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The binge-watcher's journey: Investigating motivations, contexts, and affective states surrounding Netflix viewing

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Abstract
The growth of Internet-distributed TV services has transformed video consumption, enhancing the level of control that viewers have over what they watch. Along with the release of entire seasons of programming at once, this has led to the phenomenon of 'binge-watching', in which several episodes of a program are viewed in one sitting. This article presents the results of a novel exploratory study focused on 40 Netflix viewing sessions from 11 millennials in their homes. Methodologically, we employed a novel mixed-methods approach that combines objective data (collected through a browser extension) and subjective data (collected via questionnaires completed before and after viewing). This novel approach allowed us to describe the binge-watcher's experience in a holistic fashion. Results suggest that binge-watching is an individual activity mainly performed at the end of the day to relax, for boredom relief purposes, or for escapism. Furthermore, a binge-watching session lasts for an average of 2 h and 10 min, and variations on binge-watchers' affective states were identified after Netflix exposure. Participants' levels of valence (unhappy–happy) significantly decreased after binge-watching; their positive affect values increased primarily after watching sci-fi, while their negative affect values decreased after watching comedy and slightly increased after watching drama. However, the levels of arousal (relaxed–

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stimulated) remained the same. This study extends our current understanding of binge-watching in terms of viewer motivations, how it affects their viewing experiences, and participants' subjective affective states. The investigation contributes, thus, to a relatively new domain of research concerned with the understanding of binge-watching behavior of serialized TV fiction.

Introduction

Technology has changed the way people consume TV content, allowing them to orchestrate their own viewing in terms of time, content, location, and devices used. The popularity of Internet-distributed TV services such as Netflix, Amazon Video, and Hulu, together with the production of more complex stories, have contributed to the popularization of a specific mode of TV viewing – so-called 'binge-watching'. Engaging in this behavior that 'blends culture and technology' (Steiner and Xu, 2018: 2) means prolonging a viewing experience and engagement with a narrative world, as well as emphasizing the story world over the lived experience (Perks, 2015).

Forty-two percent of international viewers said they binge-watched more TV series in 2017 than they did 5 years ago (Ericsson Consumer Lab, 2017). Moreover, 45% of stream-on-demand viewing of long-form content in 2015 was of TV series (Ericsson Consumer Lab, 2015). The ever-increasing number of people watching serialized TV fiction in a compressed time frame explains the recent popularity of this research topic, where surveys, interviews, and focus groups have been common methods for studying this mode of viewing. These studies have vastly contributed to the understanding of viewers' motivations for binge-watching (see Steiner and Xu, 2018) and its effects on health (see Sung et al., 2015); however, little work has offered an overview of the binge-watching experience through the analysis of objective and subjective data collected in a natural viewing environment, for example, in the viewer's home.

This article aims to contribute to a relatively new domain of research concerned with the understanding of binge-watching behavior of serialized TV fiction (e.g. *Friends*, *13 Reasons Why*) on subscription video-on-demand (SVOD) platforms such as Netflix. To capture the viewers' behavior when binge-watching serialized TV fiction in a natural setting, a situated study was conducted in participants' homes. We collected objective data on the interactions that viewers had with the Netflix platform (e.g. pausing video, selecting content, etc.) through a browser extension, and subjective data (e.g. viewer's motivations and affective states) through questionnaires and scales such as the Positive and Negative Affect Schedule, or PANAS (Watson et al., 1988). Data obtained allowed us to describe the binge-watcher's experience in a holistic way by referring to, for example, viewers' motivations to initiate a Netflix session (e.g. relaxation), the location where this media consumption takes place (e.g. the bedroom), and the fluctuations (or not) of the viewers' affective states (e.g. the feelings of guilt tend to not be altered).

The following section presents a literature review, including definitions of binge-watching, contextual factors and motivations of this mode of viewing, and, finally, the fluctuations of affective states surrounding media exposure. The article then explains the study methodology and presents the results thereof. Finally, we offer a critical discussion of our findings.

Literature review

Despite increasing numbers of academic publications on the topic (see Conlin et al., 2016; de Feijter et al., 2016; Devasagayam, 2014; Jenner, 2015; Matrix, 2014), the concept of binge-watching lacks a standardized definition. However, it is generally defined as the self-determined consumption of multiple episodes of a serialized show consecutively. For instance, Netflix defined binge-watching as consuming two to six episodes of the same show in one sitting (Spangler, 2013), Ericsson Consumer Lab (2016) defined this behavior as watching at least two episodes of the same series or two consecutively, while scholars such as Flayelle et al. (2019) defined binge-watching as viewing multiple episodes of the same TV series in one session, and Merikivi et al. (2019: 6) as the 'consumption of more than one episode of the same serialized video content in a single sitting at one's own time and pace'. Although analyzing narrative components of serialized TV fiction is beyond the scope of this article, it is worth noting the effects that some features have on viewing behaviors, such as aesthetic qualities (Shim et al., 2017), the formulation of complex narratives (Mittell, 2015), and the inclusion of cliff-hangers (Steiner and Xu, 2018) that encourage continued watching.

In this article, and as a working definition for validation in this study, we operationalize binge-watching as the consumption of at least two complete episodes of the same serialized TV fiction consecutively. Similar definitions have been used in previous research (Ofcom, 2017; Pittman and Sheehan, 2015), and offer the broadest interpretation of viewing multiple episodes. As noted by Merikivi et al. (2019), binge-watching has been related to the term 'completion', especially when it comes to a series finale. In our working definition, we introduce this notion at the level of each viewing session to argue that viewers desire to obtain answers to the questions each episode presents.

Note that we do not use the term binge-watching uncritically. We are aware of other related concepts such as media-marathoning (Perks, 2015), but acknowledge that binge-watching is a convenient term to use given its popularity. In fact, identifying as a binge-watcher nowadays seems to be, as Steiner and Xu (2018: 4) argued, 'less a confession of a weakness' than a declaration of one's 'cultural and technological bona fides'.

The phenomenon of binge-watching must be understood, therefore, within the context of the digital era, during which many technologies have contributed to the emergence of new consumer behaviors with the potential for overuse (Flayelle et al., 2019). Netflix's auto-play feature is an example of this, since it may make the interruption of a viewing session difficult (Jenner, 2018: 161; Rigby et al., 2018a).

The contextual factors of binge-watching

Besides the inherent technological component that facilitates binge-watching (Internet connections, streaming services, etc.), it is also a cultural practice that people adapt to their personal circumstances (Mikos, 2016). Within Europe, researchers from Germany, the Netherlands, and the United Kingdom conducted empirical studies on the topic. For example, a study of German viewers aged 20–61 showed that this mode of viewing is often scheduled, especially during the weekend, as a kind of personal leisure-time event that is shared with others (e.g. partners and friends) when there are shared viewing interests (Mikos, 2016).

In the Netherlands, 18- to 34-year-olds tend to binge-watch alone at home, with the living room and the bedroom being the most popular spaces (de Feijter et al., 2016). Activities such as eating

and mobile messaging are common while binge-watching. Moreover, for nearly half of viewing sessions analyzed by de Feijter et al. (2016), participants watched longer than they intended, leading them to reschedule previously planned activities (e.g. chores). A UK study concluded that binge-watching sessions, defined as watching multiple episodes of the same content, last 02:07:41 on average, and 31% used handheld mobile devices (Rigby et al., 2018b).

Motivations to binge-watch

Audience and reception studies researchers have extensively relied on the uses and gratifications theory (U&G), which recognizes 'the potential for audience initiative and activity' (Rubin, 1994b, in Ruggiero, 2000: 8). Most recently, this has been applied to the analysis of binge-watching. Pittman and Sheehan (2015) explored the motivations concerning the frequency and planning of binge-watching, as well as in watching a complete season of a serialized TV fiction program in 1 or 2 days. Results suggested that the more engaged a viewer is with the narrative, the more frequently they binge-watch. This level of engagement may not only be reached because of the quality of the shows but also because of the viewers' efforts to limit outside distractions. Moreover, the motivation of social interaction helps to explain the binge-watching phenomenon as an activity that is carefully planned beforehand.

Panda and Pandey (2017) also explored binge-watchers' motivations. Findings indicated that social interaction, escape from reality, easy accessibility to content, and advertising effectiveness of content providers (e.g. through viral content trailers) motivated US college students to binge-watch more, and that 'the more the students binge watch, the higher their propensity to spend more time subsequently doing so' (Panda and Pandey, 2017: 435). Catching up, relaxation, a sense of completion, cultural inclusion, and improved viewing experience are the binge-watchers' main motivations identified by Steiner and Xu (2018). Unsurprisingly, some of these motivations (e.g. relaxation) mirror those of regular television audiences (see Rubin, 1983), while others are connected to the affordance of current viewing technologies (e.g. catching up, sense of completion). The impact of technology on viewers' motivations is also related to what Shim and Kim (2018) called *sense of efficiency* and *perceived control*, which they found to be two utilitarian motivations for the rapid consumption of media in South Korea.

Fluctuations on affective states

Analyzing affective states offers another perspective of investigating viewing experiences. Peoples' affective states and contexts influence the selection of the content they consume (Soleymani et al., 2016). It is worth noting that the term affect[1] is used in this article 'to describe the strictly biological portion' of an emotion (Nathanson, 1994: 45), the latter understood as the 'reflective judgment made on the affective experience' (Basch, 1976: 770).

The assessment of subjects' emotions at the beginning and end of a study by collecting self-reported data has a long history in experimental and clinical investigations (Pollak et al., 2011). Valence and arousal have been the most used dimensions to conceptualize affect. Researchers using audiovisual content stimuli have relied on different models such as the seven primary-process emotions from Affective Neuroscience (see Radeta et al., 2014) and the Affect and Potency scale (see de Feijter et al., 2016). However, two popular tools based on the valence–arousal two-dimensional framework are the PANAS with over 31,500 citations,[2] and the Self-Assessment Manikin (SAM) with over 5,800 citations.[3]

The PANAS (Watson et al., 1988) consists of 20 items measuring the positive and negative dimensions of affective states, rated on 5-point Likert-type scales. Positive affect (PA) illustrates 'the extent to which a person feels enthusiastic, active, and alert' while negative affect (NA) reflects the 'subjective distress and unpleasurable engagement' related to aversive affective states (Watson et al., 1988: 1063). Scholars have used PANAS to explore whether watching emotionally arousing films increases pain thresholds and group bonding (Dunbar et al., 2016), to study the release of hormones by TV soccer spectators (van der Meij et al., 2012), and to analyze the relationship between serialized TV fiction watching and binge-watching (Flayelle et al., 2019). The SAM (Bradley and Lang, 1994) is a pictorial scale that assesses participants' arousal, valence, and dominance, where participants identify the manikin representing their current state for each dimension. SAM has been applied to advertising studies (Morris, 1995) and to analyzing affective reactions to movies (Codispoti et al., 2008).

Study overview

The literature review found that binge-watching has attracted a large amount of attention from scholars, who have investigated the phenomenon using a variety of methods. However, it seems that quantitative and qualitative data are rarely combined. In our study, we further investigate binge-watching by employing a novel approach of combining objective and subjective data collected in a natural environment, to give more holistic insights.

We conducted a 10-day situated study within the home to answer the following research questions:

RQ1: What are the contextual factors surrounding binge-watching serialized TV fiction on Netflix?

RQ2: What are the main motivations for beginning a Netflix viewing session?

RQ3: How do binge-watchers' affective states change before and after Netflix exposure, if at all?

To answer these, we collected data about participants' Netflix activity via a browser extension, which also administered questionnaires to collect qualitative and quantitative data about the participants' viewing experiences.

Method

Participants

The study was conducted on a Portuguese island, focusing on (a) millennials (born between 1981 and 1997 according to Pew Research) – the generation that binge-watches the most (Deloitte, 2015), and (b) on Netflix, which accounts for approximately 47% of SVOD subscribers in the European Union (European Audiovisual Observatory, 2017).

Thirteen participants (five female, eight male) with a mean age of 26.85 (SD = 4.41) were recruited through mailing lists, social media, and word of mouth. Eleven were Portuguese, one was Australian, and one was Bangladeshi. Six were students, five were professionals, and two identified as both. Participants received a €20 gift card for participating.

Tools and materials

Netflix subscriptions were provided to participants for the duration of the study for video streaming. Participants were free to watch anything they liked, though this study was only concerned with the viewing of serialized TV fiction. Furthermore, for experimental control we only collected data for Netflix viewing, even though participants may have used other platforms. Participants used their own computers for viewing.

The literature review informed the design of pre- and post-session questionnaires to explore the context in which binge-watching activity occurs (e.g. location, time), the motivations for viewing, the viewers' variations in affective states, and specific details about their viewing experiences.

The pre-session questionnaire asked participants about motivations for viewing and how much content they intended to watch. They chose from motivations based on taxonomies used by Pittman and Sheehan (2015) and Cha and Chan-Olmsted (2012): escapism, relaxation, boredom relief, hedonism, companionship, social interaction, learning, none of these, other (please state which). To assess viewers' arousal and valence, the PANAS (Watson et al., 1988) and the SAM (Bradley and Lang, 1994) were included. Following previous research (see Codispoti et al., 2008), we limited SAM to the dimensions of valance (unhappy to happy) and arousal (relaxed to stimulated).

The post-session questionnaire also included the SAM and PANAS to allow for comparison with pre-viewing levels. Participants also recorded the viewing context (which room they watched in, whether they watched alone, which screen they used, etc.). We also collected qualitative data concerning the viewing experience, combining questions from the Immersive Experience Questionnaire for Film and TV (Film IEQ) (Rigby et al., 2016, 2019) and additional questions that allowed us to explore, for instance, participants' affective states. Steiner and Xu (2018) suggested the attentiveness spectrum to analyze the binge-watching experience instead of the dichotomous active–passive viewing on which the U&G approach is based. In line with this, we asked participants, 'To what extent did the content you watched during this session hold your attention?' Attentional focus is one of the dimensions of experiential engagement in narratives, describing viewer focus on (or distraction from) the program (Busselle and Bilandzic, 2009). This connects with the concept of immersion, defined as the experience of being transported into 'an elaborately simulated place' that a narrative proposes (Murray, 1997: 98). Therefore, we asked participants, 'How immersed did you feel during this session?'

As stated previously, the concept of binge-watching lacks a standardized definition. To help us to reflect on the appropriateness of our working definition, participants were asked, 'Would you say you binge-watched during this session?' after Netflix exposure. Seven people piloted the pre- and post-session questionnaires prior to the study, which led to small changes to the wording of the questions for comprehension and clarity.

We also developed a browser extension for Google Chrome to log interactions with the Netflix interface (e.g. pauses, content selection, time skips, etc.), which was installed on participants' computers. These data were logged to spreadsheet to allow for post hoc analysis. This allowed us to better understand the viewing sessions in terms of duration, timing, and frequency of events. The extension also administered the pre- and post-viewing questionnaires, reducing the risk of participants forgetting to complete them. Again, this was logged for post hoc analysis.

Procedure

Prior to the study, face-to-face sessions introduced the project to the participants. They also completed a demographic questionnaire and a questionnaire about their current viewing habits

(e.g. all of them were used to using their laptops to consume TV programs). The browser extension was installed on their laptops, and the correct use of the materials was demonstrated to prevent misinterpretation. At the end of the orientation, participants signed a consent form.

The study took place in participants' homes in Summer 2017, lasting 10 days (6 weekdays and 2 weekends). Participants were asked to watch Netflix on the laptop which had the browser extension installed. However, they were given the option to connect their laptop to the TV set via a cable if it was their normal viewing practice.

The browser extension collected data for each viewing session. It prompted the participants to complete questionnaires at the start and end of each session, and logged viewing activity in the background throughout. We defined a viewing session as any viewing activity that is bounded by 15 min of non-viewing before and after, as we argue that such a pause would break the viewer's immersion (Murray, 1997). In other words, pausing viewing for more than 15 min, whether between or during episodes, would end the current session and commence a new one. After the study, participants were debriefed and the extension uninstalled.

Results

Of the 98 viewing sessions logged from 13 participants, we identified 66 valid sessions from 11 participants. Invalid sessions were any that (a) did not have responses to both questionnaires, (b) lasted less than 2 min (we assumed that no content was watched), and/or (c) were focused on the consumption of media other than serialized TV fiction (e.g. movies). These sessions were not considered for analysis. We defined that an episode was 'watched until the end' when the participant watched at least 10-s before the start of the final credits of each episode. This 10-s window before the credits aimed to mitigate different reaction times (e.g. stop playing or move to the next episode) without losing the episode's narrative.

From the 66 viewing sessions, 40 qualified as binge-watching sessions, that is, at least two episodes of the same program were watched until the end in one sitting. Concerning the data analysis, data from the pre- and post-viewing session questionnaires were interpreted by means of descriptive statistics, with the exception of the PANAS and SAM scales. In these cases, Wilcoxon signed rank (WSR) tests were performed to compare levels before and after binge-watching.

Before the study, participants reported watching an average of 92 min or two episodes of a TV fiction program per sitting, meaning they could all be broadly characterized as binge-watchers. Interestingly, only one participant had a Netflix subscription before the study. This may be due to participants relying on free and unofficial websites to watch TV fiction online, because Netflix was introduced in Portugal less than 2 years before the study, or because participants feel that Netflix is expensive. Therefore, the results presented here mainly illustrate participants' first experiences with Netflix. Throughout the study, participants watched two or more full episodes of the same TV fiction show in one sitting in 40 viewing sessions (see Table 1). As Table 1 shows, 47.5% ($n = 19$) of the 40 sessions were performed by three participants. Moreover, at the end of each viewing session, we asked participants, 'In this session, do you think you behaved differently because you were part of this study?' In 75% ($n = 30$) of the sessions, participants replied that they did not behave differently. In 20% ($n = 8$) they considered that they behaved 'a little' differently, and in 2.5% ($n = 1$) they said that they behaved 'a lot' differently. We also asked, 'How likely is it that you will watch more of the shows you watched, or similar shows, in the future and outside of the frame of the study?' In 55% ($n = 22$) and in 25% ($n = 10$) of the 40 sessions, participants said they were 'extremely likely' and 'likely' to watch more of the shows

Table 1. Participant ID, number of viewing sessions, and content watched.

Participant ID	Num. of sessions	Content watched
1	2	*Sense8*
2	1	*Master of None*
3	2	*Master of None*
4	6	*13 Reasons Why, Stranger Things*
5	2	*Stranger Things*
6	3	*Master of None, Rick and Morty*
7	4	*Ozark, Sense8*
9	7	*Arrested Development, Death Note, Disjointed, Drama World, Flaked, Master of None, The Defenders*
11	4	*13 Reasons Why*
12	3	*13 Reasons Why, Sense8, Stranger Things*
13	6	*Castlevania, Master of None*

they watched in the study, respectively. Therefore, we consider these results an accurate reflection of participants' natural behavior.

Time slot and duration of the session

The number of binge-watching sessions were higher during weekdays (60%, $n = 24$) than during the weekends (40%, $n = 16$). Nighttime (21:00–16:59) and evening (17:00–20:59) were the most popular dayparts to binge-watch on Netflix, 37.5% ($n = 15$) of the 40 during the night, 32.5% ($n = 13$) during the evening. Only 20% ($n = 8$) of the sessions took place in the afternoon (12:00–16:59) and 10% ($n = 4$) in the morning (05:00–11:59). On average, the 40 viewing sessions lasted 02:10:40 (HH:MM:SS). To better visualize the duration of the sessions, these were organized into time intervals of 29 min. Twenty percent ($n = 8$) of the viewing sessions lasted 61–90 min, 20% ($n = 8$) 91–120 min, and another 20% ($n = 8$) 151–180 min. Fifteen percent ($n = 6$) lasted 121–150 and 12.5% ($n = 5$) 31–60 min. The longest session was 06:08:11 and the shortest 00:47:38.

On average, evening sessions ($n = 13$) lasted 02:13:48, followed by afternoon sessions ($n = 8$), which lasted an average of 02:04:50. During the night ($n = 15$), the average descends to 01:42:02. Interestingly, morning sessions ($n = 4$) lasted an average of almost 4 h (03:59:26). This is explained by two viewing sessions performed by one of our participants, in which the individual spent an average of 05:30:43 watching Netflix.

Time management and self-control

Participants seemed to have some control over the time they spent watching. In fact, in 52.5% ($n = 21$) of the 40 sessions, participants watched 'as much as they intended' in the beginning. The average time spent was 01:32:03. In terms of awareness of the time spent watching, in 19% ($n = 4$) of the sessions participants were 'completely aware', in 9.5% ($n = 2$) they were 'considerably aware', in 47.6% ($n = 10$) they were 'moderately aware', and in 23.8% ($n = 5$) they were 'slightly aware'.

Participants watched 'more than intended' in 45% ($n = 18$) of sessions, spending an average of 02:55:06. The main reasons given for watching more content than they intended were that 'the story line(s) was engaging' ($n = 14$) and that they 'had some extra free time' ($n = 3$). The option, 'It played the next episode, so I just continued watching', was only selected once. In terms of awareness, in 33.3% ($n = 6$) of the 18 sessions and in 27.8% ($n = 5$) where the subjects watched more than intended, participants indicated that they were 'slightly aware' and 'considerably aware', respectively. In 22.2% ($n = 4$) of the 18 viewing sessions, subjects were 'moderately aware', and were 'completely unaware' in 16.7% ($n = 3$). Per type of content, drama ($n = 8$) and sci-fi ($n = 6$) seemed to be the genres that fostered longer viewing sessions.

Location and screen

The bedroom was slightly more popular than the living room area for binge-watching, with 55% of the 40 sessions ($n = 22$) taking place in the bedroom and 45% ($n = 18$) in the living room. This may be affected by the time of day when participants watched Netflix. During the night ($n = 15$), the bedroom was the most popular room for binge-watching ($n = 12$), followed by the living room ($n = 3$). During the evening ($n = 13$) and afternoon ($n = 8$), the living room was the preferred area, with eight sessions happening in the evening and five in the afternoon.

Watching Netflix alone was more common than watching with someone else. In 85% ($n = 34$) of the 40 sessions, participants consumed more than one complete episode of the same program by themselves. In only 7.5% ($n = 3$) of the sessions, participants watched the episodes with someone else during the whole session, and in 7.5% ($n = 3$) participants watched the episodes with someone else but not during the whole session. It is worth noting that, of these six sessions, four of them were performed by the same participant.

By type of screen, the laptop was the most popular device. In only 22.5% ($n = 9$) of the 40 sessions, participants connected their laptop to a separate monitor (e.g. TV screen) in the living room. Interestingly, in 44.4% ($n = 4$) of these nine sessions, participants were watching Netflix with someone else.

Constructing a distraction-free viewing environment was not a very popular practice. In 27.5% ($n = 11$) of the 40 sessions, individuals decided to, for example, turn the lights or their phone off. However, the creation of this distraction-free environment was only completely successful in 27.3% ($n = 3$) of the 11 sessions, in which participants reported to have never noticed things in the real world taking place around them. In the rest of the sessions, participants did notice things happening in their surroundings either 'rarely' (27.3%, $n = 3$), 'sometimes' (27.3%, $n = 3$), or 'frequently' (18.2%, $n = 2$). Additionally, in 40% ($n = 16$) of the 40 viewing sessions, participants used headphones.

Performance of other tasks

In 32.5% ($n = 13$) of the 40 sessions, participants performed other tasks while watching. In 57.5% ($n = 23$) of the 40 sessions, participants used other technological devices while watching Netflix. In 37.5% ($n = 15$) of the cases, the usage of a second screen was not related to the show they were consuming (e.g. checking e-mail, playing games), while in 10% ($n = 4$), participants used a second screen to look for information related to the show (e.g. searching for an actor, consulting IMDB). The combination of both types of activities (related and unrelated to the program) happened in 10% ($n = 4$) of the viewing sessions.

Table 2. Motivations for watching Netflix.

Motivation	Num. of viewing sessions
Relaxation	23
Boredom relief	18
Escape	15
Learning	3
Hedonism	1
Companionship	1

Media multitasking, understood as the simultaneous consumption of media on different platforms or devices (see Ophir et al., 2009), may affect viewers' immersion in the narrative as well as their level of understanding of content watched. Self-reported data show that, in viewing sessions where individuals used other devices during Netflix exposure, they were 'completely immersed' in 2 sessions (1 focused on sci-fi and 1 focused on drama), 'very immersed' in 9 (5 focused on sci-fi and 4 on drama), and 'moderately immersed' in 11 sessions (4 focused on drama, 3 on comedy, 1 on sci-fi, 1 on action, and 2 that included a mix of genres). In the sessions where viewers did not use any other device (43.9%, $n = 18$), participants reported having been 'completely immersed' in four (three focused on drama and one on sci-fi), 'very immersed' in five (five comedy), and 'moderately immersed' in eight (two focused on sci-fi, three on action, one on drama, and two on comedy).

Similarly, in 10 sessions (3 focused on comedy, 2 on sci-fi, 2 on drama, 1 on action, and 2 that mixed genres) where the participants used other devices while watching Netflix (57.5%, $n = 23$), participants reported a 'very good level of understanding' of what happened in the program, while in 10 sessions (3 focused on sci-fi and 7 on drama), they reported having a 'good level of understanding' and a 'fair level' in 2 (focused on sci-fi).

Motivations

Immediately before viewing, we asked participants, 'What has motivated you to start watching? Check all [options] that apply'. 'Relaxation' and 'boredom relief' were the two primary reported motivations, followed by 'escapism' (see Table 2). Data showed that launching Netflix just to comply with the study was not a strong motivation.

Relaxation was the main motivation for watching Netflix at the end of the day ($n = 8$ viewing sessions happened in the evening and $n = 10$ at night). Of all the genres, drama appears to be the most popular among those individuals who opened Netflix to relax. In fact, in 47.8% ($n = 11$) of the viewing sessions in which 'relaxation' played a motivational role, participants watched a drama. In 21.7% ($n = 5$) they watched a sci-fi show, in 17.4% ($n = 4$) a comedy, and in 8.7% ($n = 2$) an action program. With regard to the time spent watching, seven of this group of sessions lasted 92–122 min, and six lasted 154–184 min.

Boredom relief as a motivation for watching TV fiction on Netflix was popular in the afternoon ($n = 6$) and evening sessions ($n = 6$). Six of the sessions were focused on comedy, five on drama, four on sci-fi, and one on action. Moreover, in two viewing sessions, participants combined two different types of genres. The durations of the viewing sessions motivated by boredom relief were slightly shorter than those motivated by relaxation ($n = 4$ lasted 61–91 min; $n = 4$, 92–122 min; and $n = 3$, 123–153 min).

The third most popular motivation was escapism, which was predominantly popular in those viewing sessions performed at the end of the day ($n = 7$ sessions happened in the night and $n = 4$ in the evening). Drama was the most consumed genre (46.7%, $n = 7$), followed by sci-fi (20%, $n = 3$) and comedy (13.3%, $n = 2$). The sessions motivated by escapism had durations that varied from 92–122 min (33.3%, $n = 5$) to 154–184 min (26.8%, $n = 4$).

Defining binge-watching

Concerning the question, 'Would you say you binge-watched during this session?', 6 participants out of 11 considered that they did not binge-watch in 27.5% ($n = 11$) sessions, while 10 participants considered that they had binge-watched in 62.5% ($n = 25$) sessions. Data from the browser extension showed that in 5 of those 11 not-perceived-as-bingeing sessions, participants watched two complete episodes of the same show, and, in 3 viewing sessions, participants watched two full episodes of the same program and played other episodes that they did not watch until the end. In one session, the participant considered that watching three episodes of a show whose episodes lasted between 9 and 18 min did not fit their understanding of binge-watching. This suggests that watching two episodes of the same program or not watching the episodes until the end may cause the participants to feel that they did not binge-watch.

Spending more time on Netflix than initially intended seemed to influence the perception that viewers have about the concept of binge-watching. In 27.3% ($n = 3$) of the not-perceived-as-bingeing sessions ($n = 11$), viewers had difficulty stopping their viewing due to the engaging story lines. Consequently, they watched more episodes than they had initially planned. This happened in 62.5% ($n = 15$) of the perceived-as-bingeing sessions ($n = 24$). The level of attention seemed to affect viewers' perceptions of what they defined as a bingeing or non-bingeing experience. Data showed that the viewed content held viewers' attention 'completely' and 'considerably' in 29.2% ($n = 7$) and 58.3% ($n = 14$) of the perceived-as-bingeing sessions, respectively. The numbers dropped notably in the case of the not-perceived-as-bingeing sessions. The program held the attention of the viewer 'completely' in 18.2% ($n = 2$) and 'considerably' in 27.3% ($n = 3$) of those 11 sessions. Higher levels of attentiveness were recorded in those sessions characterized by the viewer as 'bingeing' sessions. Similar results were obtained for the data about viewers' self-reported levels of immersion. In 54.2% ($n = 13$) and 16.7% ($n = 4$) of the perceived-as-bingeing sessions, participants reported to being 'very' and 'completely' immersed, respectively. The numbers dropped to 9.1% ($n = 1$) and 18.2% ($n = 2$) of the not-perceived-as-bingeing sessions.

Changes in affective states

Analysis of the SAM data identified significant differences for valence before (Mdn $= 3$) and after (Mdn $= 1$) binge-watching, meaning that participants' levels of happiness decreased after Netflix exposure. Arousal, however, remained the same (Mdn $= 2$), suggesting that participants' levels of relaxation–stimulation remained static after binge-watching. By genre, the type of content watched did not affect binge-watchers' changes in affective states, as the data from the WSR tests illustrate in Tables 3 and 4.

Regarding the values obtained from PANAS data (see Table 5), the WSR test showed significant differences for PA and NA. After binge-watching, PA increased, while NA decreased. The greatest increase ($+13$) in PA was recorded by a female participant watching

Table 3. SAM: Median values for valence.

Genre (num. of sessions)	Median before	Median after	WSR
Comedy (*n* = 10)	3	1	*Z* = −2.877; *p* = 0.004
Drama (*n* = 3)	3	1	*Z* = −2.994; *p* = 0.003
Sci-fi (*n* = 10)	3.5	2	*Z* = −2.539; *p* = 0.011
Action (*n* = 4)	3.5	1	*Z* = −1.841; *p* = 0.564

Note: SAM: Self-Assessment Manikin; WSR: Wilcoxon signed rank test.

Table 4. SAM: Median values for arousal.

Genre (num. of sessions)	Median before	Median after	WSR
Comedy (*n* = 10)	2	2	*Z* = −0.322; *p* = 0.748
Drama (*n* = 13)	2	2	*Z* = −0.768; *p* = 0.443
Sci-fi (*n* = 10)	2.5	2	*Z* = −1.380; *p* = 0.168
Action (*n* = 4)	2.5	2	*Z* = −0.577; *p* = 0.180

Note: SAM: Self-Assessment Manikin; WSR: Wilcoxon signed rank test.

Table 5. PANAS: Median values for PA and NA.

	PA	NA
Before	18	12
After	20.5	11.5
WSR	*Z* = −2.028; *p* = 0.043	*Z* = −2.573; *p* = 0.010

Note: PANAS: Positive and Negative Affect Schedule; PA: positive affect; NA: negative affect; WSR: Wilcoxon signed rank test.

Table 6. PANAS: Median values for PA.

Genre (num. of sessions)	Median before	Median after	WSR
Comedy (*n* = 10)	17	19	*Z* = −0.654; *p* = 0.513
Drama (*n* = 13)	20	21	*Z* = −0.669; *p* = 0.504
Sci-fi (*n* = 10)	18	24	*Z* = −2.807; *p* = 0.005
Action (*n* = 4)	21	18.5	*Z* = −0.378; *p* = 0.705

Note: PANAS: Positive and Negative Affect Schedule; PA: positive affect; WSR: Wilcoxon signed rank test.

Stranger Things. Concerning NA, this (+4) was recorded by a female participant watching *13 Reasons Why*.

By genre, the WSR test showed that PA increases after binge-watching comedy, drama, and sci-fi (see Table 6). A significant difference was registered in relation to sci-fi (*n* = 10; Mdn before = 18; Mdn after = 24; *Z* = −2.807; *p* = 0.005). In the case of the NA (see Table 7), the affect decreased after comedy exposure (*n* = 10; Mdn before = 13; Mdn after = 11; *Z*

Table 7. PANAS: Median values for NA.

Genre (num. of sessions)	Median before	Median after	Wilcoxon signed rank
Comedy (n = 10)	13	11	Z = −2.506; p = 0.012
Drama (n = 13)	12	13	Z = −0.446; p = 0.656
Sci-fi (n = 10)	13	13	Z = −0.921; p = 0.357
Action (n = 4)	13	10	Z = −1.841; p = 0.066

Note: PANAS: Positive and Negative Affect Schedule; WSR: Wilcoxon signed rank test; NA: negative affect.

$= -2.506$; $p = 0.012$) and slightly increased with drama ($n = 13$; Mdn before $= 12$; Mdn after $= 13$; $Z = -0.446$; $p = 0.656$). Negative emotions seem to surround excessive media consumption. Nonetheless, the analysis of the data given for this specific item of the PANAS scale showed that binge-watching did not affect the levels of participants' guilt (before, Mdn $= 1$; after, Mdn $= 1$).

Discussion

This article presents an investigation of the binge-watching mode of viewing among millennials. Concerning the contextual factors (RQ1), our findings present binge-watching as an individual activity performed on weekdays, primarily, during the night (in the bedroom) and the evening (in the living room). For a screen, the laptop is preferred over the TV set. Similar to findings from previous research (see Rigby et al., 2018b), the average binge-watching session in our study lasted 02:10:40, during which viewers tended to perform activities unrelated to the show, such as eating and using mobile devices. Self-reported data suggested that media multitasking did not have a notable impact on viewers' levels of immersion.

Relaxation, boredom relief, and escapism were the three main motivations to start watching TV fiction on Netflix (RQ2), aligning with the insights obtained in previous research (Pittman and Sheehan, 2015). Viewers had different motivations for watching Netflix according to the time of the day (i.e. relaxation and escapism in the evening and night, and boredom relief in the afternoon and evening). The duration of the sessions initiated to relieve boredom was slightly shorter than those motivated by relaxation and escapism.

Concerning participants' levels of control over their viewing, no clear trend was identified. Participants watched as much as they had initially planned in 52.5% of the sessions, and in almost half of those, participants were 'moderately aware' of the time spent. On average, these sessions lasted around 1.5 h. Comparable to the results obtained by de Feijter et al. (2016), the number of sessions where participants watched more episodes than they had previously intended was also noteworthy: 45% of the total. The main reason for extending Netflix exposure was the engaging story lines. Surprisingly, the auto-play feature offered by Netflix did not influence participants spending more time watching, and Netflix's exposure did not alter participants' feeling of guilt.

Regarding affective state fluctuations (RQ3), participants' levels of valence (unhappy–happy) significantly decreased after Netflix exposure. For some, this could be related to the fact that returning to reality after being immersed in a narrative world could result in feeling less happy. Further investigation into the personal interpretations of such results would be needed to clarify these assumptions. Contrarily, the levels of arousal (relaxed–stimulated) remained static, which contradicts the results of Kubey and Csikszentmihalyi (2002). In their study on linear TV, they

observed that this sense of relaxation, where people quickly immersed themselves, evaporates when the TV is turned off. Concerning the genre, the content watched did not affect binge-watchers' arousal and valence. However, PANAS data indicated that PA values increased after binge-watching comedy, drama, and especially sci-fi. As expected, the NA values decreased after watching comedy and slightly increased after watching drama.

As described in the introduction, we operationalized binge-watching as watching at least two complete episodes of the same TV fiction show immediately after each other. We analyzed sessions conforming to those requirements and found that this definition of binge-watching was supported by more than a half of participants' impressions about their viewing experiences. In particular, for 62.5% of those sessions, participants responded positively when asked 'Would you say you binge-watched during this session?', even though one could argue that consuming two episodes of the same show in a row is also a part of broadcast and cable viewing. However, the definition suggested by Merikivi et al. (2019) seems to support this definition.

From the participants' perspectives, the main doubts about what qualifies as binge-watching emerged when participants did not watch all the episodes until the end, even if they had watched at least two complete episodes from the same show in the same sitting. This suggests the importance of completion when engaging in this mode of viewing. Low levels of attention and immersion seemed to have also discouraged participants from using the term 'binge-watching' when describing a viewing session. However, people may have differing personal definitions (Jenner, 2016) according to factors such as age, occupation, family situation (Horeck et al., 2018), the genre of the program and episodes' length, and the viewing and production culture they are part of. Definitions that are susceptible to change with the evolution of their own habits.

Limitations and future research

This research represents a detailed contribution to the understanding of binge-watching. Despite the novelty of the study's design and, in particular, the development of the browser extension for logging of objective data, there are some limitations. The study is focused on the viewing habits of 11 millennials living in a southern European country. We acknowledge that the sample size could be larger, but this project was very much intended to be an exploratory study. Furthermore, the sample size is in line with studies of a similar nature that investigate audience behavior, such as Radeta et al. (2014), Mikos (2016), and Rigby et al. (2018a). This also reflects the difficulty experienced in recruiting participants for this study, perhaps due to the requirement of installing logging software on participants' computers, but also because the study took place on a small island with a low population. Further research would benefit from a larger sample, from approaching the phenomenon from a cross-cultural and cross-generational perspective, and from also conducting a similar research with participants who are regular Netflix viewers. Additionally, the development of a software compatible with smart TVs should be further explored.

The combination of subjective and objective data in a natural environment is one of the strengths of this study. However, the analysis of participants' emotions is only based on self-reports of 11 people, making it difficult to offer meaningful explorations of how PA relates to the generation of NA in the context of binge-watching. Future research could benefit from a mixed-methods approach combining, perhaps, skin conductance and questionnaires. This could give insight into 'both the conscious and the unconscious emotional experiences of watching a TV program' (Heiselberg, 2018: 31).

The observation of viewers' levels of attention (see Barreda, 2013) and immersion (see Rigby et al., 2019) that this article offers is only exploratory. For an accurate analysis of those components, validated questionnaires could be used in combination with physiological data (e.g. eye movements, heart rate). Moreover, this study was conducted in 2017, which explains the absence of some binge-watching motivations identified in more recent research (Steiner and Xu, 2018), such as catching up and sense of completion, which could be included in future projects. Future research could further probe the media multitasking aspect of binge-watching, the different types of breaks that viewers take during viewing, and how these two elements may affect viewing experiences. The field of audience studies would also benefit from the design of a longitudinal investigation that considers how viewers' binge-watching habits change over time.

Conclusion

This study investigated the binge-watching habits of 11 millennials in their homes. We employed a novel mixed-methods approach, combining objective data collected through a browser extension and subjective data collected via questionnaires before and after viewing. This allowed us to explore the binge-watching practices in a holistic way. We found that participants most often binge-watched (according to our definition) alone on weekday evenings and nights, mostly in the living room and bedroom. They did so to relax, relieve boredom, and for escapism. Binge sessions lasted just over 2 h on average, and participants watched more than originally intended in nearly half of the sessions. However, this did not increase feelings of guilt. As expected, participants' own perceptions and definitions of binge-watching were highly variable.

Notes

1. Hillis et al. (2015) reflect upon the coexistence of multiple definitions of affect.
2. Data from Google Scholar, February 9, 2019.
3. Data from Google Scholar, February 9, 2019.

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