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Fast-Forward to Boredom: How Switching Behavior on Digital Media Makes People More Bored

Katy Y. Y. Tam[1] and Michael Inzlicht[1, 2]
[1] Department of Psychology, University of Toronto Scarborough
[2] Rotman School of Management, University of Toronto

Boredom is unpleasant, with people going to great lengths to avoid it. One way to escape boredom and increase stimulation is to consume digital media, for example watching short videos on YouTube or TikTok. One common way that people watch these videos is to switch between videos and fast-forward through them, a form of viewing we call digital switching. Here, we hypothesize that people consume media this way to avoid boredom, but this behavior paradoxically intensifies boredom. Across seven experiments (total N = 1,223; six preregistered), we found a bidirectional, causal relationship between boredom and digital switching. When participants were bored, they switched (Study 1), and they believed that switching would help them avoid boredom (Study 2). Switching between videos (Study 3) and within video (Study 4), however, led not to less boredom but more boredom; it also reduced satisfaction, reduced attention, and lowered meaning. Even when participants had the freedom to watch videos of personal choice and interest on YouTube, digital switching still intensified boredom (Study 5). However, when examining digital switching with online articles and with nonuniversity samples, the findings were less conclusive (Study 6), potentially due to factors such as opportunity cost (Study 7). Overall, our findings suggest that attempts to avoid boredom through digital switching may sometimes inadvertently exacerbate it. When watching videos, enjoyment likely comes from immersing oneself in the videos rather than swiping through them.

Public Significance Statement
People often switch between videos and fast-forward through them on platforms like YouTube, TikTok, and Netflix. We show that people consume media this way to avoid boredom. However, this switching behavior makes people feel more bored, less satisfied, less engaged, and less meaningful in some instances. Our results provide valuable insights on how to consume digital media in a more adaptive and enjoyable manner in everyday life. Enjoyment may be better attained by immersing oneself in videos rather than swiping through them.

Keywords: boredom, enjoyment, media use, media multitasking, attention

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Entertainment comes effortlessly these days. Gone are the days of patiently waiting for our favorite show to air on television once a week. We can now access countless videos on a wide range of streaming platforms and social media with just a single tap of a button. Russell (1930, p. 60) commented that

> We are less bored than our ancestors were, but we are more afraid of boredom. We have come to know, or rather to believe, that boredom is not part of the natural lot of [people], but can be avoided by a sufficiently vigorous pursuit of excitement.

This argument, made over 90 years ago, seems only more relevant today. In this digital age, people can pull out their phones for rewarding stimulations at the slightest hint of tedium. They can swiftly switch to the next post or video whenever they encounter content that fails to capture their immediate interests. With such

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Katy Y. Y. Tam https://orcid.org/0000-0003-2197-8705
Michael Inzlicht https://orcid.org/0000-0001-9297-6497
Data, codes, markdown outputs, and materials are publicly available at the Open Science Framework: https://osf.io/4wb3m/?view_only=f0c1fe5e49754769b9c94b82bb0f67f7. Some of the data in the article were presented at the 2024 Annual Meeting of the Society for Affective Science. The preprint is online at PsyArXiv: https://osf.io/preprints/psyarxiv/n4qeg. Study designs, sample sizes, hypotheses, procedures, measures, and analyses for Studies 1, 3–7 have been preregistered at https://aspredicted.org/mu78t.pdf; https://aspredicted.org/s3wv6.pdf; https://aspredicted.org/4aw8h.pdf; https://aspredicted.org/dc8f2.pdf; https://aspredicted.org/5rn26.pdf; https://aspredicted.org/8rj3q.pdf. The authors have no conflicts of interest to disclose.

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Correspondence concerning this article should be addressed to Katy Y. Y. Tam, Department of Psychology, University of Toronto Scarborough, 1265 Military Trail, Toronto, ON M1C 1A4, Canada. Email: ktyytam@gmail.com

unprecedented convenience, we would assume people are less bored than ever. Yet, the opposite has happened: Nationally representative surveys (Weybright et al., 2020) and a meta-analysis of birth cohort changes (Gu et al., 2023) reveal that boredom had increased among young people from 2008 to 2020. Here, we ask if people's switching behavior on digital media paradoxically intensifies boredom.

Boredom

Boredom is a prevalent emotion, whether it is at work (van Hooff & van Hooft, 2017), at school (e.g., Daschmann et al., 2011; Goetz et al., 2014), or during everyday activities (Chin et al., 2017). It is defined as an "aversive state of wanting, but being unable, to engage in satisfying activity" (Eastwood et al., 2012, p. 483). This emotion is intricately connected to attention (e.g., Hunter & Eastwood, 2018; Yakobi et al., 2021). It resembles a feedback loop of attention shifts triggered by a gap between one's actual and subjectively desired levels of attentional engagement (Tam, van Tilburg, Chan, et al., 2021). For instance, it often arises in situations that lack novelty (Daschmann et al., 2011; Erturk et al., 2022), meaning (Chan et al., 2018; Martarelli et al., 2023; van Tilburg & Igou, 2012; Westgate & Wilson, 2018), autonomy (van Hooff & van Hooft, 2017; van Hooft & van Hooff, 2018), or challenge (Acee et al., 2010; Harris, 2000).

Being bored is an unpleasant experience (Martin et al., 2006; van Tilburg & Igou, 2017). In moments of boredom, people may feel restless, trapped, empty, frustrated, lonely, worried, and sad (e.g., Chan et al., 2018; Harris, 2000; Martin et al., 2006), while perceiving time as passing slowly (Witowska et al., 2020). For some, this emotion is disliked and considered abnormal (Tam, Chan, et al., 2023; Tam, van Tilburg, & Chan, 2023). The chronic experience of it, as when someone is boredom prone, is associated with various mental health issues such as depression, anxiety, stress, apathy, anhedonia, somatization, and lower life satisfaction (Fahlman et al., 2009; Goldberg et al., 2011; Lee & Zelman, 2019; Sommers & Vodanovich, 2000; Tam, van Tilburg, & Chan, 2021). Some people view a good life as one filled with varied interesting experiences (Oishi & Westgate, 2022).

Boredom Avoidance

Given the aversive nature of boredom, it is not surprising that people engage in a wide range of behaviors to escape it. For instance, to avoid boredom, people may chat with others, observe the environment, work out, exert mental effort, and retrieve nostalgic memories (Finkielsztein, 2020; Sharp et al., 2017; van Tilburg et al., 2013; Wu et al., 2023). Boredom intensifies the desire to escape the current situation (Martin et al., 2006; Smith & Ellsworth, 1985; van Tilburg & Igou, 2012), heightens reward sensitivity (Milyavskaya et al., 2019), and promotes exploration over exploitation (Agrawal et al., 2022). Boredom functions to inform people that the present circumstances lack meaning and to motivate the pursuit of something more meaningful and fulfilling (Bench & Lench, 2013; van Tilburg & Igou, 2012).

However, people may sometimes respond to it in unconstructive ways (Bieleke et al., 2022). To avoid boredom, people may harm others for pleasure (Pfattheicher et al., 2021, 2023), shop impulsively (Sundström et al., 2019), take risks (Kılıç et al., 2020), self-administer electric shock (Havermans et al., 2015; Nederkoorn et al., 2016; Wilson et al., 2014), eat unhealthy snacks (Havermans et al., 2015; Moynihan et al., 2015), break rules (Boylan et al., 2021; Wolff et al., 2020), consume pornography (Moynihan et al., 2022), endorse extreme political orientations (van Tilburg & Igou, 2016), engage in counterproductive work behaviors (Bruursema et al., 2011; van Hooff & van Hooft, 2014), and seek out novel experiences even when those experiences are negative (Bench & Lench, 2019).

Curiously, however, avoiding boredom is not particularly effective in alleviating it. This seems to be particularly the case when it comes to digital media use. Whereas boredom relief is a motivation for social media use (Stockdale & Coyne, 2020), X (Twitter) use was related to a within-person increase in boredom (Oldemburgo de Mello et al., 2024). Similarly, boredom relief is a primary motivator of using a smartphone (Fullwood et al., 2017; Lepp et al., 2017), but smartphone use appears to exacerbate boredom (Dora et al., 2021; Dwyer et al., 2018). There is robust evidence for the link between boredom proneness and excessive smartphone use (Al-Saggaf et al., 2019; Elhai et al., 2018; Ksinan et al., 2021; Wolniewicz et al., 2020; L. Zhang et al., 2023). While the intuitive explanation is that people turn to smartphones when they are bored, the results can also imply that smartphone use intensifies boredom. Indeed, in a study which recorded levels of boredom and smartphone use every hour at work (Dora et al., 2021), participants were more likely to use their smartphones when bored, but they reported greater boredom after having used their smartphones. In social situations, smartphone undermines enjoyment and makes people more bored (Dwyer et al., 2018, 2023). Taken together, using digital media to alleviate boredom appears ineffective; not only that, it seems to make it worse. Why might this be the case? We explore whether the answer lies in the way that people interact with digital media—they switch between content rapidly.

Digital Switching

Whether it is on TikTok, YouTube or Netflix, people habitually skip some segments, fast-forward through videos, or turn to other media platforms whenever content starts to be less interesting. Switching is prevalent in everyday life. It was reported that, on average, individuals switch between different mobile applications 101 times every day (Deng et al., 2019), alternating between content on computers every 19 s (Yeykelis et al., 2014), turning to a secondary task like social media every 6 min while studying (Rosen et al., 2013), and checking smartphones around 35 times a day (Lowe-Calverley & Pontes, 2020).

Why do people switch between digital content frequently? There are various reasons, such as sensation seeking (Duff et al., 2014), impulsivity (Yang & Zhu, 2016), wanting to stay connected with people (Kononova & Chiang, 2015), seeking additional information, and managing time efficiently (Hwang et al., 2014). In this article, we examined the relationship between boredom and *digital switching*, which we refer to as the act of switching between or within media content.

From Boredom to Digital Switching

Our first hypothesis is that boredom drives digital switching (Hypothesis 1). Previous research suggests that boredom promotes avoidance (e.g., Havermans et al., 2015; Moynihan et al., 2015; Nett et al., 2010) and exploration (Agrawal et al., 2022; Danckert, 2019).

A gap between one's desired and actual levels of attentional engagement triggers boredom, leading to attention shifts from one place to another (Tam, van Tilburg, Chan, et al., 2021). We propose that these also apply on digital media, that boredom leads to digital switching from one content to another. Digital switching serves both to avoid boring content and to explore and search for more engaging content.

This suggests that people with an unrealistically high desired level of attentional engagement would very often find content boring (Tam, van Tilburg, Chan, et al., 2021). They would thus frequently switch in search of more captivating content, while struggling to find content that meets their subjective, elusive desires. Whereas switching from one activity to another (e.g., from reading to hiking) to avoid boredom takes time, it is extremely easy to switch between digital content given the vast amount of information available online and user-friendly interfaces. This highlights the uniqueness of digital switching behavior, that it can be performed incessantly and rapidly. Together, these help explain why people constantly switch between digital content these days.

From Digital Switching to Boredom

Our second hypothesis is that digital switching intensifies boredom (Hypothesis 2). This hypothesis may seem counterintuitive. The option to skip segments of a video or switch to another one provides people with novel stimuli, autonomy, subjective control, and the opportunity to explore, all of which have been proposed as antidotes of boredom (e.g., Bench & Lench, 2019; Danckert, 2019; Tze et al., 2014; van Hooft & van Hooff, 2018). Yet, while media content (the content people switch to) can be interesting or boring, we predict that the very act of digital switching itself exacerbates boredom.

This is because attention plays a central role in this emotion (e.g., Eastwood et al., 2012; Hunter & Eastwood, 2018; Yakobi et al., 2021). When people switch, their attention shifts. They are not engaging in the current content but attempting to close the gap between desired and actual engagement, which may lead to a feedback process intensifying boredom over time (Tam, van Tilburg, Chan, et al., 2021). Moreover, knowing that there are other possible options for engagement increases the opportunity cost of the current task, heightening boredom (Kurzban et al., 2013; Struk et al., 2020). Consistent with these, two experimental studies have demonstrated that switching between a primary task and media use reduces enjoyment (Oviedo et al., 2015; Xu & David, 2018). In real life, disentangling the effect of digital switching from the effect of media content on boredom is challenging. This underscores the importance of conducting psychological experiments in controlled settings to elucidate how digital switching shapes boredom.

The Current Research

In seven experiments, we tested our hypotheses that (1) people digitally switch to avoid boredom but (2) that this behavior makes people more bored. We started with testing Hypothesis 1, examining whether boredom increases digital switching during video consumption (Study 1). We then explored people's lay perception and preference for digital switching, focusing specifically on whether they think switching would make their viewing experiences more interesting (Study 2). Next, we tested Hypothesis 2, asking whether digital switching intensifies boredom in university samples. This was done by manipulating switching between videos (Study 3), switching within a video (Study 4), and switching on YouTube where participants watched videos of their choice and interest (Study 5). Finally, we investigated the boundary condition and mechanism underlying digital switching. We sought to generalize our findings to samples with more diverse backgrounds and ages, while examining digital switching with online articles (Study 6) and exploring the role of opportunity cost (Study 7).

Transparency and Openness

In keeping with open science principles, we preregistered the study designs, sample sizes, hypotheses, procedures, measures, and analyses for all our studies except the vignette Study 2 (https://aspredicted.org/mu78t.pdf; https://aspredicted.org/s3wv6.pdf; https://aspredicted.org/mu78t.pdf; https://aspredicted.org/dc8f2.pdf; https://aspredicted.org/5rn26.pdf; https://aspredicted.org/8rj3q.pdf). All data, codes, markdown outputs, and materials are available via the Open Science Framework and are accessible at https://osf.io/4wb3m/?view_only=f0c1fe5e49754769b9c94b82bb0f67f7. All studies were approved by the ethics committee of the University of Toronto; Ref: 43672.

Study 1: Boredom Drives Digital Switching

We began by testing whether people digitally switch to avoid boredom (Hypothesis 1) using a within-participant experiment with two conditions (interesting vs. boring). We manipulated participants' boredom through giving them a set of interesting videos and a set of boring videos to watch. In each condition, we assessed their switching behavior through recording the number of times they skipped videos and their self-report level of switching within videos. The study was preregistered at https://aspredicted.org/mu78t.pdf.

Method

Participants

We targeted a minimum sample of 128 participants, which affords 80% power to obtain a small effect size of $d = 0.25$ ($\alpha = .05$) with our within-participant design. We recruited 147 U.S. nationals residing in the United States via Prolific (https://www.prolific.com), who received £4.5 for participating. No participant failed either of the two attention checks. After excluding those who did not complete the experiment ($n = 7$), we had an effective sample of 140 participants (52 female, 85 male, three other/not disclosed; age range = 18–78, $M = 38.9$, $SD = 13.5$).

Procedure and Materials

To disguise the study's purpose, participants were informed that the study was about "visual stimulation and affective experiences." They first provided their informed consent and demographics. Then, they reported their levels of boredom ("I am bored") and other emotions as fillers. Prior to each condition, participants were told that they had 10 min to entertain themselves with some 5-min videos and relax; they were also free to skip and select video(s) that they would like to watch. We provided them with (a) a set of eight videos that were pilot tested to be boring in the boring condition and (b) a

set of eight videos that were tested to be interesting in the interesting condition (see Supplemental Table S1).[1]

The videos were presented in the same sequence to each participant. After they skipped through all eight videos, the page would loop back to the first video. The total viewing time in each condition was 10 min. The order of these two conditions was counterbalanced, with a filler task inserted between them to prevent carryover effect. The filler task was a simple descriptor task (Schlegel et al., 2011), in which participants took a few minutes to list descriptors that they thought best describe three topics, "breakfast," "holiday," and "country." The same filler task was applied across Studies 1, 3–7.

After each condition, participants reported their levels of boredom ("I am bored"), satisfaction (averaging two items "To what extent do you find watching the videos … satisfying, enjoyable?": $r = .91$, $p < .001$), attention ("To what extent were you absorbed by the videos?"), and meaning ("To what extent do you find watching the videos meaningful?"). To minimize demand characteristics, they rated several emotions along with boredom. The measures were identical in this experiment and Studies 3–7. All items were rated on a 7-point scale (1 = *not at all*, 7 = *very much*). To assess digital switching behavior, we recorded the number of times participants skipped to the next video in each condition through Qualtrics. At the end of the study, participants also reported their levels of digital switching within videos in each condition ("How often did you skip forward or backward while you were watching the videos?") on a scale of 1 (*never*) to 5 (*very often*).

The within-participant design ensured that all participants experienced both interesting and boring sets of videos, thus controlling for individual preferences over video content. Also, unlike a previous experiment that manipulated boredom through videos and measured media multitasking in a subsequent task (Drody et al., 2022), we manipulated boredom and measured digital switching simultaneously. This simultaneous induction/measure design has been adopted in many previous boredom experiments, in which participants electrically shocked themselves, harmed others for pleasure, or consumed snacks while simultaneously viewing boring (or interesting) stimuli (e.g., Havermans et al., 2015; Pfattheicher et al., 2021). This design enabled us to assess the real-time effect of boredom. It avoids conflating boredom experience with the relief that follows the end of a boring episode, focusing on behavioral responses during boredom experience rather than afterward (Pfattheicher et al., 2021).

Results and Discussion

We successfully manipulated boredom. Paired-sample t tests showed higher levels of boredom, dissatisfaction, disengagement, and meaninglessness in the boring condition, compared to the interesting condition (Table 1). In terms of digital switching between videos, the median number of times participants switched to the next video in boring condition was eight ($M = 9.56$, $SD = 8.50$, range = 1–56), and in the interesting condition it was four ($M = 6.26$, $SD = 9.17$, range = 1–56). Given that it was a count variable, we conducted a multilevel Poisson regression with participant specified as a random intercept. It indicated that condition significantly predicted digital switching between videos, $B = 0.42$, $SE = 0.04$, $p < .001$. In terms of digital switching within video, a paired-sample t test showed that participants skipped the video backward and forward significantly more in the boring condition ($M = 2.62$, $SD = 1.52$) than in the interesting condition ($M = 1.76$, $SD = 0.92$), $t(139) = 7.32$, $p < .001$, $d = 0.62$. Taken together, we manipulated boredom and measured digital switching between and within videos. Results support Hypothesis 1 that boredom drives digital switching.

Study 2: Lay Perception of Digital Switching

Study 1 shows that people digitally switch to avoid boredom. Next, we explored people's lay perception and preference underlying this behavior. Specifically, we investigated whether people prefer to switch because they believe that switching helps them avoid boredom. Study 2 was a within-participant vignette study, in which we asked participants to predict their feelings in hypothetical settings where they could digitally switch and where they could not. These settings were identical to our manipulations of digital switching in Studies 3 and 4. If people avoid feeling bored through digital switching (Hypothesis 1), then they will prefer the option to switch as they anticipate experiencing more boredom when they are unable to switch.

Method

Participants

Participants were recruited from the undergraduate student pool of the University of Toronto Scarborough. A total of 299 participants started the online survey. We excluded those who failed either of the three attention checks ($n = 66$), who had a duplicate response ($n = 1$), and who only filled out questions for one of the two scenarios ($n = 1$). The final sample comprised of 231 participants (162 female, 61 male, eight other/not disclosed; age range = 17–62, $M = 19.2$, $SD = 3.26$).

Procedure and Materials

Participants completed the study via an online survey that included measures that are not related to the current research. They were randomly assigned to predict their experiences in either of the two sets of scenarios. The first set, Scenarios A and B ($n = 118$), described situations with and without an option to switch between different videos. The second set, Scenarios C and D ($n = 113$), presented situations with and without an option to fast-forward a video. These scenarios were identical to our manipulations of digital switching between videos in Study 3 and within video in Study 4. The instructions were:

> Please imagine yourself in the following situations and predict how you would feel and think:
>
> Scenario A (*no-switching between videos*)
>
> Imagine you were given 10 min to watch a 10-min video. While you were watching the video, the video control panel was locked so that you were not able to skip forward or backward the video. You could simply watch the video as it was for 10 min.
>
> Scenario B (*switching between videos*)

[1] Links to all the videos used in Studies 1, 3, 4 and 7 and the articles used in Study 6 are included in the Supplemental Materials.

Table 1
Within-Participant Comparison of Interesting and Boring Conditions in Study 1

Measure	Interesting condition *M* (*SD*)	Boring condition *M* (*SD*)	*t*	*df*	*p*	Cohen's *d*
Digital switching between videos	6.26 (9.17)	9.56 (8.50)				
Digital switching within video	1.76 (0.92)	2.62 (1.52)	−7.32	139	<.001	−0.62
Boredom	2.20 (1.54)	4.16 (2.08)	−12.0	139	<.001	−1.02
Satisfaction	5.13 (1.56)	2.78 (1.91)	13.8	139	<.001	1.16
Attention	5.00 (1.66)	2.85 (1.88)	11.6	139	<.001	0.98
Meaning	4.16 (2.02)	3.00 (1.99)	6.35	139	<.001	0.54

> Imagine you were given 10 min to watch some 5-min videos. While you were watching each video, the video control panel was locked so that you were not able to skip forward or backward the video. However, you could skip the video(s) and watch the next one whenever you felt like to.
>
> Scenario C (*no-switching within video*)
>
> Imagine you were given 10 min to watch the first 10 min of a 50-min video. While you were watching the video, the video control panel was locked so that you were not able to skip forward or backward the video. You could simply watch the video as it was for 10 min.
>
> Scenario D (*switching within video*)
>
> Imagine you were given 10 min to watch a 50-min video. While you were watching it, you could skip forward or backward the video whenever you felt like to.

After reading each scenario, participants were instructed to predict how they would feel and think in each scenario. They predicted their levels of boredom ("How bored would you feel?"), satisfaction (a composite of two items: "To what extent would you find watching the videos … enjoyable, satisfying?", $r = .76$, $p < .001$), attention ("To what extent would you be absorbed by the video?"), and meaning ("To what extent would you find watching the videos meaningful?"). All items were rated on a scale of 1 (*not at all*) to 7 (*very much*). Last, they were asked, if they were given a choice, whether they would prefer to be in Scenario A/C (no-switching) or in Scenario B/D (switching).

Results

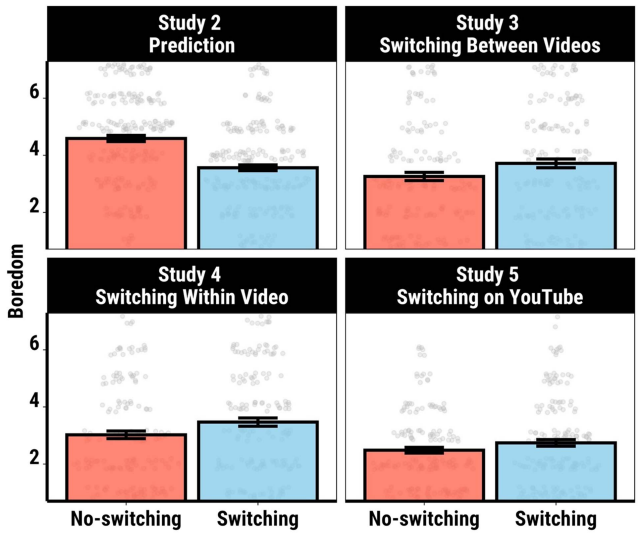
Participants were randomly assigned to either predict their experiences of switching between videos (Scenarios A and B, $n = 118$) or switching within a video (Scenarios C and D, $n = 113$). We performed a series of mixed analyses of variance (ANOVAs) with switching (yes vs. no) and ways of switching (between videos vs. within video) predicting our outcome variables (complete results are reported in Supplemental Materials). However, since we only observed main effects of switching (or not) for all the outcome variables, with no significant main effects of the ways of switching, or interactions, we opted to merge the two subsamples describing switching between videos (Scenarios A and B, $n = 118$) and within a video (Scenarios C and D, $n = 113$).

From a series of paired-sample *t* tests, participants predicted to feel more bored (Figure 1), less satisfied, less engaged, and less meaningful in the no-switching scenarios than in the switching scenarios (Table 2). They also preferred switching (81%; $n = 186$) more than no-switching (19%; $n = 45$), $p < .001$ (binomial test). We further conducted a logistic regression in which the preference to switch (1 = *switching*, 0 = *no-switching*) was predicted by the anticipated levels of boredom in both the no-switching and switching vignettes. Both no-switching boredom ($b = 0.49$, $SE = .12$, $Z = 4.05$, $p < .001$, $OR = 1.63$, 95% confidence interval [1.30, 2.09]) and switching boredom ($b = -0.34$, $SE = .13$, $Z = -2.67$, $p = .008$, $OR = 0.71$, 95% confidence interval [0.55, 0.91]) were associated with the preference of switching, though in opposite directions. A one-unit increase in no-switching boredom was associated with 63% higher odds of choosing switching over no switching, whereas a one-unit increase in switching boredom was associated with 29% less odds of choosing switching. In other words, participants who anticipated no switching to be more boring preferred to switch, while those who anticipated switching to be more boring preferred not to switch.

Discussion

Study 2 explored people's lay perception and preference regarding digital switching. Results support Hypothesis 1 that boredom drives digital switching. Participants held a lay perception that no switching is more boring than switching, and this perception predicted their preference for switching. Across Studies 1 and 2, we

Figure 1
Within-Participant Comparison of Boredom Between No-Switching and Switching Conditions in Studies 2–5



Note. Means of boredom (±*SE*) as a function of condition in Studies 2–5. *SE* = standard error. See the online article for the color version of this figure.

Table 2
Within-Participant Comparison of No-Switching and Switching Conditions in Studies 2–5

	No-switching condition	Switching condition				
Measure	*M* (*SD*)	*M* (*SD*)	*t*	*df*	*p*	Cohen's *d*
Study 2: Prediction ($N = 231$)						
Boredom	4.59 (1.64)	3.56 (1.53)	8.66	230	<.001	0.57
Satisfaction	3.32 (1.31)	3.88 (1.50)	−5.66	230	<.001	−0.37
Attention	3.68 (1.35)	3.89 (1.36)	−2.03	230	.043	−0.13
Meaning	3.43 (1.35)	3.74 (1.51)	−3.00	230	.003	−0.20
Study 3: Switching between videos ($N = 159$)						
Boredom	3.26 (1.82)	3.72 (1.93)	−3.15	158	.002	−0.25
Satisfaction	4.34 (1.66)	3.90 (1.59)	3.05	158	.003	0.24
Attention	4.48 (1.67)	4.06 (1.63)	2.67	158	.008	0.21
Meaning	4.47 (1.69)	3.87 (1.69)	4.11	158	<.001	0.33
Study 4: Switching within video ($N = 166$)						
Boredom	3.02 (1.71)	3.47 (1.87)	−2.94	165	.004	−0.23
Satisfaction	4.31 (1.57)	3.94 (1.77)	2.83	165	.005	0.22
Attention	4.54 (1.50)	4.02 (1.68)	4.09	165	<.001	0.32
Meaning	4.74 (1.52)	4.27 (1.67)	3.49	165	<.001	0.27
Study 5: Switching on YouTube ($N = 174$)						
Boredom	2.49 (1.33)	2.74 (1.53)	−2.08	170	.039	−0.16
Satisfaction	5.19 (1.40)	5.17 (1.23)	0.26	173	.792	0.02
Attention	5.00 (1.37)	5.09 (1.26)	−0.85	173	.394	−0.06
Meaning	4.01 (1.96)	3.86 (1.79)	1.19	173	.235	0.09

found that people switch when they are bored (Study 1) and that people believe switching will help them avoid boredom (Study 2). It is worth noting that participants' prediction contradicted our Hypothesis 2. While participants predicted to feel less bored when they can switch, we hypothesized that they will actually feel more bored. We tested this hypothesis in the following experiments.

Study 3: Digital Switching Between Videos

Studies 1 and 2 demonstrate that people switch to avoid boredom and that they believe switching makes their experience less boring. In Studies 3–7, we examined whether their lay theories and prediction are correct, asking whether switching in fact reduces boredom or whether, as we predict, it increases boredom (Hypothesis 2). Study 3 was a within-participant experiment with two conditions, switching versus no switching, where we manipulated the availability of switching between different videos. We then measured boredom, satisfaction, attention, and meaning. These conditions were identical to the scenarios where we asked participants to imagine and predict their feelings in the previous study. We preregistered the experiment at https://aspredicted.org/s3wv6.pdf.

Method

Participants

A power analysis revealed that obtaining a small effect size of $d = 0.25$ ($\alpha = .05$, power = 0.80) would require 128 participants with our within-participant design. We recruited 205 undergraduate students from the University of Toronto Scarborough's participant pool. We excluded participants who did not complete the experiment ($n = 16$) and those who failed either of the two attention checks ($n = 30$), resulting in a sample of 159 participants (118 female, 37 male, four other/not disclosed; age range = 15–45, $M = 19.5$, $SD = 3.54$).

Procedure and Materials

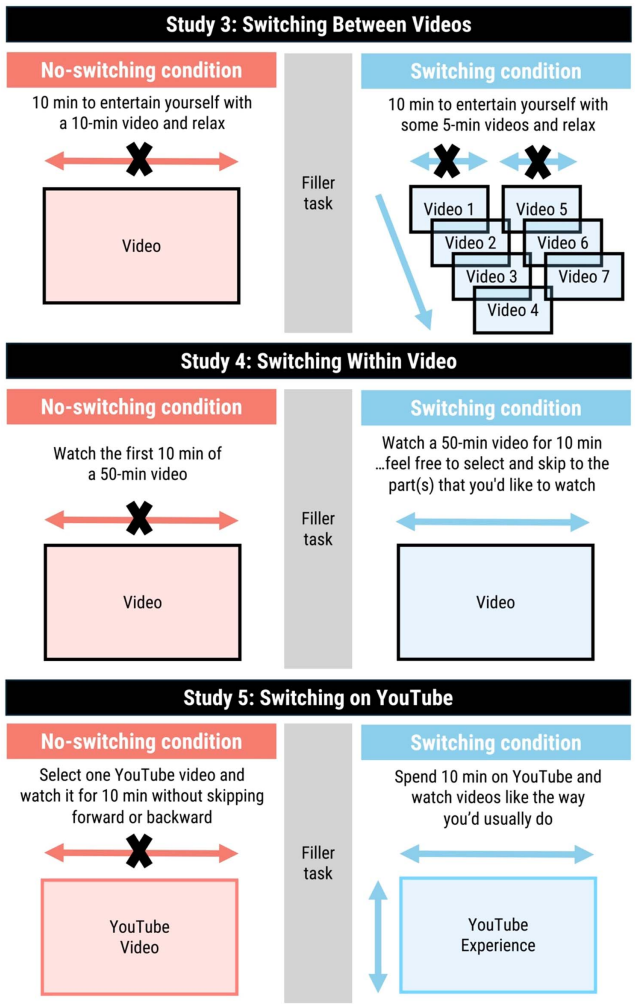
Like Study 1, participants were told that the study was about "visual stimulation and affective experiences." After providing informed consent, participants reported their levels of boredom and other emotions as fillers. They then went through two conditions: no-switching condition and switching condition (see Figure 2). At the beginning of each condition, we told participants that they had 10 min to entertain themselves with a 10-min video (no-switching condition) or with some 5-min videos (switching condition) and relax.

In the no-switching condition, participants watched a 10-min video that they could not skip. In the switching condition, they were provided with seven 5-min videos to watch within 10 min, and they could skip and watch the next one whenever they wanted to. The videos were presented in the same sequence to each participant. After they skipped through all seven videos, the page would loop back to the first video. All the videos provided were around 5 min long. This means that participants were given 10 min to watch 35 min worth of content. It was therefore impossible for them to view the same content twice and get bored by it unless they intentionally chose to do so. We neither forced participants to switch nor asked them to watch all the videos. They were free to watch the videos however they wanted to within that 10 min.

In both conditions, we locked the control panel of all the videos such that participants could not skip forward or backward within each video. The order of these two conditions was counterbalanced,[2] with a filler task in between to prevent carryover effect. All the videos were retrieved from YouTube, and they are documentary-style videos

[2] We checked if there was an order effect in Study 3 by performing a 2 (Condition: no-switching, switching) × 2 (Order: no-switching first, switching first) mixed ANOVA with boredom specified as the outcome variable (analysis not preregistered). We found a significant main effect of condition, $F(1, 157) = 10.4$, $p = .002$, but not a main effect of order, $F(1, 157) = 0.06$, $p = .815$, or interaction effect, $F(1, 157) = 1.17$, $p = .281$.

Figure 2
Experimental Designs of Studies 3–7



Note. All studies were conducted using a within-participant experimental design, with the order of the no-switching and switching conditions counterbalanced. Studies 6 and 7 shared the experimental design of Study 3. The only differences were that Study 6 presented articles rather than videos, while Study 7 provided one of four videos in the no-switching condition and 14 videos in the switching condition. See the online article for the color version of this figure.

about nature, animals, product production, or history. They underwent pilot testing to ensure that they did not differ significantly in boredom (see Supplemental Materials). Note that the videos provided were interesting, averaging around three on a scale ranging from 1 (*not at all*) to 7 (*very much*) for boredom, which is below the scale midpoint (Supplemental Table S2). We deliberately controlled for boredom variability in these videos to make sure that any observed difference between experimental conditions was not generated by the video content. Moreover, the within-participant design ensured that all participants were exposed to the same videos in both conditions, controlling for individual content preferences.

After each condition, participants reported their levels of boredom, satisfaction ($r = .76$, $p < .001$), attention, meaning, and other emotions as fillers. As a manipulation check, we assessed their level of digital switching by recording the number of times they skipped to the next video on Qualtrics. Finally, participants were debriefed and thanked for their participation.

Results and Discussion

Our manipulation was successful. Whereas the number of times participants skipped to the next video ranged from 1 to 35 ($M = 8.45$, $SD = 8.38$, $Mdn = 5$) in the switching condition, participants in the no-switching condition were only given one video to watch, thus having no option to switch. A one-sample t test showed that participants switched significantly more often in switching condition than in no-switching condition, $t(158) = 12.7$, $p < .001$, $d = 1.01$.[3]

From a paired-sample t test, compared to when they were in the switching condition[4] ($M = 3.72$, $SD = 1.93$), participants felt significantly less bored in the no-switching condition ($M = 3.26$, $SD = 1.82$), $t(158) = 3.15$, $p = .002$, $d = 0.25$ (Figure 1). The no-switching viewing experience was also rated as more satisfying, more engaging, and more meaningful than the switching viewing experience (Table 2).

We conducted a repeated measures ANOVA to compare boredom levels across four time points: at the beginning of the study, after switching and no-switching conditions, and following the filler task. It revealed a significant difference in boredom, $F(3, 474) = 3.07$, $p = .028$, $\eta_p^2 = .017$. Tukey-adjusted pairwise comparisons showed that boredom differed significantly between the no-switching ($M = 3.26$) and switching ($M = 3.72$) conditions, $t(474) = -2.96$, $p = .017$, $d = -0.33$. No significant difference in boredom was observed in other pairs of comparisons.

Taken together, we manipulated digital switching between videos and measured boredom in Study 3. Results support Hypothesis 2 that digital switching increases boredom. It is noteworthy that our results completely contradicted participants' intuitive predictions in Study 2. In Study 2, participants expected to feel less bored when they could switch, but in Study 3, participants actually felt more bored.

Study 4: Digital Switching Within Video

Whereas Study 3 demonstrates that digital switching between videos increases boredom, Study 4 sought to replicate this effect by testing digital switching *within a video*. This study was a within-participant experiment with two conditions, where we provided participants with a 50-min video that they can skip forward and backward (switching condition) and a 10-min video without the possibility of skipping (no-switching condition). We then assessed boredom, satisfaction, attention, and meaning. These conditions were identical to the scenarios we asked participants to predict their feelings in Study 2. We preregistered the study at https://aspredicted.org/4aw8h.pdf.

[3] This analysis was not preregistered.

[4] An exploratory independent samples t test indicated that, within the switching condition, participants who skipped all seven videos ($n = 67$, $M = 3.93$, $SD = 2.02$) did not report a significantly higher level of boredom than those who skipped fewer than seven videos ($n = 92$, $M = 3.57$, $SD = 1.86$), $t(157) = 1.16$, $p = .247$, $d = 0.19$. Although this nonsignificant result might be attributed to insufficient power for between-participants comparison, it suggests that the within-participant difference in boredom between the switching and no-switching conditions was unlikely to be driven by seeing the same videos more than once or awareness of limited options in the switching condition.

Method

Participants

Like Study 3, we targeted a minimum sample of 128 participants, which affords 80% power to obtain a small effect size of $d = 0.25$ ($\alpha = .05$). A total of 201 students from the University of Toronto Scarborough participated for course credits. We excluded participants who did not complete the experiment ($n = 10$) and those who failed either of the two attention checks ($n = 25$). The final sample comprised of 166 participants (123 female, 37 male, six other/not disclosed; age range = 17–38, $M = 19.2$, $SD = 2.43$).

Procedure and Materials

The procedure was identical to that of Study 3 with the following two exceptions (see Figure 2). First, in the no-switching condition, participants watched a 10-min video with a locked control panel, where they could not fast-forward. In the switching condition, participants had 10 min to watch a 50-min video with an unlocked control panel, allowing them to freely skip forward and backward. To control for the feeling of missing out, participants were told that they watched the first 10 min of a 50-min video in the no-switching condition, whereas they watched a 50-min video for 10 min in the switching condition. The order of these two conditions was counterbalanced,[5] with a filler task in between. Both videos were in documentary style. They were pilot tested to be quite interesting, with no significant difference in boredom (see Supplemental Materials). Second, as a manipulation check, participants reported their level of digital switching at the end of the study ("How often did you skip forward or backward while you were watching the videos?") on a scale of 1 (*never*) to 5 (*very often*). We administered the same measures as in Studies 1, 3–7. The reliability of satisfaction was $r = .78$, $p < .001$.

Results and Discussion

Our manipulation was successful. A paired-sample t test showed that participants skipped forward and backward in the video more often in the switching condition ($M = 2.17$, $SD = 1.28$) than in the no-switching condition ($M = 1.28$, $SD = 0.75$), $t(165) = 8.63$, $p < .001$, $d = 0.67$. Note that in the no-switching condition, we disabled the video's control panel, preventing participants from skipping forward and backward the video entirely.

Replicating Study 3's findings, a paired-sample t test revealed that participants felt less bored in the no-switching condition ($M = 3.02$, $SD = 1.71$) than in the switching condition ($M = 3.47$, $SD = 1.87$), $t(165) = -2.94$, $p = .004$, $d = -0.23$ (Figure 1). They also reported higher satisfaction, higher attention, and higher meaning in the no-switching condition than in the switching condition (Table 2).

We conducted a repeated-measures ANOVA to compare the levels of boredom across four time points: at baseline, after switching and no-switching conditions, and after the filler task. It revealed a significant difference in boredom, $F(3, 495) = 3.66$, $p = .012$, $\eta_p^2 = .020$. Tukey-adjusted pairwise comparisons indicated a significant difference in boredom between no-switching ($M = 3.02$) and switching ($M = 3.47$) conditions, $t(495) = -3.16$, $p = .009$, $d = -0.35$. No significant differences in boredom were observed in other pairs of comparisons.

Taken together, we manipulated digital switching within video and measured boredom in Study 4. Results again support Hypothesis 2 that digital switching exacerbates boredom.

Study 5: Digital Switching on YouTube

Studies 3 and 4 demonstrate that digital switching between and within video(s) intensifies boredom. In these studies, we controlled for the media content to isolate the effect of switching behavior on boredom. All participants viewed the same sets of videos, which were pilot tested to ensure that they did not differ in how interesting they were. Next, Study 5 sought to corroborate these findings in a less controlled, more naturalistic setting—YouTube—where participants could freely select videos of personal interest. In a within-participant experiment, participants were instructed to watch videos on YouTube as they typically would for 10 min (switching condition) and to select a single video on YouTube to watch for 10 min without skipping forward or backward (no-switching condition). This setup allowed participants an unlimited number of videos to switch to in the switching condition, whereas the video in the no-switching condition was of participants' own interest and choice. The media content encountered across and within conditions could vary in interestingness. Additionally, in this study, we qualitatively explored the reasons for digital switching in the switching condition. We preregistered the study at https://aspredicted.org/dc8f2.pdf.

Method

Participants

Based on the effect size ($d = 0.22$) obtained from Study 4, we targeted a minimum postexclusion sample of 165 participants. A total of 259 undergraduate students from the University of Toronto Scarborough took part in the study for course credit. We excluded participants who did not complete the experiment ($n = 21$), who failed either of the two attention checks ($n = 33$), and who admitted that they did not follow study's instructions ($n = 31$), resulting in a sample of 174 participants (111 female, 61 male, two other/not disclosed; age range = 18–29, $M = 18.9$, $SD = 1.42$).

Procedure and Materials

Participants were informed that the study was about "YouTube and affective experiences." After reporting their levels of boredom and other emotions, they went through both no-switching and switching conditions in a randomized order, with a filler task in between (Figure 2).[6] In the no-switching condition, we gave participants an unrestricted time to search and select one YouTube video, which had

[5] We checked if there was an order effect in Study 4 by performing a 2 (Condition: no-switching, switching) × 2 (Order: no-switching first, switching first) mixed ANOVA, with boredom specified as the outcome variable (analysis not preregistered). We found a significant main effect of condition, $F(1, 164) = 8.14$, $p = .005$, but not a main effect of order, $F(1, 164) = 0.02$, $p = .896$, or interaction effect, $F(1, 164) = 2.25$, $p = .136$.

[6] As preregistered, we checked if there was an order effect in Study 5 by performing a 2 (Condition: no-switching, switching) × 2 (Order: no-switching first, switching first) mixed ANOVA, with boredom specified as the outcome variable. We found a significant main effect of condition, $F(1, 167.85) = 4.40$, $p = .038$, but not a main effect of order, $F(1, 169.29) = 0.13$, $p = .718$, or interaction effect, $F(1, 167.85) = 1.91$, $p = .168$.

to be at least 9 min long, followed by a 10-min period to watch it. On average, participants took 2.17 min to make their selection (SD = 1.99, ranged from 20.6 s to 17 min). After selecting a video, they were instructed to watch the video within 10 min without skipping forward or backward the video. The instruction was:

> Once you start playing the video, please refrain from fast-forwarding the video, or skipping forward and backward the video. Simply watch the video as it is from the beginning until time is up. Now, please watch the video you've selected for 10 minutes.

In the switching condition, participants were told to watch videos on YouTube as they usually would for 10 min. The instruction was: "Please spend the following 10 minutes on YouTube. Please watch video(s) like the way you would usually do on YouTube."

After each condition, participants reported their levels of boredom, satisfaction ($r = .67$, $p < .001$), attention, meaning, and other emotions (fillers). The measures were identical to those in Studies 1, 3–7. As preregistered, we removed three outlier responses for boredom in the no-switching condition that were 3 SD above or below the mean.[7]

At the end of the study, participants reported their digital switching behavior in each condition, including switching between videos, "how often did you switch videos (i.e., drop the video you were watching and watch another one)?", and switching within videos, "how often did you skip forward or backward while you were watching the video(s)?". Both items were rated on a scale of 1 (*never*) to 5 (*very often*). Specifically for the behaviors within the switching condition, participants indicated the number of videos that they clicked on based on their YouTube's watch history (open-ended). They rated the amount of time that they spent on searching for and selecting video(s) to watch on a scale of 1 (*0%–20% of the time*) to 5 (*80%–100% of the time*). They also answered two open-ended questions regarding why they switched when they were watching videos in the switching condition: "What drove you to switch videos (i.e., drop the video you were watching and watch another one)?" and "What drove you to skip forward or backward a video?"

Results

Digital Switching and Boredom

Our manipulation was effective. Participants switched between videos significantly more often in the switching condition (M = 2.22, SD = 1.34) than in the no-switching condition (M = 1.47, SD = 1.04), $t(173) = 6.66$, $p < .001$, $d = 0.51$. They also switched within videos more often in the switching condition (M = 1.81, SD = 1.13) than in the no-switching condition (M = 1.48, SD = 0.97), $t(173)$ = 3.41, $p < .001$, $d = 0.26$. Referencing YouTube's watch history, participants indicated clicking on a median of two videos in the switching condition (M = 2.83, SD = 6.36, range = 0–78). Regarding how much time was spent on searching and selecting videos during the 10-min span, majority (71.3%) spent 0%–20% of the time, with 16.7% of participants spending 20%–40% of the time and 12% of participants spending over 40% of the time.

From a paired-sample t test, participants were less bored in the no-switching condition (M = 2.49, SD = 1.33) than in the switching condition (M = 2.74, SD = 1.53), $t(170) = -2.08$, $p = .039$, $d = -0.16$ (Figure 1), a small effect. There was no significant difference in satisfaction, attention, and meaning between conditions (Table 2).

We conducted a repeated-measures ANOVA to compare the levels of boredom across four time points: at baseline, after switching and no-switching conditions, and following the filler task. It revealed a significant difference in boredom, $F(3, 515.25) = 29.9$, $p < .001$, $\eta_p^2 = .138$. Pairwise comparisons with Tukey adjustment, however, indicated no significant difference in boredom between the no-switching and switching conditions, $t(516) = -1.78$, $p = .284$, $d = -0.19$. While paired-sample t test focused on comparing boredom levels between the two conditions, repeated-measures ANOVA examined the fluctuations in boredom over the course of the experiment.

Qualitative Findings on Reasons for Digitally Switching

We explored why participants digitally switched on YouTube (analyses not preregistered). Specifically, participants provided responses to open-ended questions regarding their reasons for switching between and within videos on YouTube in the switching condition. We coded these qualitative data simply in terms of whether they were related to boredom (1 = *yes*, 0 = *no*). All the responses and coding are presented in the Supplemental Materials.

Boredom was a primary motivator for digital switching between videos. Note that participants were not informed that the study was about boredom until the debriefing at the study's conclusion. However, 70% of respondents cited reasons related to boredom, like whether they got bored and whether the videos were interesting, monotonous, or engaging, as what drove them to digitally switch. Example excerpts include "bored," "boredom and to find a more interesting video," "lost interest or saw a more promising interesting video," "short attention span, and not being interested in the video I selected," "sometimes the video would get uninteresting, and I would not want to pay attention anymore so I would switch the video" (all excerpts presented in Supplemental Table S9). Other reasons for switching between videos included reaching the end of a video, skipping ads, and a desire to watch more content.

In terms of skipping forward and backward in videos, 50.7% of respondents cited reasons related to boredom, such as feeling bored and wanting to skip to the interesting parts. Examples include "if a certain part was boring or not engaging enough," "skip to the most interesting parts," "boredom, or a lack of interest in what was going on in the video at that moment," and "I got bored of the video I had chosen, or found certain points of the video boring" (all excerpts presented in Supplemental Table S10). Participants also mentioned other motives for switching within video, such as skipping ads, finding the videos being too slow or too fast, and rewinding to regain focus after attention lapses.

Discussion

In Study 5, we manipulated digital switching on YouTube and measured boredom. Even when allowing for variability in media content, results partially support our Hypothesis 2 that digital switching intensifies boredom. We observed a small effect of digital switching on boredom in paired t test ($d = -0.16$) but not in

[7] We only preregistered to remove outlier responses in Studies 5–7 and did not perform this procedure in the other studies.

repeated-measures ANOVA when accounting for boredom levels at baseline and filler task. There was no significant difference in satisfaction, attention, and meaning between conditions. However, participants in this study had the freedom to watch whatever videos they wanted on YouTube, and the videos they viewed could vary substantially in content and interestingness. Also, our manipulation was only modest in effect (*d*s = 0.26–0.51). These factors might have contributed to the small effect.[8]

Furthermore, we qualitatively explored the reasons behind participants' switching behavior in the switching condition. Over half of the respondents cited boredom as a primary motivator for digital switching between and within videos. This aligns with the results of Studies 1 and 2 that boredom drives digital switching (Hypothesis 1), and people believe that this behavior helps them avoid boredom. Taken together, Study 5 demonstrates that people digitally switch on YouTube to avoid boredom, but paradoxically, this behavior makes them more bored.

Study 6: Digital Switching Between Articles

In Studies 2–5, we tested our hypotheses using young student samples, presumed to possess higher proficiency and more experience with digital media use. Supporting Hypothesis 2, Studies 3–5 show that digital switching during video consumption intensifies boredom. Next, we delved into exploring the boundary condition and mechanisms underlying the observed effect. In Study 6, we aimed to generalize the findings of Studies 3–5 to (a) samples with a more varied background and age range and (b) a different digital media activity—reading online articles. We selected articles because, like videos, people frequently switch between short passages on social media like Facebook and Instagram. Digital platforms have also become the preferred medium for consuming news, surpassing the frequency of engagement with print publications (Shearer, 2021). Study 6 was a within-participant experiment with two conditions, in which we manipulated digital switching *between articles* through providing participants with seven articles (switching condition) or one article (no-switching condition) to read. We then measured their boredom, satisfaction, attention, and meaning. We preregistered the study at https://aspredicted.org/5rn26.pdf.

Method

Participants

Using the effect size ($d = 0.22$) observed in Study 4, we targeted a minimum postexclusion sample of 165 participants. We recruited 200 U.S. nationals who are residing in the United States through Prolific (https://www.prolific.com). They received £3 in exchange for participation. Excluding participants who did not complete the experiment ($n = 21$) and who failed either of the two attention checks ($n = 1$) resulted in a sample of 178 participants (94 female, 83 male, one other/not disclosed; age range = 21–76, $M = 40.5$, $SD = 12.3$).

Procedure and Materials

The procedure, measures, and instructions for this experiment were identical to those of Study 3, with the only difference being that participants were provided with articles to read instead of videos to watch (Figure 2). We informed participants that the study was about "reading and affective experiences." Prior to each condition, we instructed participants that they had 6 min to entertain themselves with an article (no-switching condition) or with some short articles (switching condition) and relax. In the no-switching condition, participants read one article, which takes around 6 min to read. In the switching condition, participants were provided with seven articles, with each taking approximately 2 min to read, and they were free to skip the article and read the next one whenever they wanted to. The order of the conditions was counterbalanced, with a filler task in between. All the articles are about nature and animals. They were pilot tested so that they did not induce significantly different levels of boredom (see Supplemental Table S4). We administered the same set of measures as in Studies 1, 3–7. The reliability of satisfaction was $r = .87$, $p < .001$.

Another difference with Studies 3 and 4 is that we were not able to control for switching within article in Study 6. To isolate the effects of switching between and within videos, we locked the control panel to prevent participants from skipping forward and backward a video in Study 3 and restricted the number of videos provided in Study 4. In Study 6, however, we were unable to impose similar restrictions on switching within article, such as skimming through the passage or skipping paragraphs.

Results

Digital Switching and Boredom

In the switching condition, the median number of times participants skipped to the next article was 5.50 ($M = 7.84$, $SD = 9.14$, range = 1–70). Conversely, in the no-switching condition, participants only had one article to read, thereby having no option to switch; though we again note that we could not prevent them from skipping over paragraphs. A one-sample *t* test showed that participants switched significantly more often in the switching condition than in the no-switching condition, $t(177) = 11.4$, $p < .001$, $d = 0.86$ (see Footnote 3). Our manipulation was thus successful. Yet, unlike Studies 3–5, paired-sample *t* tests revealed no significant difference in boredom, satisfaction, attention, and meaning between conditions (all *p*s ≥ .235; Table 3).

Order Effect on Boredom

As preregistered, we checked if there was an order effect by conducting a 2 (Condition: no-switching, switching) × 2 (Order: no-switching first, switching first) mixed ANOVA, with boredom specified as the outcome variable. We found a significant main effect of order, $F(1, 176) = 4.65$, $p = .032$, a nonsignificant main effect of condition, $F(1, 176) = 0.01$, $p = .905$, and a significant interaction between order and condition, $F(1, 176) = 15.89$, $p < .001$ (Figure 3).

We conducted a series of simple effect analyses to probe the interaction. Order had a significant effect on boredom in the no-switching condition, $F(1, 243.95) = 12.9$, $p < .001$, but not in the switching condition, $F(1, 243.95) = 0.11$, $p = .737$. Condition had a

[8] As an exploratory analysis, we conducted a 3 (Study: 3, 4, 5) × 2 (Condition: no-switching, switching) mixed ANOVA with boredom as the outcome variable. We found a significant main effect of study, $F(2, 494.35) = 15.8$, $p < .001$, a significant main effect of condition, $F(1, 492.92) = 23.5$, $p < .001$, and a nonsignificant interaction, $F(2, 492.94) = 0.77$, $p = .462$. This suggests that the effect of condition on boredom did not vary depending on study and was consistent across all three studies.

Table 3
Within- and Between-Participants Comparisons of No-Switching and Switching Conditions in Studies 6 and 7

Measure	No-switching condition *M* (*SD*)	Switching condition *M* (*SD*)	*t*	*df*	*p*	Cohen's *d*
Study 6: Within-participant comparison						
Boredom	2.57 (1.81)	2.58 (1.74)	−0.10	177	.920	−0.01
Satisfaction	4.50 (1.73)	4.60 (1.58)	−0.97	177	.333	−0.07
Attention	4.65 (1.84)	4.69 (1.68)	−0.29	177	.770	−0.02
Meaning	4.82 (1.78)	4.68 (1.62)	1.19	177	.235	0.09
Study 6: Between-participants comparison at the first time point (exploratory analysis)						
Boredom	2.13 (1.45)	2.63 (1.86)	−1.99	156.6	.048	−0.30
Satisfaction	4.90 (1.54)	4.67 (1.65)	0.97	176	.333	0.15
Attention	5.10 (1.51)	4.64 (1.66)	1.90	176	.058	0.29
Meaning	5.29 (1.40)	4.63 (1.66)	2.86	176	.005	0.43
Study 7: Within-participant comparison						
Boredom	2.38 (1.41)	2.40 (1.57)	−0.10	172	.924	−0.01
Satisfaction	5.11 (1.49)	5.09 (1.46)	0.19	174	.853	0.01
Attention	5.11 (1.67)	4.95 (1.62)	1.33	174	.185	0.10
Meaning	4.78 (1.67)	4.58 (1.71)	1.54	174	.126	0.12
Opportunity cost	3.18 (1.82)	3.71 (1.74)	−3.85	174	<.001	−0.29
Study 7: Between-participants comparison at the first time point (exploratory analysis)						
Boredom	2.04 (1.19)	2.30 (1.49)	−1.28	169.3	.203	−0.19
Satisfaction	5.42 (1.37)	5.32 (1.30)	0.46	173	.647	0.07
Attention	5.54 (1.49)	5.04 (1.54)	2.14	173	.034	0.32
Meaning	4.98 (1.64)	4.86 (1.66)	0.48	173	.633	0.07
Opportunity cost	2.83 (1.56)	4.03 (1.69)	−4.85	173	<.001	−0.74

significant effect on boredom when the no-switching condition was presented first, $F(1, 176) = 7.92$, $p = .005$, and when the switching condition was presented first, $F(1, 176) = 7.98$, $p = .005$.

As shown in Figure 3, Tukey-adjusted pairwise comparisons indicated that, for participants who were subjected to the no-switching condition first ($n = 94$), they reported lower boredom in the no-switching condition ($M = 2.13$, $SE = 0.18$) than in the switching condition ($M = 2.54$, $SE = 0.18$), $t(176) = -2.81$, $p = .005$, $d = -0.41$. For participants who were subjected to the switching condition first ($n = 84$), they reported higher boredom in the no-switching condition ($M = 3.07$, $SE = 0.19$) than in the switching condition ($M = 2.63$, $SE = 0.19$), $t(176) = 2.83$, $p = .005$, $d = 0.44$.

Exploratory Analyses

We performed some exploratory analyses to understand why Study 6 failed to generalize our findings from Studies 3–5. First, we ran a series of 2 (Condition: no-switching, switching) × 2 (Time: 1, 2) repeated-measures ANOVAs with boredom, satisfaction, attention, and meaning as outcome variables. They consistently demonstrated a main effect of time (all $ps \leq .001$): Participants reported feeling more bored, less satisfied, less engaged, and less meaningful over time, at Time 2 versus Time 1 (see Supplemental Table S11).

Considering that order and time impacted our results significantly, we conducted a series of independent samples *t* tests to compare the no-switching condition with the switching condition at the first time point (Table 3). In other words, we made comparisons between participants in the no-switching condition first ($n = 94$) and those in the switching condition first ($n = 84$), so as to rule out the effects of order and time. We found that participants in the no-switching condition ($M = 2.13$, $SD = 1.45$) felt significantly less bored than those in the switching condition ($M = 2.63$, $SD = 1.86$), $t(156.6) = -1.99$, $p = .048$, $d = -0.30$. Also, participants in the no-switching condition ($M = 5.29$, $SD = 1.40$) reported a higher sense of meaning than those in the switching condition ($M = 4.63$, $SD = 1.66$), $t(176) = 2.86$, $p = .005$, $d = 0.43$. There was no significant difference in satisfaction and attention between conditions. Note that these results were marginally significant or nonsignificant, primarily because the study had limited statistical power for between-participants comparisons. A sensitivity analysis revealed that our sample size only afforded 80% power to detect effect sizes of $d = 0.42$ in between-participants comparison. Nevertheless, the patterns of how the outcome variables varied across conditions were consistent with what we observed in Studies 3–5.

Discussion

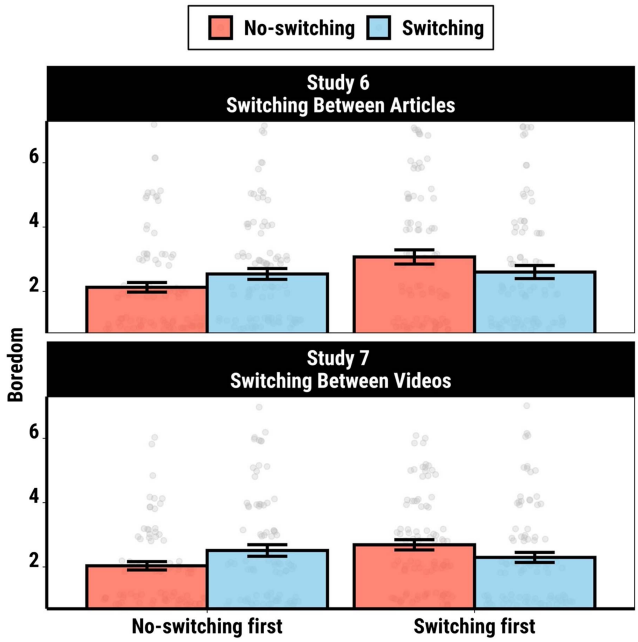
Study 6 yielded mixed findings in testing whether digital switching between online articles intensifies boredom (Hypothesis 2). In within-participant comparison, there was no significant difference in boredom between the no-switching and switching conditions. However, we found that condition order significantly impacted our results. When we attempted to rule out these effects through a between-participants comparison of the two conditions at the first time point, results replicated our findings in Studies 3–5, showing a significant difference with participants in the no-switching condition reporting less boredom than those in the switching condition.

Study 7: Digital Switching and Opportunity Cost

An order effect on boredom was observed in Study 6 but not in Studies 3–5 (see Footnotes 2, 5, 6). Participants only felt less bored in the no-switching condition when no-switching experience came first. When participants engaged in switching first, they felt more bored in the subsequent no-switching condition. On the one hand, these findings might reflect a "mood drift" effect over time, wherein

Figure 3

Estimated Marginal Means of Boredom (±SE) as a Function of Condition and Order in Studies 6 and 7



Note. *SE* = standard error. See the online article for the color version of this figure.

participants' mood declines following simple tasks or rest periods (Jangraw et al., 2023), suggesting that a within-participant design might not be ideal for testing our hypothesis. On the other hand, these results might reflect an actual effect: for people with more diverse backgrounds and varying degrees of familiarity with digital media, the impact of digital switching on boredom might depend on the order of experiences. The first condition might have acted as a reference point for evaluating the experiences in the subsequent condition, indicating a potential contrast effect.

To investigate further, Study 7 tested digital switching between videos again, but this time in a sample with a broader range of backgrounds and ages, similar to Study 6. We further explored a potential mechanism underlying digital switching—opportunity cost. Like Study 3, Study 7 was a within-participant experiment with two conditions, in which we manipulated digital switching through providing participants with 14 videos (switching condition) or one of four videos (no-switching condition) to watch. We then assessed their boredom, satisfaction, attention, and meaning. We preregistered the study at https://aspredicted.org/8rj3q.pdf.

Method

Participants

With the effect size (d = 0.22) from Study 4, we targeted a minimum postexclusion sample of 165 participants. We recruited 184 U.S. residents via CloudResearch (https://www.cloudresearch.com) who received USD$6 as compensation. Excluding participants who did not complete the experiment (n = 8) and failed either of the two attention checks (n = 1) resulted in a sample of 175 participants (69 female, 104 male, two nonbinary; age range = 18–72, M = 36.2, SD = 10.6). The sample included participants from diverse educational levels, employment statuses, and occupational fields (see Supplemental Table S12).

Procedure and Materials

The procedure, measures, and instructions for this experiment were identical to those of Study 3, with two slight differences (Figure 2). First, we increased the number of videos. To rule out the possibility that our results were driven by specific effect of a single video, participants were randomly assigned to one of the four 10-min videos within the no-switching condition. We also doubled the number of videos (14 in total) provided for participants to switch in the switching condition. Videos within and across conditions were all pilot tested that they did not differ significantly in boredom (see Supplemental Tables S5–S7). Second, we added two items for assessing perceived opportunity cost: "Did you feel there were other videos you wanted to watch?" (adapted from Dwyer et al., 2018) and "Did you feel like you were missing out on watching other videos?" (1 = *not at all*, 7 = *very much*; r = .69, p < .001). Other measures were identical to those of Studies 1, 3–6. The reliability of satisfaction was r = .86, p < .001. As preregistered, we removed two outlier responses for boredom in the no-switching condition that were 3 *SD* above or below the mean.

Results

Digital Switching and Boredom

Our manipulation was effective. While the median number of times that participants skipped to the next video was five in the switching condition (M = 7.80, SD = 7.21, range = 1–43), participants only had one video to watch in the no-switching condition, thus having no option to switch. A one-sample t test showed that participants switched more often in the switching condition than in the no-switching condition, $t(174)$ = 14.3, p < .001, d = 1.08. Furthermore, a one-way ANOVA indicated no significant difference in boredom between the four 10-min videos provided in the no-switching condition (Ms = 2.23–2.54), $F(3, 169)$ = 0.43, p = .731, η^2 = .008.

Based on paired-sample t tests, like Study 6, there was no significant difference in boredom, satisfaction, attention, and meaning between conditions (all ps ≥ .126; Table 3). Opportunity cost was significantly lower in the no-switching condition (M = 3.18, SD = 1.82) than in the switching condition (M = 3.71, SD = 1.74), $t(174)$ = −3.85, p < .001, d = −0.29.

Order Effect on Boredom

We conducted a 2 (Condition: no-switching, switching) × 2 (Order: no-switching first, switching first) mixed ANOVA, with boredom specified as the outcome variable. We found a nonsignificant main effect of order, $F(1, 173.14)$ = 1.30, p = .256, a nonsignificant main effect of condition, $F(1, 172.23)$ = 0.09, p = .759, and a significant interaction between order and condition, $F(1, 172.23)$ = 13.5, p < .001 (Figure 3).

To decompose the interaction, we ran a series of simple effect analyses. Order had a significant effect on boredom in the no-switching condition, $F(1, 288.3)$ = 8.39, p = .004, but not in the switching condition, $F(1, 286.54)$ = 0.93, p = .335. Condition had a

significant effect on boredom when the no-switching condition was presented first, $F(1, 172.26) = 7.64$, $p = .006$, and when the switching condition was presented first, $F(1, 172.20) = 5.93$, $p = .016$.

As shown in Figure 3, Tukey-adjusted pairwise comparisons indicated that, for participants who were subjected to the no-switching condition first ($n = 84$), they felt less bored in the no-switching condition ($M = 2.04$, $SE = 0.16$) than in the switching condition ($M = 2.51$, $SE = 0.16$), $t(172) = -2.76$, $p = .006$, $d = -0.43$. For participants who were subjected to the switching condition first ($n = 91$), they felt more bored in the no-switching condition ($M = 2.69$, $SE = 0.16$) than in the switching condition ($M = 2.30$, $SE = 0.15$), $t(172) = 2.44$, $p = .016$, $d = 0.36$. These results replicated what we found in Study 6.

Order Effect on Opportunity Cost

Investigating the role of opportunity cost, we further conducted a 2 (Condition: no-switching, switching) × 2 (Order: no-switching first, switching first) mixed ANOVA, with opportunity cost as the outcome variable. We found a significant main effect of order, $F(1, 173) = 8.61$, $p = .004$, a significant main effect of condition, $F(1, 173) = 14.7$, $p < .001$, and a nonsignificant interaction of order and condition, $F(1, 173) = 0.0009$, $p = .976$.

We probed these significant main effects with Tukey adjustment. Participants who underwent the no-switching condition first ($M = 3.10$, $SE = 0.16$) reported a generally lower level of opportunity cost than those who underwent the switching condition first ($M = 3.76$, $SE = 0.16$), $t(173) = -2.93$, $p = .004$, $d = -0.51$. Furthermore, opportunity cost was generally lower in the no-switching condition ($M = 3.17$, $SE = 0.13$) than in the switching condition ($M = 3.70$, $SE = 0.13$), $t(173) = -3.83$, $p < .001$, $d = -0.41$.

Exploratory Analyses

Like Study 6, participants reported feeling more bored, less satisfied, less engaged, and less meaningful over time, at Time 2 versus Time 1 (see Supplemental Table S11). To rule out order and time effects, we ran a series of independent samples *t* tests comparing the no-switching condition ($n = 84$) and the switching condition ($n = 91$) at the first time point (Table 3). Participants in the no-switching condition first ($M = 5.54$, $SD = 1.49$) reported a significantly higher level of attention than those in the switching condition first ($M = 5.04$, $SD = 1.54$), $t(173) = 2.14$, $p = .034$, $d = 0.32$. Participants in the no-switching condition ($M = 2.83$, $SD = 1.56$) also reported a lower level of opportunity cost than those in the switching condition ($M = 4.03$, $SD = 1.69$), $t(173) = -4.85$, $p < .001$, $d = -0.74$. Boredom level was lower in the no-switching condition ($M = 2.04$, $SD = 1.19$) compared to the switching condition ($M = 2.30$, $SD = 1.49$), but this difference was not statistically significant, $t(169.3) = -1.28$, $p = .203$, $d = -0.19$. This might be attributed to insufficient statistical power for between-participants comparison. An effect size of $d = 0.19$ ($\alpha = .05$, power = 0.80) would require a sample of 872 participants to detect, whereas Study 7 only had 175 participants.

Discussion

Study 7 replicated the results of Study 6. A within-participant comparison revealed no significant difference in boredom between conditions. However, boredom levels in the no-switching condition varied depending on the condition order. If the no-switching condition was presented first, participants felt less bored in the no-switching condition compared to the switching condition. Conversely, if the switching condition was presented first, participants felt more bored in the no-switching condition than in the switching condition. Going beyond Study 6, we observed an order effect on opportunity cost. Participants reported a generally higher opportunity cost when the switching condition was presented first, compared to when the no-switching condition was presented first. It is possible that initial exposure to various videos in the switching condition could have increased participants' desired level of attentional engagement and opportunity cost. With this elevated desire, being restricted to watching only one video without the option to switch might have intensified boredom in the subsequent no-switching condition.

General Discussion

Across seven experiments, we investigated whether people engage in digital switching to avoid boredom (Hypothesis 1), but this behavior paradoxically makes them more bored (Hypothesis 2). We began by experimentally testing whether boredom drives digital switching between and within videos in Study 1; the results confirmed our prediction. In Study 2, we explored people's lay theories regarding digital switching with videos. Participants predicted feeling less bored when they could switch, and such prediction was associated with their preference for switching. We then experimentally tested whether digital switching intensifies boredom in university samples in Studies 3–5. Contrary to participants' predictions but consistent with our hypothesis, participants experienced more boredom when they switched between videos (Study 3), when they skipped forward or backward within a video (Study 4), and when they digitally switched on YouTube (Study 5). Last, we tested the boundary condition and the mechanism underlying the observed effect in Studies 6 and 7. Our effort to generalize these findings to samples with more diverse backgrounds and ages and to a different form of digital media—articles (Study 6)—yielded mixed results. Specifically, the order of condition shaped the experience of boredom in the no-switching condition. Participants felt less bored in the no-switching condition only when it was presented first. Conversely, when the switching condition was presented first, participants felt more bored in the subsequent no-switching condition. This might be attributed to the effect of condition order on opportunity cost (Study 7) that opportunity cost was generally higher when the switching condition came first.

In support of Hypothesis 1, Studies 1, 2, and 5 show that boredom drives digital switching, and people believe switching helps them avoid boredom. Study 1's findings align with research suggesting that boredom drives exploration (Agrawal et al., 2022; Danckert, 2019; Geana et al., 2016), gives rise to a desperate desire to escape (Smith & Ellsworth, 1985; van Tilburg & Igou, 2012), and triggers attention shifts (Tam, van Tilburg, Chan, et al., 2021). They contribute to the literature on behavioral avoidance of boredom by demonstrating that people resort not only to alternative activities like snacking (Havermans et al., 2015; Moynihan et al., 2015) but also to switching between digital content. Study 2 further suggests that people prefer the option to switch as they predict feeling less bored if they could switch. These results were complemented by the qualitative findings in Study 5, where boredom was cited as the primary motivator for switching between and within videos. Overall, boredom prompts

digital switching, which serves both as an avoidance of the feeling and an exploration in search for more engaging content.

In support of Hypothesis 2, Studies 3–5 demonstrate that digital switching while watching videos intensifies boredom in university samples. When participants switched between videos (Study 3) and within a video (Study 4), they felt more bored, less satisfied, less engaged, and less meaningful than when they were restricted from switching. Even with the freedom to watch any videos of personal choice and interest on YouTube (Study 5), participants still felt more bored when they digitally switched than when they did not. These results are inconsistent with research that suggests that when people have more control or less constraint or when they are presented with more novel stimuli and opportunity to explore—all features that are present when digital switching is permitted—they will be more engaged and less bored (e.g., Harris, 2000; Martin et al., 2006). These results are also inconsistent with the notion that greater freedom and autonomy will necessarily translate to greater satisfaction (Murcia et al., 2008; Ryan & Deci, 2000; Ryan et al., 2006).

However, our results corroborate the theoretical propositions regarding the roles of attention (Eastwood et al., 2012; Tam, van Tilburg, Chan, et al., 2021) and meaning (van Tilburg & Igou, 2012; Westgate & Wilson, 2018) in boredom. To make sense of our results, one may consider the no-switching scenario as analogous to watching movies in cinemas or dramas in theatres, where people pay to have a more immersive viewing experience. Switching disturbs the content and flow of video(s), heightening boredom. When participants engaged in digital switching, they were unable to fully immerse themselves in the current content and make meaning of it, as evidenced by lower attention and lower meaning in switching conditions (Studies 3 and 4); disengagement and meaninglessness thus led to increased feelings of boredom and dissatisfaction.

Our results also align with empirical findings that show associations between media multitasking and inattention, as well as between inattention and boredom (e.g., Dwyer et al., 2018; Hunter & Eastwood, 2018; Ralph et al., 2014). They are consistent with experimental evidence that switching between a task and media use reduces enjoyment (Oviedo et al., 2015; Xu & David, 2018). Consistent with prior research showing that avoiding boredom is associated with more boredom (Eren & Coskun, 2016; Nett et al., 2010, 2011) and that smartphone use makes people more bored (Dora et al., 2021; Dwyer et al., 2018), our research shows that digital switching while watching videos intensifies boredom.

Nevertheless, this effect did not neatly generalize to the context of digital switching while reading articles (Study 6) or to samples with more varied backgrounds (Studies 6 and 7). These mixed results were unexpected, warranting further research to understand them. Several plausible explanations could account for the order effects observed in these studies. First, they may simply reflect time effects, where participants felt more bored over time regardless of our manipulations. However, our pilot tests, where participants viewed multiple videos within each study, did not reveal a similar mood drift effect (see Supplemental Materials). In any case, a within-participant design might not be ideal for testing our hypothesis. A well-powered between-participants design might be needed instead. Ruling out time and order effects, between-participants comparisons at the first time point in our studies tentatively indicated that participants in the no-switching condition felt less bored than those in the switching condition; this difference was statistically significant in Study 6 but not in Study 7.

Alternatively, the order effect may reflect an actual phenomenon—digital switching heightened participants' perceived opportunity cost and increased boredom in the subsequent no-switching condition. When participants went through the switching condition first, exposure to multiple videos might have elevated their desired level of attentional engagement and opportunity cost. They thus reported stronger feelings that there were other videos that they wanted to watch and that they were missing out on watching other videos. With this heightened desire, being restricted to watching only one video without the option to fast-forward might have intensified boredom in the subsequent no-switching condition. These relate to the theoretical proposition on the role of opportunity cost in boredom (Agrawal et al., 2022; Kurzban et al., 2013). Awareness of other possible options increases the opportunity cost of the current engagement, heightening a sense of boredom (Kurzban et al., 2013; Struk et al., 2020). It might also give rise to a fear of missing out, which is associated with more negative affects and diminished focus (Milyavskaya et al., 2018). Given the paucity of empirical work on boredom and opportunity cost, further investigation is needed to elucidate their relationship and their interplay with constraint. Our findings appear to suggest that opportunity cost might only increase boredom when the freedom to act on one's desire and select alternative options is restricted.

Discrepancies in results between Studies 3–5 and 6–7 might be attributed to differences in sample characteristics. Studies 3–5 recruited undergraduate students, with a mean age of 19 years, ranging from 15 to 45 years old. They were younger and typically more proficient in digital media use. In contrast, Studies 6 and 7 recruited participants from Prolific and CloudResearch, with a mean age of 36 and 41 years, ranging from 18 to 76 years old. These samples encompassed a broader spectrum of ages, educational levels, employment statuses, and occupational backgrounds. How digital switching is performed and how it shapes boredom may vary depending on age and experience with digital media. Regardless, further research is needed to understand these in depth.

Implications

People are getting increasingly bored these days (Gu et al., 2023; Weybright et al., 2020), and our results suggest that the way people interact with digital media might play a role. Digital switching—an increasingly common behavior—shapes affective and cognitive experiences, including boredom, satisfaction, attention, and meaning. Since this behavior is prevalent in many aspects of modern life (e.g., Cao et al., 2021; Voorveld & van der Goot, 2013; Wammes et al., 2019), it might be a regular source of boredom that could lead to downstream negative behavioral and mental health consequences (e.g., sadistic aggression, lower life satisfaction; Pfattheicher et al., 2021; Tam, van Tilburg, & Chan, 2021). Distinguishing between the effect of media content and the effect of digital switching on boredom can be challenging in daily life. Results from our psychological experiments thus provide valuable insights for people seeking to make informed decisions about their media consumption habits.

Constraints on Generality, Limitations and Future Directions

Despite conducting seven experiments, our research has raised more questions than it has answered. Digital switching appears to be inevitable in this technological age. Future investigation is thus

needed to explore whether there exists an optimal level of switching and the most adaptive ways to engage with videos and online articles. Our research focuses on digital switching—the act of switching between or within media content—in the context of entertainment. It would be intriguing to examine whether our findings replicate when altering the speed of a video, as some people prefer to watch content at twice the speed. While boredom hurts academic performance (Pekrun et al., 2014; Tze et al., 2016) and relates to counterproductive work behaviors (Bruursema et al., 2011; van Hooff & van Hooft, 2014), do fast-forwarding a lecture video and switching between media content at work intensify boredom? Extending the current research to educational and occupational settings can also provide helpful insights.

Several limitations should be considered when reviewing our findings. First, it is important to note that we are not suggesting that every act of boredom avoidance leads to heightened boredom. Engaging in different activities such as playing games and exercising is likely helpful in alleviating boredom. The current work targets the way people interact with digital media, when they restlessly switch between content in search of stimulations. We focused on the bidirectional causal relationship between boredom and digital switching while watching videos and reading. Future research is needed to examine whether this paradoxical phenomenon of avoiding boredom inadvertently intensifying boredom extends beyond digital context to other behaviors.

Second, there was a difference in digital switching between Study 1 and Studies 3, 4, 6 and 7. While Study 1 examined digital switching with content that is very boring or very interesting, Studies 3–4 and 6–7 focused on digital switching with neutral and somewhat interesting content. Across these studies, digital switching did not bring varying levels of content interestingness, as all stimuli were pilot tested to ensure consistency in boredom levels. For example, in Study 1, digital switching in the boring condition did not lead participants to more interesting content, while the switching behavior might have compounded the feeling of boredom. Digital switching between boring content to avoid boredom might have a different impact on subsequent boredom levels compared to digital switching between neutral or interesting content to find something more captivating. Nevertheless, in Study 5, some participants digitally switched to avoid boredom, while others skipped to find more interesting content. Despite varying motivations for digital switching and variations in content interestingness, participants still reported feeling less bored when they refrained from switching.

Third and relatedly, in Studies 3–4 and 6–7, we controlled for how interesting the videos and articles were to focus on studying the behavior of digital switching. Allowing variability in content interestingness within the switching condition would introduce a major confound because the absence of variability in content interestingness is a fundamental aspect of the no-switching experience. We would not be able to determine if any systematic differences in boredom between conditions are due to the content being more or less interesting or because of the switching behavior. To control for how interesting the stimuli were, each had to undergo pilot testing. Given the impracticality of pilot testing and providing an unlimited number of videos and articles with similar levels of interestingness, we could only provide a limited number of videos and articles in the studies' switching conditions, which might have influenced our findings. Even though participants had a limited number of videos to switch between, this was unlikely the cause of higher boredom in the switching condition. If limited options increased boredom, participants should have reported higher boredom in the no-switching condition instead, as they only had one video to watch. These limitations were partly offset by replicating our findings in Study 5, where participants freely watched videos on YouTube. This study had high ecological validity, closely resembling real-life switching experiences. For example, switching could lead to the discovery of more or less engaging content, and there was an unlimited number of videos to switch between. Moreover, YouTube algorithms provided participants with personalized content, similar to many other social media and streaming platforms.

Fourth, the duration and length of stimuli varied between no-switching and switching conditions in Studies 3–4 and 6–7. In Studies 3–4 and 7, we provided 5-min videos in the switching conditions and a 10-min video in the no-switching conditions. In Study 6, we provided short articles that can be read in 2 min in the switching condition and a long article that takes around 6 min to read in the no-switching condition. These were to facilitate our manipulation of digital switching, to ensure that participants switched at least once.

Fifth, the scenarios described to participants in Study 2 might have made the element of choice or constraint salient. Participants could have based their prediction and preference solely on the presence or absence of constraint within these scenarios. However, we deliberately kept the scenarios in Study 2 and the manipulations in Studies 3 and 4 identical, so as to make their findings comparable. As a result, in those vignettes, constraint is an inherent part of the no-switching experience, and choice is an inherent part of the switching experience. Future study should consider using different vignettes to explore people's lay beliefs about digital switching.

Sixth, our samples comprised university students for Studies 2–5 and Prolific and CloudResearch workers for Studies 1, 6, and 7. Differences in sample characteristics might have contributed to variations in results between studies, considering that digital media use (Cotten et al., 2022; Voorveld & van der Goot, 2013; Wickord & Quaiser-Pohl, 2022) and boredom (Chin et al., 2017; Perone et al., 2023) can vary with age. Moreover, we did not assess individual differences in digital switching, habits related to video and article consumption, or familiarity with digital media use. Exploring these factors in future research would enhance the generalizability of our findings.

Conclusion

Feeling bored is unpleasant, and people may unknowingly make it worse. A vignette study and six preregistered experiments demonstrate a bidirectional causal relationship between boredom and digital switching. People switch between videos or fast-forward through them to escape boredom; however, this behavior in some cases makes them more bored. In this digital age, where watching videos is a major source of entertainment, our research indicates that enjoyment likely comes from immersing oneself in the videos rather than swiping through them.

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