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IMPACT OF TIKTOK'S DESIGN ELEMENTS ON ADDICTIVE USAGE PATTERNS AMONG AUSTRALIAN TEENAGERS: A MIXED-METHODS STUDY

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ABSTRACT

This study investigates how TikTok's core design elements contribute to addictive usage patterns among Australian teenagers. Using a mixed-method approach, the quantitative data were collected through an online survey of 50 participants aged 13–18. The questions measured usage frequency, app features, engagement, and challenges with limiting screen time. In addition, ten participants completed interviews exploring their personal experiences with the app. Results indicate that TikTok's personalized algorithm, notification systems, and autoplay features significantly contribute to continued usage and difficulties with self-regulation among teenagers. These findings highlight the urgency for improved social media management strategies and app-design adjustments that may reduce the risk of digital addiction.

KEYWORDS: Tiktok, Algorithm, Addictive Behaviour, Australian Teenagers, Autoplay, Push Notification

INTRODUCTION

TikTok's short-form videos and highly personalized content have made it one of the most influential social media platforms worldwide, especially among teenagers. In Australia, young people represent a significant portion of TikTok's user base, raising concerns about excessive screen time and potential symptoms of behavioural addiction.

Despite these concerns, there is limited research focusing specifically on TikTok's impact on Australian teenagers, which this study aims to address. While addictive behaviours also appear in adults, studies show that teenagers may be more vulnerable due to ongoing brain development, more social pressure, and high sensitivity to instant reward cycles.

This study fills this gap by examining how TikTok's design features relate to addictive usage patterns among Australian teenagers. This study combines quantitative survey data with qualitative interview evidence to examine how specific platform features relate to self-regulation difficulty.

This research focuses on the risk of addiction linked to the design elements of TikTok, specifically among Australian teenagers, a group highly active on the platform. This topic is relevant to current concerns about adolescent digital wellbeing and the unique app features that may contribute to addictive behaviour.

Thesis Statement: TikTok's personalized recommendation algorithm, autoplay function, and push-notification system significantly contribute to addictive usage patterns among Australian teenagers, negatively affecting their ability to regulate screen time and maintain digital well-being.

LITERATURE REVIEW

Social media addiction has been linked to app design features that exploit the brain's reward system, including variable reinforcement and continuous content delivery, which keep users engaged for

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extended periods (Andreassen, 2015; Montag et al., 2019). According to behavioural-addiction theories, digital platforms can trigger dopamine-based feedback loops similar to those observed in substance addiction (Turel et al., 2018). Features such as autoplay and personalized recommendations appear to reinforce prolonged engagement, reducing teenagers' ability to exercise self-control (Robinson & Berridge, 2003).

TikTok's design differs from earlier social media platforms in ways that may intensify these effects. Whereas platforms such as Facebook and Instagram historically organised content around a user's existing social connections, TikTok's For You Page delivers algorithmically selected content from across the entire platform, meaning the supply of novel material is effectively unlimited. The platform's short video format also produces a far higher rate of reward events per session than long-form video streaming, since users encounter a new piece of content every few seconds rather than every few minutes. This combination of unpredictable reward timing and high reward frequency corresponds closely to the variable reinforcement schedules identified in behavioural addiction research (Andreassen, 2015; Turel et al., 2014), which suggests that the platform's architecture may pose a distinct self-regulation challenge relative to earlier social media.

Research Gap

Existing research on social media addiction has focused predominantly on Facebook, Instagram, and general smartphone use, with comparatively little attention to TikTok despite its distinct design architecture. Where TikTok has been studied, research has largely examined user engagement or content trends rather than the specific relationship between individual design features and self-regulation difficulty. Furthermore, the available literature draws primarily on North American, European, and East Asian samples, leaving Australian adolescents largely unrepresented. This study addresses these gaps by examining how three specific design features — the recommendation algorithm, autoplay, and push notifications — relate to addictive usage patterns in an Australian adolescent sample, combining survey data with interview evidence to capture both the prevalence and the lived experience of these effects.

METHODOLOGY

Participants: A total of 50 Australian teenagers aged 13–18 (28 females, 22 males) completed an online survey shared through school networks to ensure demographic diversity.

Survey Instrument: The survey contained 20 questions focusing on daily usage duration, engagement with TikTok's key features (autoplay, push notifications, recommendation feed), self-regulation attempts, and emotional responses. Question types included Likert scales, multiple-choice, and frequency measures.

Qualitative Component: Ten participants completed short interviews where they discussed how TikTok's features influence their behaviour, how difficult it is to stop using the app, and the emotional or habitual factors that keep them engaged. Interviewees described moments when they tried to reduce usage, the psychological triggers that pulled them back, and their perceptions of TikTok's algorithm and notifications.

Data Analysis: Quantitative data were summarised using descriptive statistics and correlation coefficients. Qualitative responses were examined through thematic analysis to identify common patterns related to engagement, emotional triggers, and addiction-like behaviour.

Ethical Considerations: Ethical approval was granted by the deputy principal of the participating secondary school. Participation was voluntary and anonymous, and informed consent was obtained from all participants prior to data collection. No identifying information was recorded, and participants were advised that they could withdraw at any point.

RESULTS

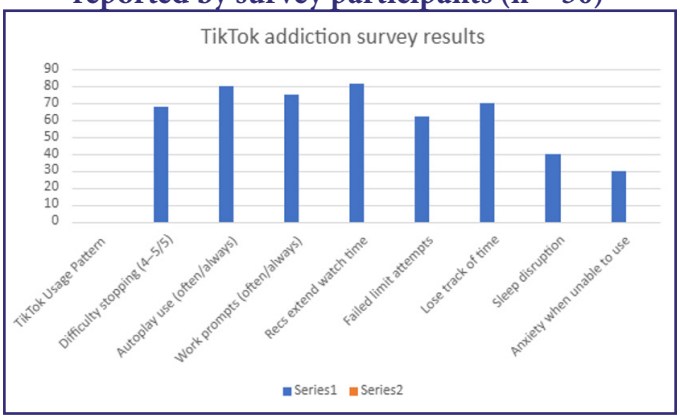
Survey Results (Quantitative)

- Teenagers spent an average of 2.8 hours per day on TikTok, with usage ranging from 1–6 hours.
- 68% reported strong difficulty stopping the app once they started (rating 4–5 on a 5-point scale).
- 80% "often" or "always" used the autoplay feature, indicating reliance on continuous content flow.
- 74% were prompted to open the app by notifications, showing high sensitivity to external triggers.
- 82% agreed that recommended videos extended

their watch time.
- 62% had tried to limit use but were unsuccessful.
- 70% often lost track of time while scrolling.
- 40% reported sleep disruptions caused by late-night use.
- 30% experienced anxiety when unable to use TikTok.

A correlation analysis showed a strong positive relationship ($r = 0.72$, $p < 0.01$) between autoplay frequency and total daily screen time. Figure 1 below illustrates that autoplay use (80%), personalised recommendations (82%), and difficulty stopping (68%) are the most significant behavioural patterns, highlighting how TikTok's design features contribute to longer screen time.

Fig. 1: Prevalence of key behavioural patterns reported by survey participants (n = 50)



Source: *Created by author.*

As Figure 1 shows, the three most frequently reported patterns were engagement with personalised recommendations (82%), autoplay use (80%), and difficulty stopping use once started (68%), indicating that the design features most closely associated with continuous content delivery were also the most widely experienced.

- Content Hook: Participants described the For You Page as "too personalised," making it easy to continue scrolling.
- Emotional Relief: Many used TikTok to escape boredom or stress, making the app a habitual coping mechanism.
- Self-Regulation Difficulty: Interviewees admitted they "always fail" to stop because new videos appear instantly, and notifications pull them back in.

Interview Results (Qualitative)

1. Autoplay Hook: "Once I start scrolling, I literally can't stop because the next video just pops up straight away. I don't even realise how much time I spend on my phone."
2. Personalised Algorithm: "It feels like TikTok knows exactly what I want to watch. Every video is so spot-on for me, which makes it impossible to put my phone down."
3. Push Notifications: "Even when I'm not using it, the notifications pull me back in. If I'm bored or doing homework and I see a TikTok notification, I'll open the app without thinking."
4. Emotional Use / Escape: "I use TikTok when I'm stressed or when I want to distract myself. It helps me escape, but then I stay on it way longer than I planned."
5. Failed Self-Regulation: "I've tried limiting my time before, like deleting the app or turning off notifications, but I always reinstall it or turn them back on because I feel like I'm missing out."

Thematic analysis of the ten interviews identified five recurring themes: the autoplay hook, the personalised algorithm, notification-triggered use, emotional escape, and failed self-regulation. Representative responses for each are presented below.

DISCUSSION

The results support existing research showing that TikTok's design features, particularly its recommendation algorithm and autoplay system, encourage extended use by maintaining a constant flow of personalised content (Andreassen, 2015; Montag et al., 2019). Push notifications act as external cues that initiate frequent app-checking, consistent with behavioural-addiction models (Robinson & Berridge, 2003). The immersive, time-distorting quality participants described is also consistent with flow states, in which absorption in an activity reduces awareness of elapsed time (Csikszentmihalyi, 1990).
It is important to note that these findings are correlational and cannot establish causal direction. The strong association between autoplay frequency and daily screen time is consistent with the interpretation that continuous content delivery extends usage, and this interpretation is supported by participants' own accounts of being unable to stop once scrolling began. However, an alternative explanation is that teenagers with heavier existing

usage are more likely to leave autoplay enabled. The convergence of the survey and interview data strengthens confidence in the first interpretation, but experimental or longitudinal designs would be required to establish causality with certainty.

These systems challenge teenagers' developing self-regulation skills and highlight the need for app developers to integrate stronger digital-wellbeing controls, such as personalised reminders or stricter notification settings. Additionally, schools and government agencies should strengthen digital literacy programs to help young users develop healthier screen-time habits.

Beyond these findings, this indicates that interventions should not only focus on self-control but also on reducing the persuasive power of platform design itself, since features like autoplay and algorithmic recommendations are built to maximise engagement rather than wellbeing.

For schools, this could include structured digital literacy education that teaches students how recommendation algorithms work, how notifications can influence behaviour, and strategies for managing attention and screen time in everyday life.

At a government level, policies could support mandatory digital well-being features in social media apps, such as a default screen-time limit for minors, clearer transparency around algorithmic recommendations, and stricter control over notifications for teenage users.

LIMITATIONS

Several limitations should be considered when interpreting these findings. First, the sample consisted of 50 participants recruited through a single school network, which limits the extent to which results can be generalised to Australian teenagers as a whole. Participants may also share regional, socioeconomic, or educational characteristics that differ from the broader adolescent population.

Second, all usage data were self-reported rather than measured directly through device analytics. Self-reported screen time is known to differ from actual recorded usage, and participants may have under- or overestimated their daily time on the platform.

Third, the study design is cross-sectional and correlational. While a strong positive relationship was identified between autoplay frequency and total daily screen time, this does not establish that autoplay causes increased usage. It remains possible that teenagers who already use the platform heavily are simply more likely to leave autoplay enabled.

Fourth, the qualitative component involved ten participants, which is appropriate for identifying recurring themes but insufficient for establishing how widely those experiences are shared. Interview responses may also have been influenced by social desirability, particularly given that participants were discussing behaviour they themselves described as difficult to control.

Finally, this study measured addiction-like usage patterns rather than clinically diagnosed behavioural addiction. No validated diagnostic instrument was administered, so the findings describe patterns consistent with problematic use rather than confirmed cases of digital addiction.

CONCLUSION

TikTok's algorithm, autoplay feature, and push notifications significantly contribute to addictive usage patterns among Australian teenagers, making it difficult for them to regulate their digital habits. Addressing this issue requires collaboration between technology developers, educators, and policymakers to promote healthier social-media environments. Future research should involve larger participant groups and long-term studies to understand the ongoing effects of TikTok addiction.

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