

The more you watch, the more you get?

Re-examining the effects of binge-watching on entertainment experiences.

Dominique S. Wirz¹, Michelle Möri¹, Alexander Ort², José A. Cordeiro³, Deborah Castro⁴,

Andreas Fahr¹

¹ Department of Communication and Media Research, University of Fribourg

² Department of Health Sciences and Medicine, University of Lucerne

³ Instituto Superior Técnico de Lisboa, University of Lisbon

⁴ Department of Arts and Culture Studies, Erasmus University Rotterdam

Accepted author version of <https://doi.org/10.1027/1864-1105/a000355>

Author Note

Dominique S. Wirz  <https://orcid.org/0000-0003-2688-8506>

Data and additional online materials are openly available at the project's Open Science Framework page (<https://osf.io/qg3tz>). We have no conflicts of interest to disclose. We gratefully acknowledge funding from the Swiss National Science Foundation (Digital Lives, 183181). Correspondence concerning this article should be addressed to Dominique S. Wirz, Department of Communication and Media Research, University of Fribourg, Boulevard de Pérolles 90, 1700 Fribourg. Email: dominique.wirz@unifr.ch

Abstract

It is a popular notion that binge-watching, i.e., watching several episodes of a TV show in one sitting, enhances entertainment experiences compared to watching singular episodes. However, empirical results are contradictory, and the assumption of such effects is not well founded in theory. We thus re-examined this claim with an experiment ($n = 80$) and a field study using tracking data ($n = 47$). In the experiment, binge-watching had slightly negative effects on transportation, hedonic entertainment, and valence, but a positive effect on arousal. In the field study, there were no differences between the two viewing modes. We thus conclude that binge-watching per se does not affect the entertainment experience. This finding aligns with other recent research showing that binge-watching does not differ much from conventional and low-intensity media use and thus calls into question the usefulness of defining binge-watching solely based on the number of episodes in one sitting.

Keywords: binge-watching, entertainment, media use, media effects, experiment

The more you watch, the more you get? Re-examining the effects of binge-watching on entertainment experiences.

The constant availability of films and series via streaming platforms, such as Netflix or Hulu, has changed media use behaviors. Binge-watching—the use of several episodes of the same program in one sitting—has become a prevalent pattern. In the U.S., 63% of the population report to engage in binge-watching from time to time¹. While the term binge-watching has become a popular expression in everyday language, it is rather contested in the academic discourse as there is no consensus on its definition and operationalization (Flayelle et al., 2020; Merikivi et al., 2020; Viens & Farrar, 2021). However, in most empirical studies, the common practice is to define binge-watching based on the number of episodes of the same show watched in a row; media use is considered as binge-watching when more than two episodes have been watched (e.g., Erickson et al., 2019; Tukachinsky & Eyal, 2018; Walton-Pattison et al., 2018).

Researchers have investigated how binge-watching affects the media use experience and its consequences, addressing positive and negative aspects (see Flayelle et al., 2020 for a systematic review). Flayelle and colleagues (2020, p. 57) conclude that binge-watching is an “excessive/problematic behavior” for a few, but a “highly rewarding and pleasurable experience” for most individuals. With regard to the pleasurable experience binge-watching may provide, research has however yielded contradictory results. For example, the studies by Czichon (2019) and Granow et al. (2018) show that binge-watching increases enjoyment. However, Tukachinsky and Eyal (2018) find no effects on enjoyment, and Horvath et al. (2017) even find negative effects on enjoyment. Similarly, while Erickson et al. (2019) and Warren (2020) find that binge-

¹ According to a survey conducted in April 2020:

<https://web.archive.org/web/20200516021232/https://civicscience.com/more-than-half-of-americans-13-binge-watch>

watching increases transportation, Czichon (2019) as well as Tukachinsky and Eyal (2018) do not find such an effect. Thus, while some studies suggest that binge-watching enhances the entertainment experience compared to episodic watching, others find no or even reversed relationships.

The inconsistent results may have theoretical and methodological causes. From the theoretical perspective, effects of binge-watching on entertainment have often been based on the assumption that binge-watching implies a longer uninterrupted viewing duration than episodic watching (Erickson et al., 2019; Tukachinsky & Eyal, 2018). This is not necessarily the case, and such a perspective confounds binge-watching as a specific viewing mode with the mere duration of media exposure. Further, binge-watching has been considered to be more active than episodic watching (Granow et al., 2018; Tukachinsky & Eyal, 2018). However, research has shown that the consecutive consumption of several episodes of the same TV show in one sitting can be both, attentional and inattentional (Pittman & Steiner, 2021). While there are good reasons to assume that the duration of media use and viewer's activity affect the entertainment experience, there is little reason to assume that binge-watching, as a mode of viewing per se, would have such effects.

From a methodological perspective, there are two types of limitations. On the one hand, many studies relied on survey data, that were often collected with considerable time lags to the actual binge-watching sessions (Granow et al., 2018; Tukachinsky & Eyal, 2018; Warren, 2020). Results may thus be affected by a biased recall and the specific characteristics of those sessions that respondents had on top of their minds. On the other hand, experimental studies (Czichon, 2019; Erickson et al., 2019; Horvath et al., 2017) have created artificial viewing contexts and do not allow to generalize beyond the specific series that were chosen as stimuli. These

methodological limitations may have caused researchers to underestimate transportation and enjoyment, e.g., when individuals faced too many restrictions in the viewing session, or to overestimate the entertainment experiences, e.g., when individuals were allowed to refer to their favorite shows. The main goal of this research was thus to overcome these limitations in order to re-examine *if binge-watching affects the entertainment experience*.

The term *entertainment experience* is thereby used as an umbrella term for several outcomes related to media entertainment. More precisely, we re-examine possible effects of binge-watching on entertainment as a two-factor construct consisting of *hedonic and eudaimonic entertainment* (Vorderer, 2011). Most previous research on the effects of binge-watching on entertainment has focused on hedonic entertainment, i.e., enjoyment (e.g., Czichon, 2019; Granow et al., 2018; Horvath et al., 2017; Tukachinsky & Eyal, 2018). Tukachinsky and Eyal (2018) also included eudaimonic entertainment, which refers to meaningful experiences through media use and is also referred to as appreciation (Oliver & Bartsch, 2011; Oliver & Raney, 2011). In addition, we investigate effects on *transportation* – the immersion of the viewer into the narration (Green & Brock, 2000) – as previous research suggests that the entertainment experience in a binge-watching session is particularly driven by an uninterrupted immersion into the story (Erickson et al., 2019; Tukachinsky & Eyal, 2018). Another aspect that is considered to be central to the binge-watching experience is emotion regulation or mood management (Rubenking et al., 2018; Rubenking & Bracken, 2018). Castro et al. (2021) and Cabral et al. (2020) have found effects of binge-watching on *viewers' mood* in terms of arousal and valence. These findings shall be re-examined, too, since it is questionable if they can actually be attributed to binge-watching as a mode of viewing rather than to the content watched.

To investigate our research questions while overcoming methodological limitations

associated with previous research, we have conducted two studies in which participants watched Netflix in a natural setting on their laptop at home. Study 1 has an experimental design; participants were instructed to watch three episodes of the same show in one sitting (binge-watching) or to watch one episode per sitting on three separate days (episodic watching). Study 2 has an observational approach; participants were instructed to watch Netflix as they normally do and their viewing sessions were later classified as binge-sessions or episodic sessions. In both studies, participants' viewing behavior was tracked with the browser extension BWDAT (Cordeiro et al., 2020). At the end of each viewing session, the extension automatically opened a questionnaire to measure participant's entertainment experience and other exposure-related variables. This approach allows to address several of the methodological issues that might have influenced the findings of previous research. 1) Both studies allowed participants to watch in a natural setting, 2) the in-situ measurement of experiences prevents biased recall, and 3) the combination of an experimental and an observational approach accounts for high internal as well as external validity.

Binge-watching and Entertainment Experiences

Since binge-watching has emerged as a common practice in media use, researchers have investigated possible effects on entertainment experiences. However, this research was often driven by an exploratory interest in the phenomenon rather than by profound theoretical considerations. With regard to transportation, researchers have argued that binge-watching allows viewers to immerse deeply into the narration because of the relatively long, uninterrupted media exposure (Erickson et al., 2019; Tukachinsky & Eyal, 2018). However, since episodes of TV shows vary considerably in duration, watching multiple episodes of a show with short episodes does not necessarily result in a longer uninterrupted exposure than watching a singular

episode of a show with longer episodes. Czichon (2019) and Warren (2020) argue that continuous exposure to a narration increases familiarity with the narration; viewers can remember more details of the narration when the information is still available in their working memory. Indeed, Horvath et al. (2017) show that recall and recognition of the narration is higher after binge-watching than after episodic viewing of a TV show when measured immediately after exposure. Thus, familiarity with the narration should foster transportation in a binge-watching session (Czichon, 2019; Warren, 2020). While this argumentation is compelling, Czichon (2019) as well as Tukachinsky and Eyal (2018) could not find such an effect. A possible explanation for this could be that transportation is a process that requires attentional focus (Green & Brock, 2000), which may decrease when viewers are confronted with a lot of new information during a viewing session, or by fatigue when a viewing session indeed has a long duration (Klesges et al., 1993). In light of the extant literature, it remains thus an open question if binge-watching as a mode of viewing affects transportation irrespective of the duration of a viewing session.

RQ1: Does binge-watching a TV show lead to more transportation than episodic watching?

With regard to entertainment, researchers have argued that the freedom to watch as many episodes as desired increases individuals' autonomy and should have a positive effect on enjoyment (Granow et al., 2018). Further, this active role of the viewer is thought to foster engagement with the content; Tukachinsky and Eyal (2018) argue that this may not only benefit hedonic entertainment, but also meaningful experiences and thus eudaimonic entertainment. However, the feeling of autonomy is fostered by the possibility to watch whatever, whenever, and for as long as the user wants – which does not necessarily result in watching multiple episodes of the same show in a row.

Czichon (2019) assumes that the increased familiarity with the narration during a binge-watching session enables viewers to perceive additional features of the narration, which can increase hedonic as well as eudaimonic entertainment. On the other hand, research has shown that interruptions can make pleasurable experiences more enjoyable since they disrupt adaptation to a stimulus (Nelson & Meyvis, 2008). In this vein, Baumgartner and Kühne (2021) argue that enjoyment during media use should decrease over time because of a so-called hedonic decline. This process (Galak & Redden, 2018) is characterized by a reduction of enjoyment when individuals are repeatedly exposed to a stimulus. However, even if it is plausible to assume that viewers get used to some features of a show, each new episode is a new stimulus with new information. Baumgartner and Kühne (2021) then also found an effect contrary to their expectation; the more episodes individuals watched in one sitting, the more enjoyment they reported. Nevertheless, empirical results are inconclusive; while Czichon (2019) also found that binge-watching increased enjoyment, Tukachinsky and Eyal (2018) found no relationship of binge-watching and hedonic or eudaimonic entertainment, and Horvath et al. (2017) even found a negative effect on enjoyment. Classic entertainment theories, such as the affective disposition theory (Raney, 2004; Zillman & Cantor, 1977), suggest that enjoyment is a result of the viewer's response to the content of a narration; it results from the suspense experienced in response to events in the story and affective dispositions towards the characters. Given that binge-watching as a mode of viewing is independent of the content, it remains an open question if binge-watching per se does affect hedonic or eudaimonic entertainment.

RQ2: Does binge-watching a TV show lead to more hedonic and/or eudaimonic entertainment than episodic watching?

Affective states, such as emotions or mood, are often related to entertainment

experiences. Generally, it is assumed that emotional arousal translates into entertainment if a story has a hoped-for resolution, and that the entertainment experience is of positive valence (e.g., Vorderer et al., 2004; Zillmann, 1996). Thus, while both positive and negative emotions are part of the experience during media use and contribute to arousal, the outcome of this experience is expected to be a positive one (Bartsch, 2012; Hofer & Rieger, 2019; Vorderer et al., 2004). If binge-watching was more enjoyable than episodic watching, it should thus also have a positive effect on viewers' mood after media exposure.

Two studies have investigated the dynamics of affective states in the context of binge-watching. Castro et al. (2021) found that the valence of media users' mood was more negative after a binge-watching session than before, while the level of arousal remained steady. Cabral et al. (2020) found that binge-watching, compared to single-episode use or watching multiple episodes of *different* shows in one sitting, led to more negative valence. Arousal, on the other hand, increased during single-episode use, but not during binge-watching sessions. Both of these studies thus suggest that binge-watching sessions have a negative effect on media users' mood in terms of valence, but do not affect arousal. Episodic watching, on the other hand, had a positive effect on arousal, but not on valence.

These findings contradict the common assumption that media use can be functional to regulate emotional states in order to achieve a pleasant mood (Knobloch-Westerwick, 2013; Zillmann, 1988). Instead, they support the perspective that media use – and particularly binge-watching – can be dysfunctional as a viewing session might temporarily suppress, but not resolve negative emotional states (Flayelle et al., 2019; Kubey & Csikszentmihalyi, 2013). However, the exploratory studies by Castro et al. (2021) and Cabral et al. (2020) rely on very small samples (11 and 13 participants, respectively, with multiple viewing sessions; their findings should thus

not be generalized beyond the studied population. Again, it seems questionable that the mode of viewing per se, rather than the viewer's response to the specific content should determine arousal and valence during or directly after media use. Therefore, we formulate a third research question:

RQ3: How does binge-watching, compared to episodic watching, affect emotional arousal and valence?

Method

To overcome the aforementioned limitations of surveys and experimental research for the investigation of binge-watching and entertainment, we conducted two field studies in which participants watched self-selected TV-series on Netflix on their laptops at home. The tracking tool BWDAT (Cordeiro et al. 2021) was used to observe participants' viewing behavior and to trigger questionnaires immediately before and after each viewing session. Participants installed BWDAT as an extension to the Google Chrome browser on their laptops. The data of both studies are available on the Open Science Framework (<https://osf.io/qg3tz>).

Study 1 followed an experimental design where participants were required to watch three episodes of a series of their choice either in one sitting (binge-watching condition) or in three separate sittings (episodic condition). Participants were instructed to watch in the evening, before bedtime. They were allowed to select any TV show with a continuous narration lasting over multiple episodes. Reality TV formats were excluded. In addition, they were asked to watch episodes that they had not seen before, and to check if the show at least had three remaining episodes when they continued a previously started show. Participants were also instructed to make sure to minimize chances of disturbance by others while watching; minor and major interruptions were assessed in the post-exposure questionnaire. Although minor interruptions such as receiving text messages occurred, none of the viewing sessions had to be excluded due to

major events. Participants in the binge-watching condition had to watch all three episodes without interruptions (we allowed short breaks, e.g., to go to the bathroom). Participants in the episodic condition had to watch one episode per day, on three different days, within a two-week period. The automated tracking by BWDAT enabled a strict compliance check afterwards; two participants were excluded from the sample because they had only completed two instead of three viewing sessions in the episodic condition.

Study 2 followed an observational design where individuals were instructed to watch Netflix as usual, while their usage behavior was tracked for two weeks. They did not receive any instructions regarding the content or the context of their viewing sessions. However, the same opportunity to report interfering events as in study 1 was integrated to enable feedback about disturbing events that would require exclusion of data. Only minor incidents with neglectable impact were reported; thus, no data had to be excluded. Participants' viewing sessions were afterwards classified into either (1) binge-sessions when they saw more than two consecutive episodes of the same show or (2) episodic sessions when they saw one or two episodes.

Participants

Participants for study 1 were recruited in two ways. About half of the participants were recruited via social media forums dedicated to TV series use or binge-watching, they received a monetary compensation equivalent to 40 USD for their participation. The other half of participants were recruited on campus and in the personal networks of students, who agreed to recruit participants for course credits. To ensure that all participants were familiar with series consumption on Netflix, they were required to have an existing account on that platform. Out of all 96 recruited participants who started the study by filling in a general questionnaire, 80 completed all assigned viewing sessions as well as the session-related questionnaires. The final

sample consisted of 48 female and 31 male individuals (one person chose not to disclose their gender) with an age-range from 18 to 61 years ($M = 27.09$, $SD = 8.95$). After recruitment, they were randomly assigned to either the binge-watching (one viewing session; $n = 39$) or the episodic viewing (three viewing sessions; $n = 41$) condition: Participants altogether completed 162 viewing sessions. Considering previous viewing experiences and habits, a majority of the participants ($n = 69$) indicated that they had watched more than two episodes of the same show in one sitting at least once in their life; 29 do so at least once a week, 31 at least once a month, and the rest of them less often. It can, thus, be assumed that consecutively watching multiple episodes constitutes a common behavior for most of the sample and participants were not forced into an unnatural viewing behavior through the experimental condition.

Participants for study 2 were recruited through students in another course (different from study 1); students obtained credits for their recruiting effort and participants received a small monetary compensation equivalent to 20 USD. Similar to study 1, only individuals with an existing account on Netflix were eligible to participate in the study. From 80 recruited participants, 54 completed the general questionnaire at the beginning of the study as well as at least one viewing session with the associated questionnaires. Overall, these participants completed a total of 292 viewing sessions; 7 participants had only one session in the two-week data collection period, one participant had 25 sessions. 152 sessions had to be excluded due to missing or delayed survey data; we accepted a time lag of 30 minutes between ending a viewing session and answering the post-session survey. Thus, if participants stopped watching at 10 pm and filled in the survey the next morning at 8 am, this viewing session was excluded. Further, viewing sessions that were shorter than 15 minutes or longer than eight hours ($n = 2$), as well as viewing sessions where participants watched movies instead of TV series ($n = 11$) were

excluded, as these sessions are not suitable to study effects of binge-watching. The final dataset contained 124 viewing sessions with completed questionnaires. Out of these, 69 were classified as episodic viewing sessions and 55 as binge-watching sessions—the latter including three or more episodes in one sitting. The final sample consisted of 32 female and 15 male individuals with an age-range from 18 to 52 years ($M = 23.49$, $SD = 8.11$).

Measures

The questionnaire which had to be completed by all participants at the beginning of the study, asked for their general viewing behavior and personal information. *Gender* and *age* are used as control variables for further analyses. The post-session questionnaire assessed entertainment experiences. *Entertainment* was measured according to Wirth et al. (2012); the scale covers *hedonic* as well as *eudaimonic* entertainment experiences. Hedonic entertainment was measured with three items, eudaimonic entertainment was measured with nine items in study 1 and with five items in study 2. *Transportation* was measured using items from Green and Brock (2000); we used seven items in study 1 and three in study 2. All items can be found in the OSF project (<https://osf.io/qg3tz>). Following Castro et al. (2021), we also assessed participants' emotional experience in terms of *arousal* and *valence* at the end of each viewing session using the Self-Assessment Manikin (SAM; Bradley & Lang, 1994). Table 1 shows the descriptive statistics and reliability of all scales in both studies. Since transportation has a rather low reliability in study 2, the model including this variable was also estimated with a single item; results were consistent, thus only the model with the index will be reported.

The BWDAT browser extension recorded the content participants watched in each session. The *genre* of the shows was classified as either drama (includes drama, adventure, crime, and shows described as thrilling or exciting) or comedy (includes comedy, teen/high

school, and shows described as funny or quirky) based on Netflix' categorization of each show. In study 2, participants could watch different shows within one sitting; if different genres were involved, the one with more viewing time was coded. Since the genre can influence entertainment experiences, this information was used as a control variable. Further, the *duration* of each viewing session was included as a control; duration was measured in seconds and was transformed into hours in order to facilitate reading of the model coefficients. In study 2, we included the total duration of the session also when participants watched different shows in one session.

Results

Study 1

Since participants in the episodic conditions had several viewing sessions, we estimated multilevel regression models using the R packages lme4 and lmerTest; the viewing sessions are nested in participants. Gender, age, the show's genre, and the experimental condition were included as level 2 predictors in all models; transportation, hedonic entertainment, eudaimonic entertainment, arousal and valence were individually included as level 1 outcomes (see Table 2 for results).

The first research question addresses the effect of binge-watching on transportation. Levels of transportation were higher in the episodic viewing condition ($b = 0.32$, $SE = 0.15$, $p = 0.03$); binge-watching did thus significantly reduce transportation. The second research question addresses effects of binge-watching on entertainment. Hedonic entertainment ($b = 0.27$, $SE = 0.16$, $p = 0.08$)² was somewhat higher in the episodic viewing condition; binge-watching had – in

² Hedonic entertainment was generally very high. To account for a possible impact of the skewed distribution, we z-standardized the variable and re-run the analysis. Results did not differ substantially, therefore we have not reported the additional analysis.

tendency – a negative effect. Eudaimonic entertainment ($b = 0.12$, $SE = 0.15$, $p = 0.45$), on the other hand, did not differ between viewing conditions. The third research question addresses the effect of binge-watching on arousal and valence. The valence of participants' emotional experience ($b = 0.26$, $SE = 0.14$, $p = 0.07$) was more positive in the episodic condition, while arousal was higher in the binge-watching condition ($b = -0.32$, $SE = 0.19$, $p = 0.09$); however, both effects only approach conventional boundaries of significance. Overall, episodic watching seems to be more enjoyable, but less arousing. These effects could, however, be influenced by the fact that participants were not free to choose how many episodes they watched in a row; this restriction may have had a negative effect on enjoyment of binge-watching sessions and may have decreased the engagement with the narration in those sessions.

The intraclass correlation coefficient (ICC) suggests that 41% of the variance in arousal and 26% of the variance in valence can be attributed to the user. In other words, arousal and valence vary strongly between viewing sessions. Since all viewing sessions of a user belong to the same experimental condition, this suggests that there is a large variation in arousal and valence that cannot be attributed to the manipulation. Variance in transportation (ICC: 0.52), hedonic entertainment (ICC: 0.56) and especially eudaimonic entertainment (ICC: 0.74) are mostly attributed to the user and may thus reflect effects of the viewing condition.

Of the control variables, age had a minimal positive effect on valence ($b = 0.01$, $SE = 0.01$, $p = 0.04$). In 108 of all sessions, participants watched a drama, in 54 sessions they watched a comedy. Watching a drama decreased hedonic entertainment ($b = -0.47$, $SE = 0.16$, $p = 0.01$) and valence ($b = -0.44$, $SE = 0.14$, $p = 0.00$), and increased arousal ($b = 0.40$, $SE = 0.19$, $p = 0.04$). Thus, the genre has overall a stronger impact on entertainment and the emotional experience than the mode of watching.

Study 2

The data analysis of study 2 followed the same logic as study 1. However, the viewing condition and genre constitute level 1 predictors this time; the same user might have chosen to binge-watch *and* engage in episodic viewing as well as watch comedy *and* drama shows during the study period. Contrary to study 1, there was no difference between binge-watching and episodic viewing with regard to transportation ($b = -0.04$, $SE = 0.14$, $p = 0.79$), hedonic entertainment³ ($b = -0.07$, $SE = 0.10$, $p = 0.47$), post-viewing valence ($b = 0.21$, $SE = 0.13$, $p = 0.12$), and arousal ($b = -0.04$, $SE = 0.15$, $p = 0.82$). Consistent with study 1, there was no difference between the viewing conditions with regard to eudaimonic entertainment ($b = 0.08$, $SE = 0.13$, $p = 0.52$). Overall, and with regard to all three research questions, no differences between viewing conditions were found.

In study 2, arousal, valence, and transportation considerably varied between sessions (see ICC in Table 2); if at all, binge-watching could thus have affected those constructs. Age had a significant and positive (but minor) effect on transportation ($b = 0.02$, $SE = 0.01$, $p = 0.04$) and arousal ($b = 0.03$, $SE = 0.01$, $p = 0.01$). Duration had a significant positive effect on hedonic entertainment ($b = 0.09$, $SE = 0.04$, $p = 0.04$). Eudaimonic entertainment was found to be higher after watching a comedy show compared to watching drama series ($b = 0.29$, $SE = 0.13$, $p = 0.03$; 73 sessions were classified as comedy, 51 sessions were classified as drama). This surprising effect might be explained by the fact that comedy shows mostly have concluding narrations within each episode, while drama shows don't come to a resolution. Overall, also study 2 shows that genre matters more than the mode of viewing for transportation, entertainment, and emotional experiences.

³ Again, due to the generally very high level of hedonic entertainment, we re-run the analysis with a z-standardized variable and results were consistent.

Discussion

With the emergence of binge-watching as a frequent mode of series viewing, researchers have started to investigate its effects on entertainment experiences. In light of the conflicting results and given the methodological limitations of previous studies, our aim was to re-examine the effects of binge-watching on entertainment experiences in a natural, yet controlled setting. We conducted two field studies, one following an experimental and one a correlational design. While the experimental study allows to draw causal inferences regarding the differences between binge-watching and episodic viewing, the restrictions imposed on participants might have affected the entertainment experience. The correlational study did not set any restrictions, but does not allow for strict causal inferences due to the self-selection of viewing conditions. The combination of both designs thus accounts for internal and external validity. Further, the use of BWDAT (Cordeiro et al., 2021) to track viewing sessions and prompt questionnaires directly after media use ensures a high data quality for both approaches.

The main interest of this study was to investigate if binge-watching, as a mode of TV series consumption, affects entertainment experiences. Previous research yielded contradictory results with regard to transportation, hedonic and eudaimonic entertainment, and effects on viewers' mood. In study 1, we found that binge-watching reduces transportation compared to episodic viewing – however this finding was not supported in study 2. It may be that the instruction to watch three episodes in a row led participants to continue watching when they were already tired or not interested anymore, resulting in lower levels of transportation in the binge-watching condition. Similarly, we found close to significant negative effects of binge-watching on hedonic entertainment and valence. This could also indicate that the instruction to watch three episodes in a row was experienced as a restriction and decreased enjoyment. In both

studies, we did not find any effect of binge-watching compared to episodic watching on eudaimonic entertainment; hence, the meaningfulness of a viewing session does not seem to be affected by the mode of watching. We, thus, conclude that binge-watching is unlikely to affect entertainment experiences *per se*. Rather, it seems plausible that feeling entertained by a show may foster continued exposure (see Baumgartner & Kühne, 2021). This is also reflected in the positive effect of session duration on hedonic enjoyment in study 2. Overall, our findings are largely consistent with those from Tukachinsky and Eyal (2018), who also found no effects of binge-watching on enjoyment or transportation.

All in all, it seems convincing to understand entertainment as an interaction of characteristics of the media user, media content, and contextual factors; binge-watching, as a specific mode of watching, may thus be more or less entertaining depending on personal and contextual factors (which have not been controlled in our study). Future research should consider to include possible moderating variables to investigate for whom, and under which conditions, binge-watching is more or less entertaining than episodic watching. For example, research by Granow et al. (2018) points to the importance of perceived autonomy and goal conflicts for enjoyment of binge-watching. A contextual factor that has not been considered yet is the effect of co-viewing on binge-watching. Co-viewers may influence the decision to binge-watch or not, as well as the enjoyment of the viewing session overall. This is thus an important avenue for future research.

The influence of co-viewing also presents a limitation to the findings presented in this article. In study 1, participants were instructed to watch alone and to report if a session should be excluded due to interruptions by other persons in their home or through calls or text messages. Many participants indicated that they got text messages at some point, but that this did not

disturb their viewing experience. In study 2, participants were instructed to watch as they usually do, which did not explicitly exclude co-viewing. Thus, we cannot rule out that such circumstances influenced the viewing experience. This is a pitfall that we accepted in favor of an observation of media exposure in a natural setting. Similarly, we also did not exclude re-watching of known shows in study 2. Since this might affect enjoyment, we recommend to control this in future studies.

With regard to entertainment experience as an outcome of TV series use, we found that hedonic entertainment was generally very pronounced in both studies. This suggests that participants generally found series consumption very enjoyable, regardless of the mode of watching. On a methodological note, this could be problematic as we might have encountered a ceiling effect. Even though we have accounted for the skewed distribution by re-running the analyses with z-transformed variables, it seems recommendable to use broader scales (e.g., 1-9 or even 1-100) to measure hedonic entertainment in the context of self-selected and unrestricted entertainment media use. On a related note, the three-item measure for transportation that we used in study two showed low reliability; we recommend to use a longer scale for future research, even when participants have to take the survey multiple times.

Regarding the effects of binge-watching on affective states, we found effects approaching conventional boundaries of significance on valence and arousal in study 1. These effects can clearly be attributed to the viewing condition and not the duration of the session. Since these findings did not replicate in study 2, it is however likely that the restrictions through the experimental instructions had a negative impact on valence and a positive impact on arousal. Although a negative effect of binge-watching on valence has also been found by Cabral et al. (2020) and Castro et al. (2021), we conclude that binge-watching does not generally affect

viewers' emotional experience. Thus, our findings do not support the assumption that binge-watching is a dysfunctional way of media use, which is in line with most of the research that has been conducted in this field (see Flayelle et al., 2020 for a systematic review).

Of course, this study has limitations that necessitate discussion. First of all, participants in both studies were free to watch whatever they liked; thus, the consumed series in both studies are diverse. This might have affected the entertainment experience of participants in many ways, that might not be sufficiently reflected by the dichotomous genre variable we included. Future research could thus control for more specific characteristics of tracked media content. Second, out of all recorded viewing sessions, we only kept those where participants answered all questionnaires. By doing so, we might have lost particular viewing sessions (e.g., where participants were highly involved and therefore forgot to stop the session, or where participants became too tired to answer another questionnaire), but this was necessary to ensure a high validity of the measurements. Third, the samples in both studies were relatively small and mainly consisted of young adults who were predominantly females; thus, we cannot generalize our findings to other audiences. And fourth, the amount of surveys varied between participants in both studies. In study 1, participants in the episodic conditions answered the post-exposure survey three times, while participants in the binge-watching conditions only answered it once. In study 2, participants answered the post-exposure survey as often as they watched Netflix in the study period. While we assume that situational constructs such as affective states or entertainment are not very susceptible to learning effects, we can't rule out that repeated exposure to the survey affected participants' answers. Notwithstanding, the two studies provide a valuable contribution to binge-watching research. While recent work has already shown that binge-watching should not be problematized (Flayelle et al., 2020; Ort et al., 2021), we can

conclude that it should also not be glorified.

Moreover, it might be fruitful to reconsider if binge-watching, the way it has been defined and operationalized so far, is really a useful concept for the investigation of media effects. Instead of the mere number of episodes in a viewing session (see also Horeck et al., 2018), it seems more suitable to consider a viewer's engagement with the show. For example, the engagement can be driven by an approach motivation, or by the motivation to escape the daily live (Böcking & Fahr, 2009). Binge-watching may have a different quality depending on these motivations, and thus result in different outcomes.

References

- Baumgartner, S. & Kühne, R. (2021). Why do Users Stop Pleasurable Media Experiences? A Dynamic View of Media Entertainment Viewing Sessions. Paper presented at the Annual Conference of the International Communication Association 2021 (online).
- Bartsch, A. (2012). Emotional Gratification in Entertainment Experience. Why Viewers of Movies and Television Series Find it Rewarding to Experience Emotions. *Media Psychology*, 15(3), 267–302. <https://doi.org/10.1080/15213269.2012.693811>
- Böcking, T., & Fahr, A. (2009). Television program avoidance and personality. *Communications*, 34(3). <https://doi.org/10.1515/COMM.2009.020>
- Bradley, M. M., & Lang, P. J. (1994). Measuring emotion: The self-assessment manikin and the semantic differential. *Journal of Behavior Therapy and Experimental Psychiatry*, 25(1), 49–59. [https://doi.org/10.1016/0005-7916\(94\)90063-9](https://doi.org/10.1016/0005-7916(94)90063-9)
- Cabral, D., Castro, D., Rigby, J. M., Vasanth, H., Cameirão, M. S., Badia, S. B. i, & Nisi, V.

- (2020). To Binge or not to Binge: Viewers' Moods and Behaviors During the Consumption of Subscribed Video Streaming. In N. J. Nunes, L. Ma, M. Wang, N. Correia, & Z. Pan (Eds.), *Entertainment Computing – ICEC 2020* (Vol. 12523, pp. 369–381). Springer International Publishing. https://doi.org/10.1007/978-3-030-65736-9_33
- Castro, D., Rigby, J. M., Cabral, D., & Nisi, V. (2021). The binge-watcher's journey: Investigating motivations, contexts, and affective states surrounding Netflix viewing. *Convergence: The International Journal of Research into New Media Technologies*, 27(1), 3–20. <https://doi.org/10.1177/1354856519890856>
- Cordeiro, J. A., Castro, D., Nisi, V., & Nunes, N. J. (2020). BWDAT: A Research Tool for Analyzing The Consumption of VOD Content at Home. *Addictive Behaviors Reports*, 100336. <https://doi.org/10.1016/j.abrep.2020.100336>
- Czichon, M. (2019). *Kumulierte Serienrezeption: Ein Modell zur Erklärung des Rezeptionsphänomens Binge Watching*. Springer Fachmedien Wiesbaden. <https://doi.org/10.1007/978-3-658-26842-8>
- Erickson, S. E., Dal Cin, S., & Byl, H. (2019). An Experimental Examination of Binge Watching and Narrative Engagement. *Social Sciences*, 8(1), 19. <https://doi.org/10.3390/socsci8010019>
- Flayelle, M., Maurage, P., Di Lorenzo, K. R., Vögele, C., Gainsbury, S. M., & Billieux, J. (2020). Binge-Watching: What Do we Know So Far? A First Systematic Review of the Evidence. *Current Addiction Reports*, 7(1), 44–60. <https://doi.org/10.1007/s40429-020-00299-8>
- Flayelle, M., Maurage, P., Vögele, C., Karila, L., & Billieux, J. (2019). Time for a plot twist:

- Beyond confirmatory approaches to binge-watching research. *Psychology of Popular Media Culture*, 8(3), 308–318. <https://doi.org/10.1037/ppm0000187>
- Galak, J., & Redden, J. P. (2018). The Properties and Antecedents of Hedonic Decline. *Annual Review of Psychology*, 69(1), 1–25. <https://doi.org/10.1146/annurev-psych-122216-011542>
- Granow, V. C., Reinecke, L., & Ziegele, M. (2018). Binge-Watching and Psychological Well-Being: Media Use Between Lack of Control and Perceived Autonomy. *Communication Research Reports*, 35(5), 392–401. <https://doi.org/10.1080/08824096.2018.1525347>
- Green, M. C., & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of Personality and Social Psychology*, 79(5), 701–721. <https://doi.org/10.1037/0022-3514.79.5.701>
- Hofer, M., & Rieger, D. (2019). On being happy while consuming entertainment: Hedonic and non-hedonic modes of entertainment experiences. In J. A. Muniz & C. Pulido (Eds.), *Routledge Handbook of Positive Communication*. Routledge.
- Horeck, T., Jenner, M., & Kendall, T. (2018). On binge-watching: Nine critical propositions. *Critical Studies in Television: The International Journal of Television Studies*, 13(4), 499–504. <https://doi.org/10.1177/1749602018796754>
- Horvath, J. C., Horton, A. J., Lodge, J. M., & Hattie, J. A. C. (2017). The impact of binge watching on memory and perceived comprehension. *First Monday*, 22(9). <https://doi.org/10.5210/fm.v22i9.7729>
- Klesges, R. C., Shelton, M. L., & Klesges, L. M. (1993). Effects of Television on Metabolic

Rate: Potential Implications For Childhood Obesity. *Pediatrics*, 91(2), 281–286.

<https://doi.org/10.1542/peds.91.2.281>

Knobloch-Westerwick, S. (2013). Mood management: Theory, evidence, and advancements. In J. Bryant & P. Vorderer (Eds.), *Psychology of entertainment* (pp. 257–272). Routledge.

<http://librarytitles.ebrary.com/id/10795564>

Kubey, R., & Csikszentmihalyi, M. (2013). *Television and the Quality of Life* (0 ed.). Routledge.

<https://doi.org/10.4324/9780203812266>

Merikivi, J., Bragge, J., Scornavacca, E., & Verhagen, T. (2020). Binge-watching Serialized

Video Content: A Transdisciplinary Review. *Television & New Media*, 21(7), 697–711.

<https://doi.org/10.1177/1527476419848578>

Nelson, L. D., & Meyvis, T. (2008). Interrupted Consumption: Disrupting Adaptation to Hedonic Experiences. *Journal of Marketing Research*, 45(6), 654–664.

<https://doi.org/10.1509/jmkr.45.6.654>

Oliver, M. B., & Bartsch, A. (2011). Appreciation of Entertainment: The Importance of Meaningfulness via Virtue and Wisdom. *Journal of Media Psychology*, 23(1), 29–33.

<https://doi.org/10.1027/1864-1105/a000029>

Oliver, M. B., & Raney, A. A. (2011). Entertainment as Pleasurable and Meaningful: Identifying

Hedonic and Eudaimonic Motivations for Entertainment Consumption. *Journal of*

Communication, 61(5), 984–1004. <https://doi.org/10.1111/j.1460-2466.2011.01585.x>

Ort, A., Wirz, D. S., & Fahr, A. (2021). Is binge-watching addictive? Effects of motives for TV series use on the relationship between excessive media consumption and problematic

- viewing habits. *Addictive Behaviors Reports*, 13, 100325.
<https://doi.org/10.1016/j.abrep.2020.100325>
- Pittman, M., & Steiner, E. (2021). Distinguishing feast-watching from cringe-watching: Planned, social, and attentive binge-watching predicts increased well-being and decreased regret. *Convergence: The International Journal of Research into New Media Technologies*, 27(5), 1507–1524. <https://doi.org/10.1177/1354856521999183>
- Raney, A. A. (2004). Expanding Disposition Theory: Reconsidering Character Liking, Moral Evaluations, and Enjoyment. *Communication Theory*, 14(4), 348–369.
<https://doi.org/10.1111/j.1468-2885.2004.tb00319.x>
- Rubenking, B., & Bracken, C. C. (2018). Binge-Watching: A Suspenseful, Emotional, Habit. *Communication Research Reports*, 35(5), 381–391.
<https://doi.org/10.1080/08824096.2018.1525346>
- Rubenking, B., Bracken, C. C., Sandoval, J., & Rister, A. (2018). Defining new viewing behaviours: What makes and motivates TV binge-watching? *International Journal of Digital Television*, 9(1), 69–85.
- Tukachinsky, R., & Eyal, K. (2018). The Psychology of Marathon Television Viewing: Antecedents and Viewer Involvement. *Mass Communication and Society*, 21(3), 275–295. <https://doi.org/10.1080/15205436.2017.1422765>
- Viens, A., & Farrar, K. M. (2021). Conceptualizing and Measuring Binge Watching. *Communication Studies*, 1–18. <https://doi.org/10.1080/10510974.2021.1876748>
- Vorderer, P. (2011). What's Next?: Remarks on the Current Vitalization of Entertainment

- Theory. *Journal of Media Psychology*, 23(1), 60–63. <https://doi.org/10.1027/1864-1105/a000034>
- Vorderer, P., Klimmt, C., & Ritterfeld, U. (2004). Enjoyment: At the Heart of Media Entertainment. *Communication Theory*, 14(4), 388–408. <https://doi.org/10.1111/j.1468-2885.2004.tb00321.x>
- Walton-Pattison, E., Dombrowski, S. U., & Presseau, J. (2018). ‘Just one more episode’: Frequency and theoretical correlates of television binge watching. *Journal of Health Psychology*, 23(1), 17–24. <https://doi.org/10.1177/1359105316643379>
- Warren, S. (2020). Binge-Watching as a Predictor of Narrative Transportation Using HLM. *Journal of Broadcasting & Electronic Media*, 64(2), 89–110. <https://doi.org/10.1080/08838151.2020.1718985>
- Wirth, W., Hofer, M., & Schramm, H. (2012). Beyond Pleasure: Exploring the Eudaimonic Entertainment Experience. *Human Communication Research*, 38(4), 406–428. <https://doi.org/10.1111/j.1468-2958.2012.01434.x>
- Zillman, D., & Cantor, J. R. (1977). Affective responses to the emotions of a protagonist. *Journal of Experimental Social Psychology*, 13(2), 155–165. [https://doi.org/10.1016/S0022-1031\(77\)80008-5](https://doi.org/10.1016/S0022-1031(77)80008-5)
- Zillmann, D. (1988). Mood Management Through Communication Choices. *American Behavioral Scientist*, 31(3), 327–340. <https://doi.org/10.1177/000276488031003005>
- Zillmann, D. (1996). The psychology of suspense in dramatic exposition. In *Suspense: Conceptualizations, theoretical analyses, and empirical explorations*. (pp. 199–231).

Lawrence Erlbaum Associates, Inc.

Table 1*Means, standard deviations and internal consistency of the variables*

	<i>M</i>	<i>SD</i>	Alpha (RkRn)*
Study 1			
Transportation	3.54	0.65	0.75
Eudaimonic entertainment	2.79	0.68	0.89
Hedonic entertainment	4.19	0.73	0.82
Study 2			
Transportation	3.60	0.64	0.69
Eudaimonic entertainment	3.15	0.71	0.89
Hedonic entertainment	4.37	0.61	0.93

Note: RkRn is a way of calculating Alpha for multilevel data; it accounts for the fact that some measurements are nested within participants and is suitable when the timing of measurement varies (Revelle et al., 2019). The values were calculated with the R package psych.

Table 2*Results of the linear multilevel models*

	Transportation	Hedonic entertainment	Eudaimonic entertainment	Valence	Arousal
Study 1					
<i>Fixed effects</i>					
Intercept	3.33 (0.23)***	3.99 (0.24)***	2.71 (0.25)***	3.19 (0.21)***	2.43 (0.28)***
Gender	0.14 (0.14)	0.24 (0.16)	0.02 (0.15)	0.08 (0.13)	0.01 (0.18)
Age	0.00 (0.01)	0.01 (0.01)	0.00 (0.01)	0.01 (0.01)*	-0.01 (0.01)
Genre: drama	0.02 (0.15)	-0.47 (0.16)**	-0.15 (0.16)	-0.44 (0.14)**	0.40 (0.19)*
Session duration	0.00 (0.02)	-0.01 (0.02)	-0.01 (0.01)	-0.01 (0.02)	0.02 (0.02)
Viewing condition: episodic	0.32 (0.15)*	0.27 (0.16) [†]	0.12 (0.15)	0.26 (0.14) [†]	-0.32 (0.19) [†]
<i>Random effects</i>					
Intercept	0.23 (0.48)	0.28 (0.53)	0.34 (0.59)	0.12 (0.34)	0.31 (0.55)
Residual	0.21 (0.46)	0.23 (0.48)	0.12 (0.35)	0.33 (0.58)	0.45 (0.67)
ICC	0.52	0.56	0.74	0.26	0.41
Study 2					
<i>Fixed effects</i>					
Intercept	2.91 (0.28)***	4.34 (0.33)***	3.01 (0.38)***	2.43 (0.34)***	3.74 (0.40)***
Gender	0.15 (0.16)	-0.13 (0.17)	0.06 (0.20)	0.01 (0.18)	-0.26 (0.21)
Age	0.02 (0.01)*	0.01 (0.01)	0.00 (0.01)	-0.01 (0.01)	0.03 (0.01)*
Genre: drama	0.06 (0.13)	0.12 (0.10)	0.29 (0.13)*	-0.12 (0.13)	0.20 (0.15)

Session duration	0.06 (0.05)	0.09 (0.04)*	0.06 (0.05)	-0.07 (0.05)	0.00 (0.06)
Viewing condition: episodic	-0.04 (0.14)	-0.07 (0.10)	0.08 (0.13)	0.21 (0.13)	-0.04 (0.15)
<hr/> <i>Random effects</i>					
Intercept	0.09 (0.29)	0.23 (0.48)	0.27 (0.52)	0.19 (0.43)	0.28 (0.52)
Residual	0.31 (0.56)	0.12 (0.34)	0.22 (0.47)	0.25 (0.50)	0.31 (0.56)
ICC	0.22	0.66	0.54	0.43	0.47

*Note: ^tp < .10, *p < .05; **p < .01; ***p < .001; fixed effects coefficients are estimates (standard errors), random effects coefficients are variances (standard deviations)*