD = 31.76; $M_{Accounting}$ = 19.60, SD =

20.53, paired-t(552) = 2.68, p = .008, Cohen's *d* = .10).

Second, we measured the length of time between "sessions" of lecture video consumption

(i.e., continuous consumption within a single sitting), with more binging corresponding to less

time between sessions. This second method was more robust to variations in the length of the

lecture videos. To define a session, we grouped together consecutive lecture submissions that

were within 2 hours of each other as the cutoff time. This analysis was robust to different cutoff

times ranging from 15 minutes to 3 hours (see Supplement for details). The average inter-session

time was 187.11 hours (SD = 213.76) in the Marketing course and 126.36 hours (SD = 247.44)

in the Accounting course, with the difference being significant (paired-t(552) = 7.80, p < .001,

Cohen's *d* = .19).

Both analyses suggest that when taking an independent class, students were more likely

to spread consumption out (either in terms of single videos or continuous viewing sessions),

compared to when taking a sequential class, reflecting the planning pattern observed for similarly described classes in Study 4A.

Together, Studies 4A&B demonstrate that consumers can plan to binge utilitarian educational content in advance of actual consumption, with the effects of sequential vs. independent content structure occurring as they do for entertainment media. We additionally find that these plans are consistent with patterns of actual consumption (e.g., binge-learning). Finally, it is also possible to frame the same content as more sequential or more independent, significantly impacting planning-to-binge preferences. This suggests that media firms have the opportunity to market their content portfolios strategically to achieve a range of viewer engagement patterns. The final three studies further explore the implications of our findings for firm decisions.

STUDY 5A: WILLINGNESS-TO-PAY TO PLAN BINGING

Our framework suggests that consumers should place additional value on the *ability* to plan ahead to binge media, and that this will be enhanced for episodes they perceive to be more sequential. Study 5A examined this directly, measuring whether consumers are willing to pay more to be given the ability to plan-to-binge a new TV show, and the degree to which this depends on whether the episodes were described as more or less continuous. The study's second objective was to determine if this additional value for episode continuity in planning depended on the length of the planning horizon. If the impact of episode continuity in the future is still influenced by some facet of consumers' impulsivity or desire for sequential content sooner versus later, then the effects should attenuate if the show airs farther in the future.

Design and Method

We recruited 218 adults at a large university (due to a technical error in data collection we cannot report demographics, but the subject pool was similar to the one used in Study 2). Participants were randomly assigned across a 2 (episode continuity: independent vs. sequential, within-subject) × 2 (air time: 2 weeks vs. 6 months from now, between-subject) mixed effects design, with the order of independent/sequential show presentation counterbalanced.

Participants were told to imagine that they were planning on watching a fictional alternate history show consisting of 10 episodes (45-minute length) that would be available for streaming on Amazon Video for $20 in either 2 weeks or 6 months, with episodes individually released each week. They then read a description that framed the episodes as more independent (i.e., "Each episode features a different cast of characters and a different story. For example, one episode focuses on World War II, another episode focuses on the fall of the Roman Empire…") or more sequential (i.e., "Each episode takes you through the story arc of a group of American rebels…the development of the characters… and another step through their journey…"). Participants were then asked how much *more* (above the base price of $20) they would be willing to pay for all the episodes to be made available on the first air date, instead of having to wait for the episodes to be released weekly. Making all episodes of a season available simultaneously enables future binge-watching and is the current market practice across many different platforms. We predicted that participants would be willing to pay a higher premium for the opportunity or ability to binge-watch sequential content over independent content, regardless of the timing of the show's release. Finally, all participants rated how enjoyable they thought that watching the show would be on a 7-point Likert scale, and whether they had ever watched a similar show in the past.

Results and Discussion

We conducted a 2 (episode continuity: independent vs. sequential, within-subjects) × 2 (air time: 2 weeks vs. 6 months from now, between-subjects) repeated measures ANOVA on the WTP for the opportunity to access the media all together in the future (see Supplement for the order counterbalancing control 3-way ANOVA). We found a significant main effect of episode continuity ($F(1, 216) = 25.71$, $p < .001$, $\eta^2 = .11$), but no main effect of air time ($F(1, 216) = .003$, $p = .957$, $\eta^2 = .00$) and no significant interaction ($F(1, 216) = .54$, $p = .462$, $\eta^2 = .00$). As shown in Figure 6, there was a positive WTP for all of the conditions. In addition, participants indicated a higher WTP for the sequential content in both the 2-weeks ($M_{Independent} = \$4.49$, $SD = 7.01$; $M_{Sequential} = \$6.45$, $SD = 7.66$; paired-$t(109) = 3.60$, $p < .001$, Cohen's $d = 0.34$) and 6-months air time condition ($M_{Independent} = \$4.22$, $SD = 7.58$; $M_{Sequential} = \$6.85$, $SD = 11.59$; paired-$t(107) = 3.63$, $p < .001$, Cohen's $d = 0.35$).[5]

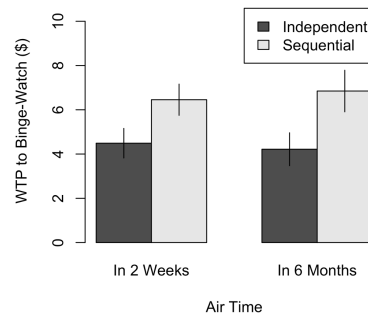
Figure 6: Effect of episode continuity on WTP to plan binging in Study 5A

These results demonstrated that consumers place a meaningful monetary value on the ability to plan to binge-watch, supporting benefits of releasing multi-episode media all at once

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[5]These results were robust to log transforming the WTP amounts, removing participants who stated $0 WTP for either show, and 95% winsorization for outliers via replacement of outlier WTP values by a $23 cutoff (Kahneman & Ritov 1994; Jung, Perfecto, & Nelson, 2016); see Supplement for details.

for firms. However, companies may also wish to use slower or more spread-out releases to encourage consumers to maintain subscriptions, match production schedules, or allow sufficient promotional lead time to generate buzz about the content. In terms of creating variation in scheduled releases, consistent with our hypothesis, we found that willingness-to-pay for content released as a whole was higher for sequential (vs. independent) media, indicating that sequential media should take a higher priority for bundled release. Notably, the effect was not influenced by whether the expected air date was in two weeks or six months. This temporal invariance suggests that it is unlikely to be driven by viewer desire to simply watch the content sooner in general. The absence of a significant difference across air dates also suggests that delayed (slower) release times do not impair plans to binge, and we explore questions of timing further in the next experiment.

STUDY 5B: WILLINGNESS-TO-DELAY TO PLAN BINGING

Study 5B complements Study 5A by looking at willingness-to-delay to gain the ability to have access to sequential episodes together as a set. In Study 5A, we found that when planning future consumption, participants would pay more money for content release schedules that would allow them to binge, and specifically more for sequential content regardless of whether a show were to air sooner or later in the future. Here, we examined whether consumers would pay more time (i.e., wait longer or delay consumption) to be able to plan future aggregation of sequential content compared to independent content.

Design and Method

We recruited 200 adults through MTurk (M_{Age} = 35, 45% female). We used a within-subjects design in which all participants were presented with descriptions of the independent (i.e., "self-contained" episodes with different characters) and sequential (i.e., "story arc" episodes following the same characters) versions of a 6-episode science fiction show streaming on Hulu (similar to the show used in Studies 2 and 3A), with the order of presentation counterbalanced. We told participants that starting today, Hulu would release one episode online each day for the next 6 days. Thus, a viewer would have to wait until Day 2 to watch both Episodes 1 and 2 on the same day and would have to wait until Day 6 to watch all 6 episodes in one day. For each version of the show, participants were asked to choose among 4 calendars that varied by clumpiness to indicate their viewing plans (see Figure 7).
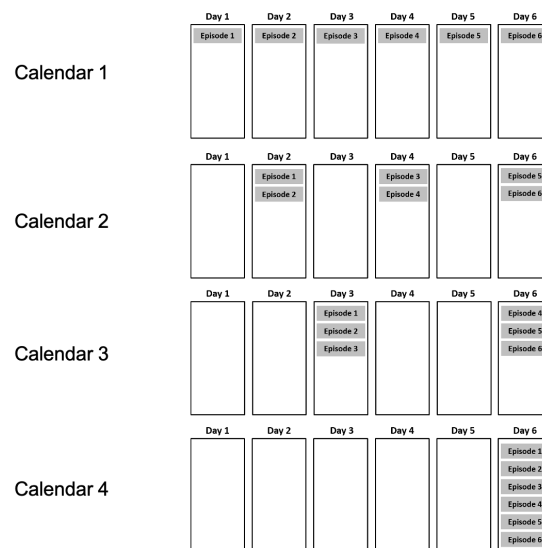

Figure 7: Calendar choices shown to participants in Study 5B

The calendar options accounted for the wait time between episode releases; thus, participants would have to wait *longer* to start watching the show if they chose a clumpier calendar. For example, selecting Calendar 1 (the least clumpy calendar) would involve starting to watch the show on Day 1, while selecting Calendar 4 (the clumpiest calendar) would involve

delaying consumption until Day 6. This means that choosing clumpier calendars (i.e., more planning-to-binge) is directly connected to willingness-to-delay consumption.

Results and Discussion

We conducted a 2 (within-subject episode continuity: independent vs. sequential) × 2 (order of presentation: independent first vs. sequential first) repeated measures ANOVA on the clumpiness of the calendars that participants chose. The clumpiness values for Calendars 1 to 4 in Figure 5 were .07, .36, .53, and .69. We found a main effect of episode continuity ($F(1,198) = 18.40$, $p < .001$, $\eta^2 = .09$) such that participants chose more clumpy calendars when the show was described as sequential ($M_{Independent} = .39$, $SD = .25$; $M_{Sequential} = .45$, $SD = .25$; paired-$t(199) = 4.29$, $p < .001$, Cohen's $d = 0.30$). Specifically, 29% (10%) of participants chose a clumpier calendar for the sequential (independent) show. There was no significant effect of the order in which the options were presented ($F(1,198) = .72$, $p = .397$, $\eta^2 = .00$) and no significant interaction ($F(1,198) = .56$, $p = .457$, $\eta^2 = .00$).

We also ensured that our main effect was robust to considering the calendar selection as a discrete choice using a mixed effects ordered logistic regression, with the calendar choices numbered 1 to 4 from least to most clumpy (as in Figure 7). We treated the participant as a random effect, and episode continuity and the order of presentation as fixed effects. Consistent with the ANOVA results, we found a positive effect of sequential episode continuity ($\beta = 1.06$, $z = 3.40$, $p < .001$), no significant effect of sequential first order ($\beta = -0.15$, $z = -0.28$, $p = .779$), and no significant interaction ($\beta = -.25$, $z = .45$, $p = .578$). Thus, participants exhibited stronger planning-to-binge preferences for sequential content, even when planning-to-binge meant *delaying* when they could start watching the show. As shown in Figure 8, which plots the

distribution of participants' calendar choices, we see that the difference between the sequential

and independent conditions was driven by the differences in preferences for the least and most
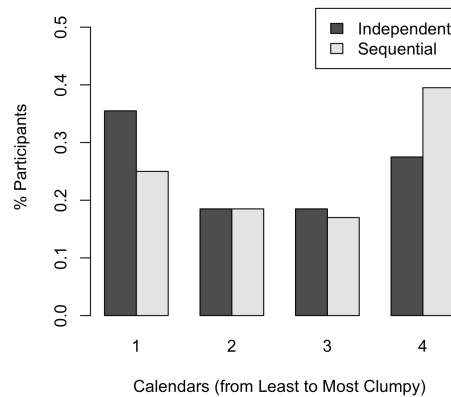
clumpy calendars.

Figure 8: Distribution of participants' calendar choices in Study 5B

Across Studies 5A & 5B, we demonstrated that consumers were willing to allocate more

resources in advance for the opportunity to select their own viewing schedule, and that this is

enhanced for sequential (vs. independent) content, suggesting that they placed a higher value on

accessing the complete media set more when it was sequential. These findings further

demonstrated that these effects are not influenced by consumers generally wanting to watch

sequential content sooner. Indeed, while Study 5A suggested that the value of the ability to plan

binging is not harmed by longer release times, Study 5B went further in showing that consumers

were actually more willing to delay consumption (i.e., pay time) if it allowed them to make plans

for multi-episode viewing sessions of sequential content. At a minimum, participants were

willing to create conditions that enhanced the likelihood of being able to create their own

viewing schedules. This can inform a number of strategic decisions for firms by indicating that

consumers may not only be willing to pay more, but also be more patient for access to complete

series. It further demonstrates that the value of this discretion over self-scheduling is higher for media that is perceived to be more sequential, even when people do not anticipate viewing all of the episodes in one sitting.

STUDY 6: CONSUMER RESPONSE TO PRE-EPISODE ADVERTISING

Finally, an important decision faced by a variety of streaming platforms is whether to offer subscription-based content or ad-supported streaming (e.g., de Looper 2022). The presence of ads is nominally distinct from plans to watch multiple episodes at a time. In addition, it does not offer points of closure in the content itself. However, based on our framework, we would predict that it does create breaks and interruptions that could be perceived as dividing episodes. Thus, in Study 6 we examined whether the distinction between sequential and independent content in plans-to-binge was reduced for viewers whose access to content required watching ads.

Design and Method

This study's design, hypothesis, and analysis plan were pre-registered (https://aspredicted.org/VWJ_N9K). We recruited 1,003 participants in the United States on MTurk using CloudResearch (formerly TurkPrime; see Litman et al., 2017). As pre-registered, we removed participants from our sample who did not correctly answer an attention check question at the end of the survey regarding what the survey was about, as well as participants who took over 5 minutes to complete the survey. This left us with 783 participants for analysis (M_{Age} = 41, 50% female). Participants were told to imagine that they had just signed up for a new on-demand content platform and were interested in watching a fictional dramatic comedy entitled "Seven Lives" that consisted of 10 episodes about "the lives of a group of seven friends

and neighbors." Participants were randomly assigned to a condition in a 2 (episode continuity: independent vs. sequential) × 2 (ad presence: no ads vs. with ads) between-subjects design. In the independent condition, participants were told that each episode "tells a different story and can be watched on its own," while in the sequential condition, participants were told that each episode "follows the development of bonds of the cast of characters in an overarching way." In the with-ads condition, participants were told that before the start of every episode there would be 3 minutes of ads that could not be skipped. All participants then rated on an 11-point scale whether they would plan to watch the episodes one-by-one or all at once. They also rated the show on enjoyment, answered some questions about their daily busyness, and rated their average tendency to binge-watch. Finally, we asked participants in the with-ads conditions to indicate their WTP to be able to watch the episodes completely ad-free on a sliding scale ($0 to $10).

Results and Discussion

We conducted a 2 (episode continuity: independent vs. sequential, within-subjects) × 2 (ad presence: with ads vs. no ads) ANCOVA on the normalized binge rating, with enjoyment and reported daily busyness as covariates, as pre-registered. Recall that the normalized binge rating is calculated for each participant by subtracting their average tendency to binge-watch from their plans to watch the presented show (consistent with Study 3A). While there was no main effect of episode continuity ($F(1,777) = .93$, $p = .334$, $\eta^2 = .00$) or ad presence ($F(1,777) = .1.74$, $p = .187$, $\eta^2 = .00$), there was a significant interaction ($F(1,777) = 4.00$, $p = .046$, $\eta^2 = .01$). Specifically, participants expressed stronger planning-to-binge preferences for the sequential (vs. independent) version of the show when there were no ads ($M_{Independent} = -.44$, $SD = 2.06$; $M_{Sequential} = -0.07$, $SD = 1.58$; $t(385) = 2.02$, $p = .045$, Cohen's $d = .20$), replicating previous

studies, but there was no significant difference when they were told that there would be pre-episode ads ($M_{Independent}$ = -.35, SD = 1.52; $M_{Sequential}$ = -.47, SD = 1.98; t(394) = .67, p = .506, Cohen's d = .07).[6] In other words, the presence/absence of ads moderated the main effect of independent/sequential episode continuity on planning-to-binge preferences. We did not find a significant difference in enjoyment or WTP between the sequential and independent conditions.

Figure 9 compares the normalized binge ratings across study conditions. We see that in the no ads condition, participants would plan-to-binge the sequential show similarly to how they would watch an average show (i.e., normalized binge rating is close to 0), while they would plan-to-binge the independent show less (i.e., normalized binge rating is negative). The presence of unskippable ads moderates this effect by decreasing planning-to-binge preferences for the sequential show, but not the independent show. Importantly, the findings from this study suggest that firms may anticipate consumers planning to set aside less time for multi-episode viewing sessions for content with built-in breaks, as well as content whose episodes are (or are framed as) independent.

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[6]Alternatively, we can use the raw planning-to-binge rating as the dependent variable with the average tendency to binge-watch rating as a covariate, with similar results for the interaction term (F(1, 796) = 3.36, p = .067, η^2 = .00) and corresponding t-tests.
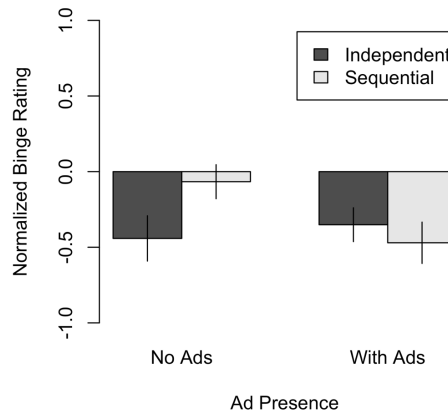
Figure 9: Comparison of normalized binge ratings across conditions in Study 6

GENERAL DISCUSSION

The media environment has expanded in ways that offer consumers easy and affordable access to on-demand content across a continuum from entertainment to education. Accompanying this expansion is the increased popularity of watching multiple episodes of such content in one sitting, often labeled binge-watching. Given that early conceptualizations of binging media arose from comparisons to over-eating and drinking (Gold, Frost-Pineda, & Jacobs 2003), a common theory for explaining binge-watching is that it arises from in-the-moment impulsivity. Our work presents important departures from this perspective by studying advance planning decisions, and demonstrating that consumers make media viewing plans that include aggregated consumption. Consistent with our definition of planning-to-binge, we found that people planned aggregated consumption of more than one episode of a multi-part media series in a single viewing session. However, these plans appeared to reflect more factors than simply electing to watch a whole series at one time.

In addition to demonstrating that people have significant preferences for allocating time to binge-watch in advance of consumption, we further showed that these planning-to-binge preferences are influenced by the structure of the media. Planning-to-binge is greater when the content is perceived to be a set of more sequential or continuous parts of a whole than when it is perceived to be a collection of independent pieces. This distinction allows us to reconcile consumers' planning preferences for streaming media with prior work demonstrating that consumers prefer to savor good experiences when planning time allocation (Loewenstein & Prelec, 1993). Consumers have also been shown to derive more enjoyment from the media when they take breaks during their watching experience (e.g., Nelson, Meyvis, & Galak, 2009). Therefore, from an applied perspective, our findings suggest that firms could choose to frame content as more independent to create those benefits for their consumers.

The rise of "edutainment" options from docu-series to TedEd videos illustrates how perceived separations between hedonic and utilitarian content is blurring in the developing media landscape. Our conceptual framework has a novel benefit of offering insights that generalize across genres. We demonstrated this efficacy across several dimensions, with predictions that apply similarly regardless of whether participants were asked to consider relatively hedonic vs. utilitarian uses of time or consumption motivations. Extending this, our studies investigated the explicitly utilitarian setting of online education, which features asynchronous and self-paced formats that can enable binge-learning behaviors (Davis et al., 2016; Dourado, 2013; Reich & Ruiprez-Valiente, 2019; LaTour & Noel, 2021). In this setting, the data showed similar patterns for both planning-to-binge media and binge-watching educational class sessions, validating the importance of perceived continuity for both planning and viewing stages of the media experience.

Managerial Insights

By studying planning-to-binge preferences, our work offers a characterization of

consumer media habits that has been under-served by the prior literature. To that end, it has the

potential to inform a range of managerial decisions. First, understanding what types of content

are deemed "binge-worthy" ahead of time may offer suggestions on how to promote content that

caters to consumers' preferences to binge. At one point, Netflix classified the perceived

bingeability of its shows by genre (Koblin, 2016; Netflix, 2016). Similarly prior work on

traditional TV consumption in the moment compared drama shows to news programming,

finding that people have longer viewing persistence and are less likely to switch channels (i.e.,

during commercial breaks) for the former (Deng & Mela, 2018; Shachar & Emerson, 2000).

Other marketplace insights related to the likelihood of binge-watching have segmented the

customers themselves as having intrinsic likelihood to be high or low binge-watchers (Schweidel

& Moe, 2016; Shim & Kim, 2018). In contrast, our framework offers a more generalizable

categorization factor that can predict binge-watching preferences, even when controlling for

genre and consumers' individual differences.

Our findings additionally suggest ways for firms to strategically curate and communicate

their portfolios. Our studies demonstrate the value of planning-to-binge in terms of customers'

willingness-to-pay and willingness-to-wait for the option to control their own viewing schedules.

This might suggest that firms should release every series as a bundle. However, as platforms

proliferate, "appointment" television may also create important touchpoints and advertising

opportunities for building engagement and customer loyalty. Thus, when choosing the timing for

content release, a firm may follow a Netflix-like model of releasing all episodes of a series at

once or can choose to follow a more traditional television-style scheduled release. Platforms may also consider how subscription vs. advertising-based offerings will impact viewing preferences. Distinguishing between content that is perceived to be more independent or sequential can allow firms to strategically design content release in ways that align with either consumer preferences or overall firm goals. Our studies also suggest that the same material can be framed as more sequential or independent, depending on the desired behavior. For example, reality competition shows often have a temporal progression such that competitors are whittled down to a winner by the season finale, but each episode can be enjoyed on its own, allowing either the independent episodes or the interconnected series to be emphasized.

Limitations and Future Directions

Though we demonstrate how consumers make advance planning decisions about aggregated media consumption robustly across multiple experiments using a range of elicitation methods, we acknowledge three key limitations to our work. First, while our data related to allocating time in advance argues against the impulsive mechanisms often associated with binging in the moment, the exact mechanisms underlying planning-to-binge itself remain unclear. Second, many of the studies in the paper involve hypothetical scenarios raising issues about incentive-compatibility. Third, our findings in this paper cannot directly establish causality between the planning and consumption phases. We discuss each of these limitations and how they can shape future research on this topic.

Though our studies redefine the scope of previous findings by showing that aggregate consumption of media is not always related to maladaptive, in-the-moment lack of self-control, future work may explore the mechanisms underlying planning-to-binge. One potential mechanism is that individuals consider sequential (vs. independent) episodes as representing

parts of a whole or elements of a set (Evers, Inbar, & Zeelenberg, 2014; Barasz et al., 2017), and

thus prefer to plan to binge sequential content due to the derived additional utility from being

able to consume it together with less interruption. This process is consistent with our finding that

the presence of between-episode ads mitigates planning-to-binge preferences for sequential

content, since the ads would break apart the experience. Beyond this, the range of motivations

participants expressed when asked for their reasons to binge suggests there may be distinct

mechanisms driving plans to binge across different consumer goals.

A second concern relates to the use of hypothetical scenarios in many of the studies.

Since planning decisions reflect anticipated behavior, such designs are not entirely incompatible

with the question of interest. Additionally, the nature and genre of these scenarios are also varied

across the collection of studies in the main manuscript and supplemental materials demonstrating

the robustness and generalizability of the key findings. Nonetheless, it is an important domain for

future work to extend these findings in more incentive-compatible designs that involve

consequential behavior (i.e., have people wait to watch episodes together based on their plans to

binge).

Finally, while we do find consistent patterns between viewing plans and observed

behavior in field data in Study 4B, our findings cannot establish causality between the two

stages. Prior research does suggest that planning may function as a commitment device (e.g.,

Ariely & Wertenbroch, 2002; see Rogers et al., 2014 for review) and thus increases the

likelihood of the planned behavior occurring. A second possibility is that by planning-to-binge,

consumers may actually set aside sufficient time to do so (i.e., allocating resources; Zauberman

& Lynch, 2005). Either possibility opens an interesting set of questions to investigate and

encourages an important domain for future work. The use of incentive-compatible designs with

consequential behavior as described above will also provide a direct link between planning

intentions and behaviors, and help compare plans to binge with actual binge consumption.

Beyond these limitations, there is also an opportunity for future work to explore how the

factors motivating planning-to-binge preferences influence downstream behaviors and outcomes

of importance to both consumers and firms. For example, Zhang, Bradlow, and Small (2015)

found that clumpier customers were more active in the long-run, while Schweidel and Moe

(2016) found that binging TV shows on Hulu was related to lower ad response. Godinho de

Matos and Ferreira (2020) found that when consumers were given access to on-demand TV,

binge-watchers depleted content quickly and were subsequently less likely to subscribe to the

channels. Within the education domain, binge-learning is similar to the characterization of

"massed" practice in which an educational lesson is administered within a single session or day

(as opposed to "distributed" or "spaced" practice where the lesson is spread out across sessions).

Research within both traditional and online educational settings has demonstrated that spreading

out learning is positively related to performance and knowledge retention (Bloom & Shuell,

1981; Childers & Tomasello, 2002; LaTour & Noel, 2021), suggesting that there may be benefits

to content framing or design strategies that discourage plans to binge in this domain.

As the availability of streaming content rises, consumers may also change their habits

over time. For example, consumers may be converted towards binging as the "new normal"

(Netflix, 2013). In the current landscape, firms like Netflix and Amazon that offer original

content or video streaming have started to design binge-worthy shows that stretch a single movie

storyline across multiple episodes of a TV series through "plotblocking" and stingy narratives

(Matthews, 2016). However, firms still find success using "linear-centric" models and releasing

episodes of sequential shows weekly rather than streaming entire seasons at once. One

mechanism for this, as illustrated by HBO's drama miniseries *Big Little Lies,* has been the anticipation built up between weekly installments, with momentum generated through online buzz and positive word-of-mouth (Adalian 2017). By considering planning as an active part of the media consumption process, our research opens the door to questions about how individual factors like anticipated enjoyment, as well as social factors like the benefits of participating in media-centered digital communities, influence viewer decisions.

In conclusion, our studies demonstrate that consumers can plan binge-like behavior in advance of actual consumption and are motivated to do so. Importantly, planning-to-binge preferences can be influenced by a number of different dimensions that may be strategically useful for providers. We find that the perceived interconnectedness of episodes within media content is an important factor in shaping how consumers anticipate their media consumption. As a result, the work expands our understanding of different stages of the binge-watching experience and offers a framework for thinking about consumption across a range of media types and platforms.

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