

The Effectiveness of a “Play Ad Now” Choice Architecture for Enhancing User Experience and Ad Engagement

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Abstract

This study examines whether allowing users to control the timing of mid-roll ads—ads that play during the middle of a video—can improve their overall viewing experience. Mid-roll ads are widely used in video platforms and users often see them as disruptive and frustrating, decreasing their satisfaction. We developed an ad timing mechanism that allows users to manually trigger a mid-roll ad and conducted a user evaluation involving a video viewing session, post-survey, and interview. Participants reported feeling greater control and described the experience as less intrusive, with some choosing ad moments they found the least disruptive. These findings suggest that user-controlled ad timing may be a viable approach to enhancing user experience while still supporting platform monetization.

1 Introduction

Mid-roll advertisements are a common strategy on video platforms like YouTube, however this decreases user satisfaction for the platforms. Prior research has shown that mid-roll ads are frequently perceived as intrusive, leading to frustration, reduced enjoyment when watching content, and increased use of ad-blockers [1, 2, 12]. Although some studies explored the effects of offering users choices about ad placement, results indicate that limited control does little to improve the user experience [5].

To explore this area further, we designed and tested an ad timing mechanism that lets users manually trigger a mid-roll ad during a 90-second window before it would appear normally. We conducted a user evaluation with five people, involving a video viewing session, a follow-up interview, a post-survey, and a follow-up interview.

Participants felt that they had more control and that our timing UI did not intrude on their experience. Some participants monitored video content to choose the least disruptive moment to trigger the ad, and many noted that the ability to decide when to watch the ad improved their overall video watching experience. These results offer initial evidence that a user chosen ad timing system promises to balance monetization goals with viewer satisfaction.

2 Related work

We begin by reviewing research on the effectiveness and drawbacks of mid-roll advertising, particularly its impact on user experience. Next, we discuss prior design interventions that attempted to give users more control over when ads appear, highlighting both their limitations and potential. Finally, we examine prior work on user autonomy and interactivity in digital advertising, focusing on how different forms of user control—such as skip options or countdown timers—affect attitudes, satisfaction, and perceived intrusiveness.

2.1 The Problem with Mid-Roll Ads

Video advertising on popular social media platforms such as YouTube has become a common strategy for companies to promote their products and build brand awareness [2]. As online video consumption continues to rise, platforms have increasingly adopted mid-roll advertisements, which are ads that appear during the video content [12]. From an advertiser’s perspective, the goal of any campaign is

to maximize ad completion rates, which is the percentage of viewers who watch the full advertisement without abandoning it [6]. Krishnan and Sitaraman’s (2013) large-scale analysis of video sessions across major platforms—including Hulu, NBC, CNN, YouTube, and Netflix—found that mid-roll ads delivered a 97% completion rate, far surpassing pre-roll (74%) and post-roll (45%) ads [6]. Mid-roll ads are effective precisely because they are inserted when viewers are already engaged with the content, potentially increasing the chances that users will complete the ad [1].

However, mid-roll ads also raise concerns about user experience. Thavorn et al. (2022), drawing on survey responses from 200 Facebook users, found that mid-roll advertisements on YouTube were widely perceived as intrusive and disruptive [12]. Viewers reported mid-roll ads as “*interfer[ing] and disturbing their enjoyment of specific programs*”, causing them to pay less attention to its content or opting to skip the ad. In other cases, survey-based research conducted by Arantes (2018) and Carlitz (2020) revealed that frustrations and the lack of control led to advertisement avoidance, where many individuals—seeking to regain autonomy when they perceive a threat to their control—resort to installing ad-blocking software on their browsers [1, 2]. This could present long-term consequences for video platforms, where users may be less likely to revisit the site or respond positively to the advertisements.

2.2 Prior Solution

Recent work by Hsu and Karahalios (2024) addressed user dissatisfaction with video ads on YouTube by testing whether giving users a choice in ad placement could improve their experience.

In a between-subjects experiment with 45 participants, users were randomly assigned to one of three conditions: pre-roll ad without choice, mid-roll ad without choice, or a choice between pre-roll and mid-roll. After viewing a 15-second Hotels.com ad, participants completed a questionnaire assessing satisfaction, perceived control, and brand attitude.

Their study found that while users strongly preferred pre-roll ads, the choice between ad placements did not meaningfully improve their satisfaction [5]. Despite the choice, both options were often perceived as undesirable, as both led to an ad. Users felt the choice was superficial or forced; in this case, choice appeared to limit user agency and failed to reduce frustration or perceived intrusiveness. These findings suggest that improving UX requires ensuring that the effort of choosing is worth the benefit.

Building on this insight, the current study explores a more flexible approach. Rather than choosing between two fixed placements, users decide as they are watching the video when to play the ad. We test the impact on user satisfaction and ad effectiveness. While we focus on improving the user experience, we also consider the needs of advertisers. In designing this system, we envisioned aligning user agency with video platform monetization strategies in a way that benefits all stakeholders — or at the very least, does not compromise advertiser outcomes.

2.3 User Autonomy, Interactivity, and Control in Advertising

Interactivity can be defined based on three dimensions, direction of communication, user control, and time, each shaping how users perceive advertising [8]. Higher interactivity through user control, bidirectional communication, and responsiveness, can improve feelings towards both ads and platforms [11, 8]. However, Fortin and Dholakia warn that beyond a certain threshold, more interactivity does not improve outcomes, suggesting a “sweet spot” for interactivity and engagement [4]. Others have concluded that control improves experiences, but only when it enables less intrusive experiences [7].

The role of user control in advertising has been associated with improved user experience. From our previous discussion, Hsu et al found that the benefit of control depends less on the act of choosing and more on whether the user gets what they want [5]. Studies across different contexts have shown that control can improve attitudes and satisfaction [7]. Riedel et al. showed that moderate control, such as providing skip options or countdown timers, can reduce irritation and improve user attitudes toward the ads themselves [10]. In a separate study, they further demonstrated that control features significantly decrease perceived advertising intrusiveness, contributing to a better impression of the platform [9]. Choi also did a similar test while recording the impact of users’ feelings of control and annoyance. They found that these features reduced perceived intrusiveness and psychological reactance, making the experience more tolerable [3].

2.4 Research Questions

To summarize, prior work has shown that mid-roll ads can harm user experience due to them being disruptive and lack of user control. Simultaneously, much prior work has shown that user control is good for UX, but no existing studies have tested whether giving viewers control over when a mid-roll ad plays during a video improves the experience or changes viewer behavior. Therefore, we tested an approach that allows viewers to choose when a mid-roll ad plays during a video. The approach focuses on two research questions about user experience and behavior.

- **RQ1: How does our ad timing mechanism affect people’s video-watching experiences?**
- **RQ2: How do participants behave with our ad timing mechanism?**

3 Testing and Methodology

To evaluate the effectiveness of our choice mechanism, we conducted a series of user interviews, consisting of three phases - a video viewing session to expose participants to the newly implemented “Play Ad Now” feature, a follow-up interview after the video asking about their video-watching experience, and a survey to measure platform satisfaction. In this study, users’ emotions, satisfaction, perceived control, and ad engagement were recorded.

3.1 Recruitment and Participation

Five participants were recruited using snowball sampling, beginning with the researcher’s own classmates and extending to friends and friends of friends. We targeted those who regularly engage with YouTube content in their daily lives to ensure familiarity with the online platform’s video control panel.

3.2 System Design and Data Collection

We implemented a web extension that provided participants an option to voluntarily trigger mid-roll advertisements on YouTube. If they chose not to act, the ad would eventually play automatically. Regardless of when the ad was triggered, users retained the ability to skip after a few seconds, consistent with standard YouTube behavior.

The interface that the extension injected mimicked YouTube’s native video player styling. Our intent was to make the new features feel natural, such that participants might reasonably believe YouTube had introduced them as part of a platform update.

3.2.1 Ad Timing Interface: Embedded Icon, Popups, and Ad Markers

The extension injected an ad button between the subtitle and settings icons on the control bar (See Figure 1). The button became clickable during a designated *ad-ready window* — a brief period 90 seconds before a predefined ad marker. This duration was selected to strike a balance between giving users enough range to find a minimally disruptive moment without straying too far from the intended mid-roll placement.

Within the ad-ready window, users could manually trigger the ad whenever they wanted by clicking the button. (See Figure 2). To help participants discover the icon, a floating popup appeared during this window, prompting: “*Ad soon, Play Now?*” (See Figure 3). This popup automatically disappeared after five seconds.

As for the ad markers, these are small yellow notch on the video’s progress bar. They were designed to mirror how YouTube visually represents mid-rolls natively and signaled when an ad would otherwise play automatically (See Figure 4).

Additionally, whenever a user paused the video near one of these markers, a second floating prompt labeled “*Next Ad*” appeared above the scrubber (See Figure 5). This element was designed to subtly remind viewers of the upcoming ad.

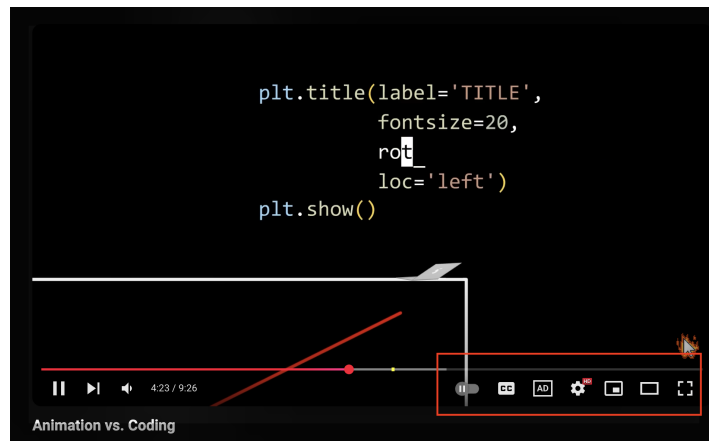


Figure 1: Ad button in control panel.



Figure 2: Video player during ad.

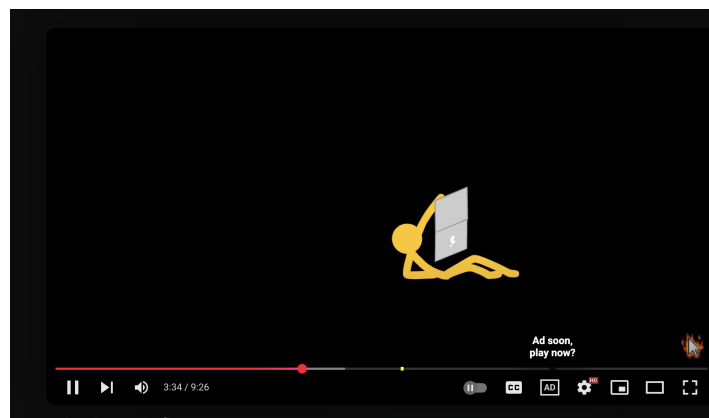


Figure 3: Video Player with ad marker and during ad-ready window.



Figure 4: Video player with ad marker and before ad-ready window.

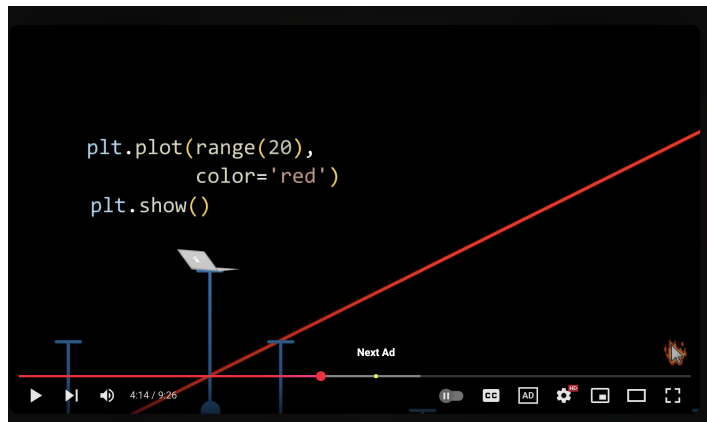


Figure 5: Video Player with next ad popup.

3.2.2 Video viewing session

We conducted the video viewing session in person in a quiet environment. Participants selected YouTube video of their choice of at least 5 minutes in duration. The number of ads were based on the video's length:

- Videos between 5 and 10 minutes included one ad
- Videos between 10 and 15 minutes included two ads
- Videos over 15 minutes included three ads.

Before participants began watching, they were instructed to engage with the video however they normally would at home—whether by skipping ads, ignoring them, or switching tabs. Once participants exceeded 15 minutes of watching time, they were asked to pause the video to constrain the total time of the session.

3.2.3 Post-Survey

Following the video-viewing session, participants were asked to complete a post-survey in Qualtrics. Many question responses were collected on a 5-point Likert scale ranging from Strongly disagree (1) to Strongly agree (5). First, we evaluated participants' emotional responses to the video, including questions about how happy or interested they felt after watching. These items captured immediate affective reactions and set a baseline for interpreting their overall experience.

Then, we assessed participants’ awareness of and engagement with the ad-timing interface. Questions in this section asked whether participants noticed the pop-up indicators, understood their purpose, and interacted with the “Play Ad Now” button. These responses helped gauge how well the interface supported user awareness and control.

Then, we evaluated participants’ perceived agency and satisfaction with the viewing experience. This included questions about how much control they felt over ad timing, how clear and usable the interface was, and how satisfied they were with the platform overall. Additional items measured ad effectiveness through recall, interest, and impressions of the advertised brand.

Lastly, we asked about participants’ ages, genders, and races.

3.2.4 Interview Procedure

Following the post-survey, participants completed an semi-structured interview regarding their experience with the ad-timing interface. The interviews focused on perceptions of control, overall satisfaction, and attitudes toward the extension.

Each session was conducted in person and lasted approximately 5 to 10 minutes. Participants were asked open-ended questions such as whether they noticed or interacted with the ad button, how they felt about having the ability to choose to play an ad earlier than scheduled, and how the experience compared to standard mid-roll advertising on YouTube. On average, the video-viewing session, survey and interview took 25 minutes in all.

All interviews were audio recorded with participant consent and transcribed for analysis. We applied an affinity diagram to the transcripts to identify recurring themes related to the ad timing mechanism and its effect on people’s video-watching experiences.

4 Results

Figure 6 displays participants’ responses to our UX-related statements. Due to our small sample size, we did not conduct formal statistical tests. However, the response patterns in our UX-related statements suggest similarities in user experience for all participants. All of the participants rated the ad controls as easy to use, rating them with a 4 or 5. Irritation ratings were low end, with all participants selecting 2 or 3. Perceptions of ad interruption leaned toward moderate agreement, while perceived control was high, with all the participants selecting 4 or 5.

Below, we detail major themes from our interviews to address the effect of our ad timing mechanism on user experiences (RQ1) and user behavior (RQ2).

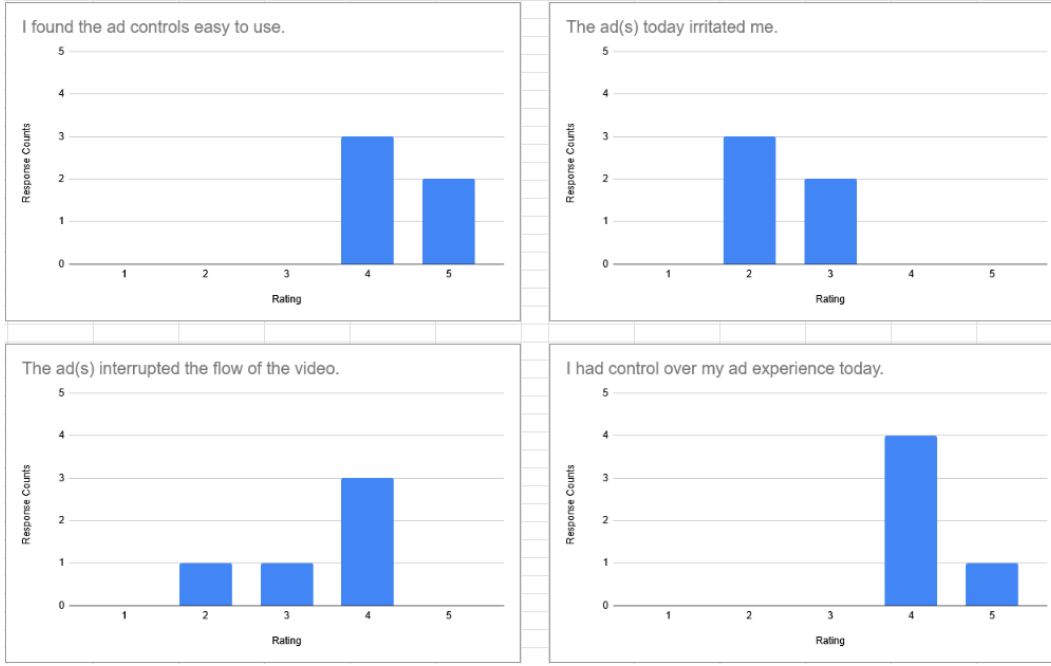


Figure 6: Distributions of participants’ agreement ratings to our UX-related statements. Ratings were on a 5-point Likert scale – 1: Strongly disagree, 2: Somewhat disagree, 3: Neither agree nor disagree, 4: Somewhat agree, 5: Strongly agree.

4.1 Participants’ Behavior

When asked how they usually respond to ads, most participants expressed they wanted to minimize disruption. Some of them had ad blockers and when they do not have them, they would just skip the ad as soon as the skip option is available.

“Normally I would just skip that part... I just want to get the ad over with.” (*Interviewee 11*)

The majority said that they would rather have all the ads in the beginning of a video to avoid mid-roll interruptions if ads were present. For example:

“If I did have a choice... I would usually select them all at the beginning of the video or at the end.” (*Interviewee 1*)

With the introduction of a “Play Ad Now” option, it slightly altered how participants behaved during the video. Some played the ad immediately as soon as the options appeared:

“I chose to play [the ad] as soon as I saw the notification so I could get a longer stretch of uninterrupted video.” (*Interviewee 3*)

Rather than passively waiting for an ad to appear, some also described actively monitoring when to trigger it based on what was happening in the video:

“I listened a little bit more to what the narrator was saying before I actually picked my option.” (*Interviewee 2*)

All of our participants did not watch the full duration of the ad and skipped it right after the skip option is available.

4.2 Participants’ Experiences

The ad timing control influenced how participants experienced watching the video. Participants expressed that the ability to choose when an ad played made the experience feel more active and less

disruptive. Several participants described the mechanism as different from what they were used to on other video platforms and this led to active decision making and reflection. Anticipation sometimes altered the viewing experience. Participants evaluated whether the video content was currently worth continuing, or whether it was a good time to watch the ad. For one participant, it enhanced attentiveness and they noted that the potential to control the ad timing made them more focused on the content:

“For sure, it made me want to think about hearing more of the narrator... That way if the narrator wasn’t... very interesting, then I could just play the ad.” *(Interviewee 2)*

“Let me just listen a little bit more to what the narrator has to say... If it gets boring, then I could just play the ad.” *(Interviewee 2)*

However, another participant found that the need to think about ad timing pulled some attention away from the video:

“It made me think more about the ad slightly, but I thought it was better to have more of a choice...” *(Interviewee 10)*

Overall, all the participants felt that they had more control over their ad experience (See Figure 6). Even when participants were uncertain about the timing of the ad itself, many appreciated the added flexibility. Here are some examples of what participants said when asked if they had control over their ad experience:

“It gave enough time before the ad... I thought it was better to have more of a choice in when an ad played.” *(Interviewee 10)*

“it’s just better to know that I can notice an ad that’s coming up than not and having the option of just playing it right away...” *(Interviewee 2)*

5 Discussion

The results suggest that allowing users to control the timing of mid-roll ads, even with a limited time window, can improve user experience. Most participants agreed that the ad controls were easy to use and reported high levels of perceived control over their ad experience. None of the participants strongly agreed that the ads were irritating, and several indicated that the ads did not interrupt the flow of the video (See Figure 6). These findings raise the possibility that giving users control over ad timing might contribute to a less disruptive experience, although further research is needed to examine this relationship more closely.

We additionally found that participants actively monitored video content to make decisions when to trigger the ad. This suggests that our timing mechanism could be used to increase platform engagement and content satisfaction. At the same time, it could distract people from the video content and lead to more irritation and less platform satisfaction. This trade-off highlights a key design tension: while offering control can enhance perceived agency, it may also impose cognitive load. Future work should explore how to balance these effects to optimize both user experience and platform goals.

Should a video platform deploy our timing mechanism, we recommend skippable ads and non-intrusive indicators when the ad will play. Our themes of perceived control, satisfaction, and engagement (see Section 4.2) suggest that our non-intrusive design effectively prepared users for upcoming advertisements.

While our participant pool was relatively small and not representative of YouTube’s user base, it provides some promising positive indications to how users might react to choice architectures like ours. We urge additional future work not only in large-scale studies, but also the generalizability of these results across a broader range of contexts— including different ad-skipping conditions, varying ad content, and long-term usage. For example, users might respond differently to non-skippable ads, where even timing control may not offset the perceived intrusiveness of having to watch the full ad. Additionally, over longer periods, it’s possible that some users will develop personal strategies for when to trigger ads, improving their viewing satisfaction. Others, however, may find the repeated decision-making burdensome, leading to choice fatigue and eventual disengagement with the timing feature.

6 Conclusion

This study found that allowing participants to trigger mid-roll ads within a designated window, via a web extension, provided an overall positive user experience. Many participants reported feeling greater control, satisfaction, and engagement, suggesting that ad timing flexibility can improve the viewing experience. However, some found the added decision-making mildly distracting, revealing a trade-off between user control and cognitive load. These preliminary findings suggest that platforms like YouTube could better improve user experience by adopting user-controlled ad-timing mechanisms into their mid-roll advertising strategy.

References

- [1] ARANTES, M., FIGUEIREDO, F., ALMEIDA, J. M., AND PRATES, R. O. An investigation of user actions and experiences when exposed to youtube video ads. In *Proceedings of the 24th Brazilian Symposium on Multimedia and the Web* (2018), pp. 283–290.
- [2] CARLITZ, A. *The Impact of Video Advertisement Placement and Video Advertisement Transparency on Video Advertisement Avoidance: Pre-Rolls, Mid-Rolls, and Psychological Reactance*. Ohio University, 2020.
- [3] CHOI, D., AND KIM, J. Forced exposure to online video ads: The role of perceived control and desire for control. In *American Academy of Advertising. Conference. Proceedings (Online)* (Lubbock, 2018), American Academy of Advertising, pp. 79–79.
- [4] FORTIN, D. R., AND DHOLAKIA, R. R. Interactivity and vividness effects on social presence and involvement with a web-based advertisement. *Journal of Business Research* 58, 3 (2005), 387–396. Special Section: Marketing Communications and Consumer Behavior.
- [5] HSU, S., AND KARAHALIOS, K. Choosing what you want versus getting what you want: An experiment with choice in video ad placement. In *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems* (2024), pp. 1–9.
- [6] KRISHNAN, S. S., AND SITARAMAN, R. K. Understanding the effectiveness of video ads: a measurement study. In *Proceedings of the 2013 Conference on Internet Measurement Conference* (New York, NY, USA, 2013), IMC '13, Association for Computing Machinery, p. 149–162.
- [7] LI, B., AND YIN, S. How perceived control affects advertising avoidance intention in a skippable advertising context: a moderated mediation model. *Chinese journal of communication* 14, 2 (2021), 157–175.
- [8] MCMILLAN, S. J., AND JANG-SUN, H. Measures of perceived interactivity: An exploration of the role of direction of communication, user control, and time in shaping perceptions of interactivity. *Journal of Advertising* 31, 3 (Fall 2002), 29–42.
- [9] RIEDEL, A., MULCAHY, R., BEATSON, A., AND AND, C. W. Advertising in freemium services: Lack of control and intrusion as the price consumers pay. *Journal of Advertising* 0, 0 (2024), 1–20.
- [10] RIEDEL, A. S., WEEKS, C. S., AND AND, A. T. B. Dealing with intrusive ads: a study of which functionalities help consumers feel agency. *International Journal of Advertising* 43, 2 (2024), 361–387.
- [11] SUNDAR, S. S., AND AND, J. K. Interactivity and persuasion. *Journal of Interactive Advertising* 5, 2 (2005), 5–18.
- [12] THAVORN, J., TRICHOB, P., KLONGTHONG, W., AND AND, C. N. Effect of mid-roll video advertising value and perceived intrusiveness on facebook viewers’ response: the mediating roles of attitude and word-of-mouth intention. *Cogent Business & Management* 9, 1 (2022), 2062091.

A Survey questions

1. Have you ever watched the video you just watched?
2. How interesting was the video?
3. Please rate how happy vs unhappy you felt after watching the video.
4. Please rate how calm vs excited you felt after watching the video.
5. Have you ever seen the ad that played during the video?
6. How interesting was the ad you saw during the video?
7. Which of the following statements best describes your feelings about the ad you saw during the video?
8. My overall feeling of Capital One is...
9. For each pair of words, indicate how well one or the other word in each pair describes your overall feeling of Capital One.
10. Suppose that a friend called you last night to get your advice in their search for a bank. Would you recommend Capital One?
11. Please rate how much you agree or disagree with the following statements.
 - I found the ad controls easy to use.
 - The ad(s) today irritated me.
 - The ad(s) interrupted the flow of the video.
 - I had control over my ad experience today.
12. Are you currently a student?
13. What year were you born?
14. Do you typically use YouTube Premium when you use YouTube?
15. What gender do you identify as?
16. What race(s) do you identify as? Check all that apply.
17. Please ask the interviewer: how many minutes did the interview take?

B Interview questions

1. Now, thinking about the video you just watched for this session, what did you think of it?
2. Can you tell me about a YouTube video you watched recently that felt different from this one?
3. How about the ad you saw during the video? What did you think about it?
4. For the question of I found that add controls easy to use in the questionnaire, what answer did you choose and why?
5. For the question of the ads today irritated me and the questionnaire what answer did you choose and why?
6. For the question of I had control over my ad experience today and the questionnaire, what answer did you choose and why?
7. Thinking back, what went through your mind when you saw the choice of when to play the ad?
8. How did you feel about the timing of when the choice appeared?
9. How did having that choice affect the way you watched the rest of the video?
10. How accurately would you say your behavior today reflected your unusual behavior at home?
11. How much would you appreciate it if online video platforms like YouTube, Amazon Video, Netflix, and Twitch deployed the design you saw today?
12. Do you have any other comments about your experience today?