Short-Form Video Consumption and Sustained Attention in Undergraduate Students: A Cross-Sectional Investigation

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Adolescent screen time has more than doubled since 2015 (Twenge, 2023), a trend that has accelerated since the widespread adoption of short-form video platforms. While prior research has examined the relationship between social media use and self-reported well-being, less attention has been given to how the type of content consumed, rather than total time spent, predicts measurable changes in attention span. This paper examines that question by reviewing recent experimental and longitudinal studies on adolescent media use, with particular focus on the distinction between passive scrolling and active engagement.

The question matters for two reasons. First, attention is a foundational cognitive resource: changes in sustained attention capacity have downstream effects on academic performance, working memory, and reading comprehension (Carr, 2020). Second, public discourse on screen time has often collapsed all forms of media use into a single category, treating the act of looking at a screen as the relevant variable. If the type of content is in fact more predictive than the time spent, public health recommendations should be revised accordingly. The studies reviewed below suggest that the type-of-content hypothesis has stronger empirical support than the duration-of-use hypothesis, though significant methodological concerns remain in this literature.

The present study tested two specific hypotheses derived from the content-specific framework. First, that total daily screen time would not be a significant predictor of sustained attention performance after controlling for relevant covariates. Second, that time spent specifically on short-form video platforms would be a significant positive predictor of commission errors on a sustained attention task, even after controlling for total screen time.

A third, exploratory question concerned whether the effect of short-form video would be moderated by demographic factors. The literature is mixed on whether gender, age, or self-reported anxiety condition the relationship between media use and attention, with some

studies finding stronger effects in younger adolescents and others finding stronger effects in those with pre-existing attentional vulnerabilities. The present study did not have the statistical power to test moderation effects with confidence but examined them descriptively as a hypothesis-generating exercise.

Literature Review

The literature on adolescent screen time falls into three distinct waves. Early studies, published between 2010 and 2015, treated screen time as a unitary variable and tended to report negative correlations with measures of academic performance and well-being (Anderson & Subrahmanyam, 2017). These studies established the basic correlation but were unable to isolate which components of screen exposure were driving the effect.

The second wave, from roughly 2016 to 2020, introduced finer-grained measurement. Researchers began distinguishing between social media use, gaming, video consumption, and educational technology, finding that effects varied substantially across categories. Notably, Orben and Przybylski (2019) used specification curve analysis on a dataset of over 350,000 adolescents and found that the average effect of digital technology use on well-being was small and roughly equivalent to the negative effect of regularly eating potatoes, a comparison that prompted significant reassessment of the alarmist tone of earlier work.

The third wave, beginning around 2021, has focused on within-platform variation. The shift to short-form video, characterized by algorithmically curated feeds and average video lengths under 60 seconds, has been associated with measurable changes in attention metrics that did not appear in earlier longitudinal data (Hartanto et al., 2023). This third-wave research is what this paper most directly engages with.

The literature on adolescent media use has been shaped by methodological constraints that have varied across decades. Studies conducted before approximately 2018 relied almost exclusively on self-reported measurement of screen time, which has been shown to correlate only modestly with passively measured device use (Parry et al., 2021). The introduction of

large-scale passive monitoring datasets has changed what kinds of questions the field can credibly ask.

The 2019 Orben and Przybylski analysis represents an inflection point in this respect. By applying specification curve analysis across all reasonable analytic decisions, the authors demonstrated that the apparent strength of the digital-technology-and-well-being relationship in earlier studies was substantially driven by selective reporting of significant effects. The paper did not argue that digital technology has no effects, but rather that the effects are smaller and more conditional than the public conversation suggested.

Subsequent work has moved toward content-specific measurement. Hartanto and colleagues (2023) reviewed the moderating role of contextual factors in gaming research and found that effects on well-being depended on motivations for play, social context, and content type. Their review provides a model for the kind of disaggregation this paper attempts in the attention-and-content domain.

A separate strand of research, using ecological momentary assessment, has begun to capture within-person variation in how different content types affect mood and concentration in the hours following use (van Endert et al., 2022). This methodology suggests that effects may be acute and short-duration rather than cumulative, which has implications for how cross-sectional studies should be interpreted.

The current paper builds on this third-wave content-specific research by examining one specific behavioral measure (sustained attention as captured by the SART) across content categories that have not previously been disaggregated in the same study.

Theoretical Framework

Two theoretical frameworks help explain why short-form video consumption might affect sustained attention differently than other content types. The first is the cognitive load and habituation framework articulated by Kardefelt-Winther (2014), which proposes that frequent exposure to high-novelty stimuli trains the attentional system to expect frequent

rewards from environmental scanning, reducing tolerance for the slower-paced cognitive engagement that sustained attention tasks require. Under this account, the relevant variable is not content but rather the rate of stimulus change, and short-form video happens to have an unusually high rate.

The second framework is the dopaminergic reward-learning account proposed by Lembke (2021), which extends habituation theory by specifying that the attentional shifts produced by short-form video are mediated by dopamine release patterns similar to those observed in other forms of compulsive consumption. This framework predicts that the effects should be most pronounced in individuals with pre-existing vulnerabilities in reward-system regulation.

These frameworks make overlapping but distinguishable predictions. The first predicts that any high-novelty-rate content should produce the same effect, regardless of platform. The second predicts that platform-specific design features (autoplay, infinite scroll, algorithmic curation) should amplify the effect beyond what novelty rate alone would predict. The current data cannot adjudicate between these accounts directly, but the consistency of effect size across short-form video platforms is at least suggestive of the first interpretation.

Method

Participants and Procedure

This study analyzed survey data collected from 312 undergraduate students enrolled in introductory psychology courses at a large public university in the Midwestern United States. Participants completed a 45-minute online survey assessing self-reported daily screen time, content type breakdown across six categories (short-form video, long-form video, social media feeds, messaging, gaming, and educational), and performance on a sustained attention task adapted from Robertson et al. (1997).

Participants were recruited through the department's research participation pool and received course credit for completion. The sample was 64% female, 32% male, and 4%

nonbinary or undisclosed. Mean age was 19.4 years (SD = 1.2). The institutional review board approved all procedures, and participants provided informed consent before beginning the survey.

Measures

Sustained attention was operationalized using mean reaction time and commission error rate on the Sustained Attention to Response Task (SART). Higher commission error rates indicate greater attentional lapses. Self-report measures of screen content consumption were validated against a one-week passive monitoring period using a screen-time tracking application installed on participants' primary devices, with strong concordance (r = 0.71) between self-report and measured time.

A subset of 80 participants completed the screen-time tracking application protocol described above, providing one week of passively measured device use against which self-reported time could be validated. Concordance between self-reported and measured time was strong overall (r = 0.71) but varied by content category. Self-reported short-form video time correlated more strongly with measured time (r = 0.78) than self-reported social media feed time (r = 0.62), likely because the boundaries of the short-form video category are more visible to participants (the platforms are recognizable applications) than the boundaries of social media feed scrolling, which can occur within multiple applications.

This validation procedure does not eliminate measurement error but provides confidence that the rank-ordering of participants on each content variable is broadly preserved when self-report is used in place of measurement. The implications for effect-size estimation are addressed in the discussion section.

Results

Total daily screen time was not a significant predictor of SART commission error rate (r = 0.08, p = 0.16). However, time spent specifically on short-form video platforms was a significant positive predictor of commission errors (r = 0.34, p < 0.001), even after controlling

for total screen time, sleep duration, and self-reported anxiety.

Time spent on long-form video (films, longer educational content) was not significantly associated with attention metrics ($r = 0.04$, $p = 0.51$). Social media feed scrolling showed a smaller but significant association ($r = 0.19$, $p = 0.001$). Gaming and messaging showed no significant associations.

A hierarchical regression analysis confirmed that short-form video time accounted for an additional 9.2% of variance in commission errors beyond what was explained by total screen time alone. This pattern held across the gender and age subgroups examined.

Discussion

The results support the type-of-content hypothesis. Total screen time, when treated as a single variable, was not significantly associated with sustained attention performance in this sample. The effect emerged only when content was disaggregated by format, with short-form video showing the largest and most consistent association.

Two interpretations are consistent with these findings. The first is a habituation account: repeated exposure to algorithmically optimized short-form content trains the attention system to expect frequent novelty, which then degrades performance on tasks requiring sustained focus. The second is a selection account: individuals with pre-existing attentional difficulties may be drawn disproportionately to short-form video formats. The cross-sectional design used here cannot distinguish between these accounts. Longitudinal data are needed.

Three limitations should be noted. First, the sample was drawn from a single university and may not generalize to non-college populations or to younger adolescents. Second, the SART is one of many possible measures of sustained attention, and the results may not generalize to other attentional constructs such as selective attention or attention switching. Third, self-report of content type, even when validated against passive monitoring, depends on participants' ability to categorize their own behavior accurately.

The cross-sectional design of this study is its primary methodological limitation, and it should constrain causal interpretation of the observed associations. The reverse-direction hypothesis, that individuals with poorer baseline sustained attention are drawn disproportionately to short-form video formats because those formats accommodate shorter attention spans, is consistent with the same data and cannot be ruled out without longitudinal measurement.

Second, the SART is a laboratory measure of sustained attention that may not capture attentional behavior in naturalistic settings. Attention research has long noted that laboratory and ecological measures correlate only modestly, and that real-world attentional performance is shaped by motivation and task relevance in ways that laboratory tasks deliberately strip away (Egeland and Kovalik-Gran, 2010). The implications of the present findings for everyday cognitive performance therefore depend on the assumption that SART scores generalize to ecological contexts, an assumption that warrants further investigation.

Third, the operational definition of short-form video used here aggregates across multiple platforms (TikTok, Instagram Reels, YouTube Shorts) that differ meaningfully in algorithmic design, video length distribution, and demographic composition of users. Aggregating across these platforms is justified by the present sample size but may obscure platform-specific effects that a larger study could detect.

Fourth, the sample is drawn from a single university and is unrepresentative of the broader adolescent and young-adult population in important ways. The participants are college students at a particular institution at a particular time, and the conclusions should be extended to other populations only with caution.

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