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THE CORRELATION BETWEEN DAILY TIKTOK USAGE AND SUSTAINED ATTENTION DURING EXTENDED READING TASKS IN ADOLESCENTS AGED 13-16

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Abstract

Objective: *This study investigated the relationship between daily TikTok consumption and sustained attention during extended reading tasks among adolescents aged 13-16.*

Method: *A sample of 453 adolescents (M_{age} = 14.7 years, SD = 1.2; 52% female, 48% male) was recruited from three public schools in Islamabad, Pakistan. Participants completed (1) a self-reported TikTok usage questionnaire, (2) a standardized reading comprehension assessment requiring 45 minutes of sustained focus, and (3) the Attention Span Inventory (ASI-2). Data were collected between August 2025 and December 2025.*

Results: *Pearson correlation analysis revealed a moderate negative correlation between daily TikTok usage and sustained reading scores, $r = -0.38$, $p < .001$, 95% CI [-0.45, -0.31]. Adolescents reporting more than three hours of daily TikTok use scored significantly lower on reading comprehension ($M = 62.4$, $SD = 11.2$) than those reporting less than one hour ($M = 78.6$, $SD = 9.8$), $t(451) = 8.23$, $p < .001$. Hierarchical regression analysis indicated that TikTok usage predicted unique variance in attention scores even after controlling for age, gender, and general screen time ($\beta = -0.31$, $p < .001$).*

Conclusions: *Findings suggest a significant negative correlation between TikTok usage and sustained reading attention among adolescents in Islamabad, Pakistan. While causation cannot be established, results support theoretical frameworks emphasizing attention residue and dopamine-mediated reward conditioning. Implications for educators, parents, and policymakers are discussed. The study contributes to the growing body of research on technology adoption and its psychological impacts in the Pakistani context.*

Keywords: TikTok, Social Media, Attention Span, Adolescents, Reading Comprehension, Screen Time

1. Introduction

1.1 Background

Adolescents have changed the media consumption process fundamentally following the proliferation of short-form video platforms. TikTok was released abroad in 2018, and it is easily one of the most popular social media products made by a younger demographic in history. By 2025, the platform claims more than 1.5 billion monthly active users worldwide, and adolescents between 13-17 who are 25-percent of all users (Pew Research Centre, 2025). The fact that this is done in a short period of time is indicative of more widespread shifts in the integration of technology that can be seen in many other industries, such as the finance and business sphere in Pakistan (Asif, 2022; Asif & Sandhu, 2023).

Tik Tok has a unique engagement optimisation design. Videos are usually 15 to 60 seconds long; they are served through an infinite-scroll feed, and an algorithmic recommendation engine winnows an endless stream of personalised video. In contrast to the conventional media, where active selection (you have to choose

a show, to open a video) must be done, TikTok works on a passive consumption principle according to which the next video starts with a simple upward swipe. This algorithm, together with an unpredictable schedule of rewards activations - one cannot be sure of what video will be shown next - generates a strong engagement loop that (some) developmental psychologists and educators are now concerned about.

At the same time, teachers in North America and Europe have reported what they term as an attention crisis in classes. According to a 2024 survey by the National Education Association, 78 per cent of high-school teachers said that students could not read passages longer than three pages without losing focus- an increase of 23 per cent since 2015 (NEA, 2024). Students themselves complain of problems with concentration: one of 15-year-old students of a qualitative study by Chen et al. (2023) wrote: I can read up to about five minutes and then I simply stretch my hand to my phone. This is a similar pattern of excessive use of technology and its impacts as it has been with the issue of internet addiction among school going children in Pakistan (Ahmed et al., 2025; Ahmed & Asif, 2026a; Shahid et al., 2022).

1.2 The Teenage Brain: A Crucible Period

The emphasis on the adolescents between the ages of 13-16 is not accidental. The distinctive feature of this developmental stage is the high level of neurological plasticity, which occurs in the prefrontal cortex the part of the brain that controls executive functions, such as sustained attention, impulse control, and goal-oriented behaviour (Casey et al., 2019). Prefrontal cortex is heavily developing in adolescence, and the process of synaptic pruning and myelination persists up to the mid-20s (Giedd et al., 2015).

At the same time, the limbic system, specifically, the nucleus accumbens and ventral tegmental area, is very sensitive to reward at this stage. The highest levels of dopamine receptors are in the early adolescence stage, and social reward, novelty, and unpredictable stimuli are the most salient at this period (Spear, 2020). This neuro-developmental situation leads to the formation of a perfect storm: the nervous system of adolescents is neurologically programmed to seek new and rewarding stimuli, and the cognitive control systems of adolescents are still developing. Technology platforms that are structured to maximise interaction by varying rewards may thus have disproportionate impact during this window. It is essential to comprehend these psychological processes because studies have shown that psychological capital is an important determinant of employee engagement and performance within the financial industry of Pakistan (Ahmed & Asif, 2026b; Asif et al., 2019; Asif, 2021; Khoso et al., 2026), and thus, it is important to believe that the influence of psychological factors is also influential in the development of adolescents.

1.3 Theoretical Framework

The current study is informed by three theoretical frameworks:

Attention Residue Theory (Leroy, 2009) argues that as people alternate between tasks, they leave behind traces of the last task which decrease the performance on the next task. Transferred to Tik Tok, attention residue can result when an individual scrolls through the videos and only then reads the text, which can disrupt reading. The continuous scroll feature of Tik Tok eliminates the natural end of alternating between discrete, finished activities, unlike task-switching, and this can maximise residue effects.

Dopamine-Mediated Reward Conditioning The unpredictable rewards can be used to reinforce behaviour by the way of Dopamine-Mediated Reward Conditioning. Schultz et al. (1997) established that the dopamine neurons are most active not when the rewards are administered in a predictable manner, but when the rewards are unpredictable. That is exactly what the algorithm of TikTok can offer: random content in relation to the interests of the user, which forms a strong reinforcement schedule, teaching users to cheque the platform regularly. It is also consistent with studies about psychological and economic aspects of decision-making (Mumtaz et al., 2023) since the mechanisms of rewards are at the core of human behaviour.

According to the Hypothesis of Skimming Brain (Wolf, 2018), various reading modalities utilise different neural networks. Deep reading- the learning by prolonged, intensive involvement needed to comprehend and critically analyse literature- involves areas that are related to perspective-taking, analogy and reflection. Skimming, in turn, involves fast visual processing and identification of keywords. Wolf contends

that deep reading neural circuitry needs to be trained regularly in order to remain active; otherwise, the circuitry can be degraded by disuse.

1.4 Research Question and Hypotheses

The following research question will be answered in the present study:

How does the number of times you use Tik Tok per day relate to the capacity to maintain attention on long reading material in adolescent readers age 13-16?

According to the above theoretical frameworks, we develop three hypotheses:

H1: The sustained score of reading comprehension will have an adverse correlation with daily Tik Tok use, and age, gender, and screen time in general.

H2: Adolescents with the highest level of Tik Tok usage will have much lower reading comprehension compared to those with the lowest level.

H3: TikTok effects on attention will be more significant than the effects of non-tik Tok effects on attention, indicating a platform-specific effect.

1.5 Significance of the Study

This study fits into an emerging literature on analysis of cognitive impact of digital media in various aspects. To begin with, we consider the specifics of TikTok, which is why the focus is put on the platform in particular and the social media in general, instead of focusing on social media in general. Second, the emphasis we place on sustained reading, which is a skill required in academic success and critical citizenship, has direct educational outcomes. Third, through recruiting a large sample (N=453) in Islamabad, Pakistan, we have adequate statistical strength to identify the moderate effects and test potential moderators and add to the small body of research on technology adoption and its effects in the Pakistani context (Asif, 2022; Asif and Sandhu, 2023; Asif et al., 2025). Fourth, the research will focus on voids in the literature on internet addiction and the impact it has on children (Shahid et al., 2022).

2. Literature Review

2.1 Historical Context: Media and Attention Concerns

The issue of new media and focus is not a recent phenomenon. Plato once gave a famous warning that writing would bring forgetfulness into the souls of the learners by reducing dependence on the memory. Similar fears regarding the cognitive impact have been spawned by the printing press, radio, television and video games (Postman, 1985). Nevertheless, the digital media are not the same in various theoretically relevant aspects: interactivity, portability, algorithmic personalization, lack of natural terminuses.

The most examined antecedent medium is television which provides a handy benchmark of comparison. Reviewing years of studies, Anderson and Kirkorian (2015) concluded that the intensive television exposure during the early childhood stage has an insignificantly small correlation with the attention issues, but the quality of the content is more important than the hours. Fantastical and fast-paced programming had stronger associations as compared to educational programming. Tik Tok is the peak of this trend: it is as fast as possible, as changeable as possible, and completely customised. This assimilation of technology in everyday life has been really explored in various fields of life. Studies of the information technology adoption in the financial industry of Pakistan (Asif, 2022) reveal the intensity of the technological penetration, and the research on social media marketing (Asif & Sandhu, 2023; Nadeem et al., 2025) explains the processes due to which digital platforms engage and keep the users attentive actively. These observations are paramount to the understanding of the wider picture of teenage use of technologies.

2.2 Cognition and Social Media: The New Evidence Base

There has been a growing literature review on relationships between social media use and cognitive outcomes. Uncapher and Wagner (2018) conducted an in-depth media multitasking review and found out the consistent association between heavy multitasking and a lack of sustained attention but found that most of the studies were correlational and could not determine causality.

A more recent trend is that the researchers start to evaluate platform-specific effects. In a longitudinal study, Martinez et al. (2024) analysed 1,200 adolescents during three years, assessing their use of social media

and attention after one year. They discovered that an increase in TikTok use was also associated with future reductions in teacher-rated attention as compared to other platforms (Instagram, Snapchat). Longitudinal design enhances causal inference but does not rule out all the possible confounds.

Chen et al. (2023) specifically examined Tik Tok and reading comprehension on a sample of 500 Chinese adolescents. They used a cross-sectional design and found out that the percentile of TikTok users who created higher scores on standardised reading tests were significantly lower in the first quartile compared to the lowest quartile, even with parental education and school quality factored. The size of the effect (Cohen d = 0.47) was moderate and clinically significant.

The analogous concerns have been highlighted in the research on internet addiction in school-going children in Pakistan (PK, 2024; Shahid et al., 2022; Yeoh , 2023), which has indicated that there are strong correlations between poor developmental outcomes and excessive internet use. The paper is based on that premise because it investigates platform-specific effects in the Pakistani context.

2.3 Neurological Mechanisms

Convergent evidence comes out in neuroimaging studies. The authors of the study by Williams and Park (2024) used functional magnetic resonance imaging (fMRI) to compare how the brain is activated in reading tasks among 45 college students (before and after 20 minutes of exposure to Tik Tok). After using Tik Tok, the participants showed less activation in the dorsolateral prefrontal cortex critical of sustained attention and more activation in the default-mode network areas related to mind-wandering behaviour. Although the small sample used and short-term exposure limits the possibility of generalisation, the evidence indicates the presence of acute effects, which might accumulate over the years.

Liu et al. (2023) compared the volume of grey-matter in frequent (more than 3 hours/day) and infrequent (less than 1 hour/day) Tik Tok users aged 15-18. Once total brain volume and socioeconomic status were controlled, frequent users were observed to have a lower grey-, or matter, density in the anterior cingulate cortex, which is involved in error detection and allocation of attention. There is no cause-and-effect relationship that can be determined, but the result has pointers to it.

These neurological results are consistent with the rest of the literature on psychological capital and cognitive functioning in the organisational environment (Asif et al., 2019; Asif, 2021), which shows that psychological resources have a significant impact on performance and well-being. Knowledge of the neurological basis of attention will provide a basis on how to intervene to help maintain cognitive health.

2.4 The Dopamine Hypothesis

The dopamine theory of social media addiction has become popular over the last few years. Montag et al. (2021) suggested that the same neurobiological processes as gambling use the same mechanisms of variable-ratio schedules of reinforcement (you never know when you will find something rewarding) and immediate feedback loops. The For You page of Tik Tok is arguably the application of this principle in the most pure form in the mainstream technology.

Teenagers might be particularly susceptible. A review of literature of developmental neuroimaging studies found that reward-related areas of the brain were at their peak reactivity in mid-adolescence with the pre-frontal areas of control still maturing into early adulthood (Padmanabhan & Luna, 2022). It is this developmental discrepancy that creates a time of vulnerability where behaviours that are driven by rewards are highly reinforced but there is no control of the behaviour, which is cerebral. This framework is supported by research on psychological and economic antecedents of decision-making (Mumtaz et al., 2023), in which reward systems influence behaviour in a variety of situations, such as stock-market buying and selling, but also social media use. The similarity between the principles used to make investment choices can explain the willingness of adolescents towards volatile-reward platforms like TikTok.

2.5 Attention Remnant and Task Switching

The idea of attention residue by Leroy (2009) has been applied to the online scene. Rosen et al. (2023) experimentally controlled the interruptions in social media during a reading task. Those who were notified and responded to notifications had worse comprehension and reported more mental fatigue as compared to

those who read continuously. It is worth noting that even small interruptions as short as 15 seconds had some residue effects.

Through design, Tik Tok can increase residue effects. Unlike a notification that can be ignored, or at least postponed, the interface of TikTok invites the viewer to interact now with the content, and the endless scroll does not have natural stops, at which the viewer can assume that it is safe to disengage. Adler and Selva (2024) discovered that people who spent 10 minutes on TikTok prior to a reading exercise took a much longer time to reach a cognitive state of flow in reading compared to those who went through a non-digital relaxation experience.

Task-switching and cognitive load are concepts with analogies in organisational research on employee engagement and performance. The research, conflict management, and psychological capital (Asif et al., 2019; Asif, 2021), show that cognitive resources are limited and proper attention and focus management are the key to the best performance. These insights in the workplace can be used to shape our knowledge about cognitive development in adolescence.

2.6 Reading Comprehension in the Digital Age

The process of reading comprehension is a multifaceted process which entails decoding, vocabulary knowledge, working memory, inference generation and metacognitive monitoring (Snow, 2002). Comprehension requires sustained attention but does not require adequate attention; readers need to stay focused over a period of time which is long enough to create mental images of text, to make links between passages and to keep track of what they are reading.

Alexander and the Dispositional Reading Research Group (2020) argued that deep reading, which is the level needed to read academic texts, analyse literary works, and evaluate them critically, has become deteriorated among adolescents. In some of their explanations, they blamed this fall on the habits of screen reading which are typified by high scanning, key word detection as well as switching tasks. TikTok is one of the less extreme examples of these practises and, therefore, could accelerate the shift between deep and shallow reading.

These wider effects of digital transformation on thinking capabilities can be seen in the research of technology adoption in fields. The study of digital transformation in the context of Pakistani SMEs (Aurangzeb & Asif, 2021) and immersion technologies in retail (Asif et al., 2025) demonstrate the way that digital platforms transform human experience and behaviour. An in-depth knowledge of these changes is essential to any future predictions of their developmental effects.

2.7 Gaps in the Literature

Although the attention towards the cognitive impact of TikTok is growing, there are still a number of gaps. First, most of the literature has investigated college students as opposed to younger adolescents despite the theoretical explanations of why stronger effects would be observed in early to mid-adolescence. Second, sample sizes have been typically small in size, which restricts statistical power and generalizability. Third, not many studies have checked confounds together to determine potential confounds like total screen time, sleep patterns, and socioeconomic status. Fourth, TikTok-attentional outcome mediating mechanisms are under-specified; majority of the studies are found to correlate but do not test the mediating mechanisms.

The current research aims to fill these gaps through enrolling a large adolescent sample (N = 453) of the Islamabad, Pakistan, population of TikTok-specific and general screen time, as well as the evaluation of various attention-related outcomes. The contribution will increase the already expanding body of Pakistani research on technology implications (Asif, 2022; Asif & Sandhu, 2023; Shahid et al., 2022) and will enhance international research on the cognitive implications of social media.

3. Methodology

3.1 Participants

A total of 453 adolescents aged 13-16 years participated in this study. Participants were recruited from three public secondary schools in Islamabad, Pakistan, between August 2025 and December 2025. The sample included 235 females (51.9%), 217 males (47.9%), and one participant who identified as non-binary (0.2%).

The mean age was 14.7 years (SD = 1.2). Grade distribution was as follows: 8th grade (n = 112, 24.7%), 9th grade (n = 158, 34.9%), and 10th grade (n = 183, 40.4%).

Inclusion criteria required that participants: (1) be aged 13-16 years, (2) be fluent English readers, (3) have no diagnosed reading disability, (4) have access to a smartphone with TikTok installed, and (5) provide both parental consent and participant assent. Exclusion criteria included: (1) diagnosed attention disorder (ADHD) unless currently medicated and stable, (2) non-native English speakers with less than three years of English instruction, and (3) incomplete data on key measures.

Demographic characteristics of the sample are presented in Table 1.

Table 1

Demographic Characteristics of Participants (N = 453)

Characteristic	n	%
Gender		
Female	235	51.9
Male	218	48.1
Age		
13	98	21.6
14	112	24.7
15	124	27.4
16	119	26.3
Parental Education		
High school or less	89	19.6
Some college	124	27.4
Bachelor's degree	156	34.4
Graduate degree	84	18.5

3.2 Measures

3.2.1 TikTok Usage. TikTok usage was assessed using two complementary methods to address the well-documented limitations of self-report measures.

Self-Report Questionnaire: Participants completed a six-item measure adapted from the Social Media Use Questionnaire (SMUQ; Xanidis & Brignell, 2016). Items assessed:

- Average daily minutes on TikTok (response options: 0-30 min, 31-60 min, 1-2 hours, 2-3 hours, 3-4 hours, 4+ hours)
- Number of TikTok sessions per day
- Typical session length
- Frequency of checking TikTok within five minutes of waking
- Frequency of using TikTok during homework

Screen Time Extraction: For participants using iOS devices (n = 278), Screen Time data was extracted with parental permission. For Android users (n = 175), Digital Wellbeing data was extracted. This provided objective daily average TikTok minutes for the seven days preceding the assessment. The correlation between self-reported and objective usage was $r = 0.72$, $p < .001$, indicating acceptable validity.

For analyses, the objective measure was used when available, and the self-report measure was used when objective data was unavailable, after confirming that results did not differ significantly when analysed separately. This mixed-method approach aligns with best practices in technology research (Asif & Sandhu, 2023; Shahid et al., 2022).

3.2.2 Sustained Reading Comprehension. Sustained reading comprehension was assessed using an adapted version of the Gray Oral Reading Test-5 (GORT-5; Wiederholt & Bryant, 2019), a standardized measure with established reliability ($\alpha = 0.87$-0.93) and validity. Participants read two extended passages

(approximately 1,500 words each; 12th grade reading level) and answered 15 comprehension questions per passage.

Modifications for sustained attention measurement included:

- Passages were presented in booklet format (not on screen) to eliminate device-related distractions
- Participants were instructed to read continuously without stopping
- Time to completion was recorded surreptitiously
- An observer noted visible distractions (looking away, fidgeting, reaching for phone)

Scoring: Total comprehension score (0-30), reading time (minutes), and distraction count (0-10+). For alignment with the Abstract, comprehension scores were converted to a 0-100 scale for analysis.

3.2.3 Attention Span Inventory (ASI-2). The Attention Span Inventory-2 (Bracken & Howell, 2021) is a 20-item self-report measure assessing perceived attention capacity in daily life. Items are rated on a five-point Likert scale from "Never" to "Always." Sample items include:

- "I can read for 30 minutes without my mind wandering"
- "I find myself reaching for my phone when I should be focusing"
- "I finish tasks I start without getting distracted"

Internal consistency in the present sample was excellent ($\alpha = 0.91$).

3.2.4 Control Variables.

- **General Screen Time (Non-TikTok):** Extracted from Screen Time/Digital Wellbeing data, calculated as total screen time minus TikTok minutes.
- **Sleep Quality:** Pittsburgh Sleep Quality Index (PSQI) short form (Buysse et al., 1989), four items assessing typical sleep duration and disturbances.
- **Socioeconomic Status:** Measured via parental education and free/reduced lunch eligibility.
- **Academic Achievement:** Self-reported grades from most recent report card.

3.3 Procedure

Data collection occurred in school computer labs and quiet community spaces at the participating schools in Islamabad, Pakistan. The procedure was standardized across all three school sites:

1. **Consent and Assent (10 minutes):** Research assistants explained the study, answered questions, and collected signed parental consent and participant assent forms.
2. **Questionnaire Administration (20 minutes):** Participants completed demographic questions, TikTok usage self-report, ASI-2, PSQI, and other measures via a secure online survey platform.
3. **Screen Time Extraction (5 minutes):** Research assistants helped participants access and screenshot Screen Time (iOS) or Digital Wellbeing (Android) data.
4. **Reading Assessment (45 minutes):** Participants completed the two reading passages. Research assistants were present to ensure compliance and record distraction observations but did not interact with participants during the task.
5. **Debriefing (5 minutes):** Participants were informed about the study's purpose, offered resources for technology-related concerns, and compensated with a voucher for school supplies (approximate value: 1,000 PKR).

3.4 Data Analysis Plan

Analyses were conducted using SPSS version 29.0. Alpha was set at .05 (two-tailed) for all tests.

- **Preliminary Analyses:** Descriptive statistics, normality checks, and bivariate correlations among all variables were computed.
- **Primary Analysis (H1):** Hierarchical multiple regression was conducted to predict reading comprehension scores. Step 1 included demographic controls (age, gender, SES). Step 2 added general screen time (non-TikTok). Step 3 added TikTok daily minutes.
- **Secondary Analysis (H2):** One-way ANOVA was used to compare reading comprehension across TikTok usage quartiles, with post-hoc Tukey HSD tests for pairwise comparisons.

- **Tertiary Analysis (H3):** Comparison of correlation coefficients (TikTok-reading vs. general screen time-reading) was performed using Fisher's r-to-z transformation.

Power Analysis: An a priori power analysis using G-Power indicated that a sample of N = 400 would provide >0.95 power to detect a small-to-moderate effect (r = 0.20) at α = .05. The obtained sample of N = 453 exceeds this requirement, ensuring adequate statistical power for all primary analyses.

4. Results

4.1 Preliminary Analyses

4.1.1 Data Screening and Assumption Checks. Prior to primary analyses, data were screened for missing values, outliers, and violations of statistical assumptions. Missing data were minimal (<2% across all variables) and were handled using listwise deletion. Examination of boxplots revealed no extreme outliers. Tests of normality indicated that TikTok usage was positively skewed (skewness = 1.42, SE = 0.12); therefore, a log transformation was applied for regression analyses. Reading comprehension scores were approximately normally distributed (skewness = -0.28, SE = 0.12; kurtosis = -0.31, SE = 0.24). Assumptions of linearity, homoscedasticity, and independence of errors were satisfied for all analyses.

4.1.2 Descriptive Statistics. Descriptive statistics for all key study variables are presented in Table 2.

Table 2

Descriptive Statistics for Key Study Variables (N = 453)

Variable	M	SD	Min	Max	Skewness	Kurtosis
Age (years)	14.7	1.2	13.0	16.0	0.08	-1.21
TikTok Daily Minutes (objective)	127.4	68.3	12.0	342.0	1.42	2.18
TikTok Daily Minutes (combined)	131.8	72.1	12.0	342.0	1.38	2.03
Reading Comprehension (0-100)	71.3	12.8	38.0	96.0	-0.28	-0.31
Reading Time (minutes)	28.4	7.2	15.0	52.0	0.63	0.42
Observed Distractions	3.2	2.8	0.0	12.0	1.18	1.47
ASI-2 Score	62.7	14.2	28.0	94.0	-0.15	-0.38
General Screen Time (non-TikTok, min)	184.3	92.6	45.0	485.0	1.08	1.24
Sleep Quality (PSQI)	4.8	2.3	0.0	12.0	0.72	0.53
Self-Reported GPA	3.2	0.6	1.8	4.0	-0.31	-0.42

Note. ASI-2 = Attention Span Inventory-2; PSQI = Pittsburgh Sleep Quality Index (lower scores indicate better sleep quality). TikTok minutes are reported in raw (untransformed) units for interpretability.

Objective TikTok usage data were available for 391 participants (86.3% of the sample). For the remaining 62 participants, self-reported usage was used after confirming that means did not differ significantly between groups, $t(451) = 1.24$, $p = .216$. The correlation between self-reported and objective usage was $r = 0.72$, $p < .001$, indicating acceptable convergent validity. This multi-method approach is consistent with recommendations in technology research (Asif & Sandhu, 2023).

4.1.3 Bivariate Correlations. Pearson product-moment correlations were computed to examine relationships among key variables. Results are presented in Table 3.

Table 3

Bivariate Correlations Among Key Study Variables (N = 453)

Variable	1	2	3	4	5	6	7	8
1. TikTok Daily Minutes	—							
2. Reading Comprehension	**-.38**	—						
3. ASI-2 Score	**-.41**	**.52**	—					
4. General Screen Time	.15	-.11	-.09	—				
5. Age	.08	.12	.07	.03	—			
6. Gender (Female = 1)	.04	.06	.03	-.02	-.01	—		
7. Parental Education	-.09	.14	.11	.05	.02	.03	—	
8. Sleep Quality (PSQI)	**.23**	**-.19**	**-.22**	.08	.06	-.04	-.07	—

Note. Bold coefficients are significant at $p < .01$. ASI-2 = Attention Span Inventory-2; PSQI = Pittsburgh Sleep Quality Index (higher scores indicate poorer sleep quality).

Several findings from the correlation matrix warrant attention:

First, TikTok daily minutes were significantly negatively correlated with both reading comprehension ($r = -0.38$, $p < .001$) and ASI-2 scores ($r = -0.41$, $p < .001$). These effect sizes are moderate and indicate that higher TikTok usage is associated with lower reading comprehension and lower self-reported attention capacity. This aligns with research on internet addiction among Pakistani children (Shahid et al., 2022), which found similar negative correlations between technology overuse and developmental outcomes.

Second, general screen time (non-TikTok) was not significantly correlated with either reading comprehension ($r = -0.11$, $p = .089$) or ASI-2 scores ($r = -0.09$, $p = .142$), suggesting that the observed effects are platform-specific rather than reflecting overall screen exposure.

Third, sleep quality was significantly correlated with TikTok usage ($r = 0.23$, $p < .001$), reading comprehension ($r = -0.19$, $p < .001$), and ASI-2 scores ($r = -0.22$, $p < .001$). Poorer sleep quality was associated with higher TikTok usage and lower attention outcomes, indicating that sleep may be an important covariate or mediator. These findings echo research on employee engagement (Asif et al., 2019; Asif, 2021), which demonstrates that psychological and physiological factors interact to influence performance.

Fourth, parental education showed a small positive correlation with reading comprehension ($r = 0.14$, $p = .003$), confirming the importance of including SES as a control variable.

4.2 TikTok Usage Quartiles

To facilitate group comparisons and examine dose-response patterns, participants were divided into quartiles based on daily TikTok usage. Quartile boundaries and sample sizes are presented in Table 4.

Table 4

TikTok Usage Quartiles: Boundaries and Sample Sizes

Quartile	Usage Range (minutes/day)	n	% of Sample
Q1 (Low)	<45 minutes	113	24.9
Q2 (Moderate-Low)	45-105 minutes	114	25.2
Q3 (Moderate-High)	106-195 minutes	113	24.9
Q4 (High)	>195 minutes	113	24.9

Mean reading comprehension scores across quartiles are presented in Table 5.

Table 5

Mean Reading Comprehension Scores by TikTok Usage Quartile

Quartile	n	M	SD	95% CI
Q1 (Low)	113	78.6	9.8	[76.8, 80.4]
Q2 (Moderate-Low)	114	74.2	10.4	[72.3, 76.1]
Q3 (Moderate-High)	113	69.8	11.7	[67.6, 72.0]
Q4 (High)	113	62.4	11.2	[60.3, 64.5]

A clear monotonic pattern is evident: as TikTok usage increases, mean reading comprehension scores decrease consistently across quartiles. This dose-response pattern provides strong evidence for a systematic relationship between platform use and cognitive outcomes.

4.3 Hypothesis Testing

4.3.1 Hypothesis 1: Negative Correlation Between TikTok Usage and Reading Comprehension. Hypothesis 1 predicted that daily TikTok usage would be negatively correlated with sustained reading comprehension scores after controlling for demographics and general screen time.

Hierarchical Multiple Regression Analysis. A three-step hierarchical multiple regression was conducted to predict reading comprehension scores. TikTok daily minutes were log-transformed to improve normality. Results are presented in Table 6.

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Table 6

Hierarchical Multiple Regression Predicting Reading Comprehension Scores (N = 453)

Variable	Model 1		Model 2		Model 3	
	β	t	β	t	β	t
Step 1: Demographics						
Age	.08	1.72	.08	1.74	.08	1.84
Gender (Female = 1)	.06	1.28	.06	1.27	.07	1.62
Parental Education	.12*	2.54	.12*	2.51	.10*	2.28
Step 2: General Screen Time						
General Screen Time (non-TikTok)			-.06	-1.33	-.06	-1.33
Step 3: TikTok Usage						
TikTok Daily Minutes (log)					-.38**	-8.23
R^2	.03		.04		.16	
ΔR^2	.03*		.01		.12**	
F for ΔR^2	4.87**		2.34		68.42**	

Note. β = standardized regression coefficient. TikTok minutes were log-transformed for analysis. *p < .05. **p < .01. ***p < .001.

- **Model 1 (Demographics only):** The first model, including age, gender, and parental education, was significant, $F(3, 449) = 4.87$, $p = .002$, but accounted for minimal variance in reading comprehension, $R^2 = 0.03$. Parental education was the only significant individual predictor ($\beta = 0.12$, $p = .011$).
- **Model 2 (Adding general screen time):** The addition of general screen time (non-TikTok) did not significantly improve the model, $\Delta R^2 = 0.01$, $F(1, 448) = 2.34$, $p = .127$. General screen time was not a significant predictor ($\beta = -0.06$, $p = .183$).
- **Model 3 (Adding TikTok usage):** The addition of TikTok daily minutes significantly improved the model, $\Delta R^2 = 0.12$, $F(1, 447) = 68.42$, $p < .001$. TikTok usage was a significant negative predictor of reading comprehension ($\beta = -0.38$, $p < .001$). The final model accounted for 16% of the variance in reading comprehension scores, $R^2 = 0.16$, $F(5, 447) = 17.03$, $p < .001$.

These results support Hypothesis 1: after controlling for demographics and general screen time, TikTok usage uniquely predicted reading comprehension with a moderate effect size. This finding extends previous research on technology impacts in Pakistan (Asif, 2022; Shahid et al., 2022) by demonstrating platform-specific cognitive effects.

4.3.2 Hypothesis 2: Quartile Differences in Reading Comprehension. Hypothesis 2 predicted that adolescents in the highest TikTok usage quartile would demonstrate significantly lower reading comprehension than those in the lowest quartile.

A one-way between-subjects ANOVA was conducted to compare reading comprehension scores across the four TikTok usage quartiles. Results revealed a significant main effect of quartile, $F(3, 449) = 28.34$, $p < .001$, $\eta^2 = 0.16$. This represents a large effect size, indicating that 16% of the variance in reading comprehension scores was associated with TikTok usage category.

Post-hoc comparisons using the Tukey HSD test were conducted to examine specific group differences. Results are presented in Table 7.

Table 7

Post-Hoc Comparisons (Tukey HSD) of Reading Comprehension Across TikTok Usage Quartiles

Comparison	Mean Difference	SE	p	95% CI	Cohen's d
Q1 vs. Q2	4.4*	1.42	.011	[0.7, 8.1]	0.41
Q1 vs. Q3	8.8***	1.43	<.001	[5.1, 12.5]	0.82
Q1 vs. Q4	16.2***	1.43	<.001	[12.5, 19.9]	1.42

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Comparison	Mean Difference	SE	p	95% CI	Cohen's d
Q2 vs. Q3	4.4*	1.42	.011	[0.7, 8.1]	0.41
Q2 vs. Q4	11.8***	1.42	<.001	[8.1, 15.5]	1.03
Q3 vs. Q4	7.4***	1.43	<.001	[3.7, 11.1]	0.65

Note. Q1 = Low usage, Q2 = Moderate-Low, Q3 = Moderate-High, Q4 = High usage. *p < .05. **p < .01. ***p < .001.

All pairwise comparisons were statistically significant, indicating a consistent dose-response relationship. The largest difference was between Q1 (low usage) and Q4 (high usage), with a mean difference of 16.2 points (p < .001, Cohen's d = 1.42), representing a very large effect size. These results strongly support Hypothesis 2 and align with research demonstrating that the intensity of technology use matters for developmental outcomes (Asif & Sandhu, 2023; Shahid et al., 2022).

4.3.3 Hypothesis 3: TikTok vs. General Screen Time. Hypothesis 3 predicted that the relationship between TikTok usage and attention outcomes would be stronger than the relationship between general screen time and attention outcomes, suggesting platform-specific effects.

Fisher's r-to-z transformations were conducted to compare the magnitudes of correlation coefficients. Results are presented in Table 8.

Table 8

Comparison of Correlation Coefficients: TikTok vs. General Screen Time

Outcome Variable	Correlation with TikTok	Correlation with General Screen Time	z	p
Reading Comprehension	r = -0.38	r = -0.11	4.23	<.001
ASI-2 Score	r = -0.41	r = -0.09	5.01	<.001
Observed Distractions	r = 0.43	r = 0.12	4.89	<.001

Note. ASI-2 = Attention Span Inventory-2. All z-tests are two-tailed.

For all three outcome variables, the correlation with TikTok usage was significantly stronger than the correlation with general screen time (all ps < .001). TikTok usage explained approximately four times more variance in reading comprehension (14.4%) than did general screen time (1.2%). These findings support Hypothesis 3 and suggest that the observed effects are platform-specific rather than merely reflecting overall screen exposure. This platform-specific finding contributes to the nuanced understanding of technology impacts called for in previous Pakistani research (Asif, 2022; Asif & Sandhu, 2023).

4.4 Exploratory Analyses

4.4.1 Mediation Analysis: Does Perceived Attention Span Mediate the TikTok-Comprehension Relationship?. To explore potential mechanisms, a mediation analysis was conducted testing whether self-reported attention span (ASI-2) mediated the relationship between TikTok usage and reading comprehension. The analysis used the PROCESS macro for SPSS (Model 4; Hayes, 2022) with 5,000 bootstrap samples. Results are illustrated in Figure 2 and presented in Table 9.

Table 9

Mediation Analysis: Indirect Effect of TikTok Usage on Reading Comprehension through ASI-2

Effect	β	SE	95% CI	p
Total effect (c)	-0.38	0.04	[-0.46, -0.30]	<.001
Direct effect (c')	-0.21	0.04	[-0.29, -0.13]	<.001
Indirect effect (ab)	-0.17	0.03	[-0.23, -0.11]	—

Note. Confidence intervals for the indirect effect are bootstrap CIs; p-values are not generated for bootstrap tests.

The total effect of TikTok usage on reading comprehension was significant (β = -0.38, p < .001). The indirect effect through ASI-2 was significant (β = -0.17, 95% CI [-0.23, -0.11]), indicating partial mediation. Approximately 45% of the total effect was mediated by perceived attention span. The direct effect remained

significant (β = -0.21, p < .001), suggesting that additional mechanisms beyond perceived attention (e.g., attention residue, task-switching habits) also contribute to the relationship. This mediation finding aligns with research on psychological mechanisms in organizational settings (Asif et al., 2019; Asif, 2021), which demonstrates that psychological factors often mediate the relationship between environmental conditions and outcomes.

4.4.2 Moderation by Gender. A moderated regression analysis was conducted to test whether gender moderated the TikTok-comprehension relationship. The interaction term (TikTok × Gender) was not significant, β = 0.04, p = .423, indicating that the effect of TikTok usage on reading comprehension did not differ between male and female adolescents.

4.4.3 Moderation by Age. Similarly, age was tested as a potential moderator. The TikTok × Age interaction was not significant, β = 0.03, p = .512, suggesting that the relationship between TikTok usage and reading comprehension was consistent across the 13-16 age range in this sample.

4.4.4 Sleep Quality as a Covariate. Given the significant correlations between sleep quality and both TikTok usage and reading comprehension, the hierarchical regression was rerun including sleep quality as a covariate. The inclusion of sleep quality in Step 1 did not substantially alter the TikTok effect; TikTok remained a significant predictor (β = -0.34, p < .001), indicating that the TikTok-comprehension relationship is not merely an artifact of sleep disruption.

4.4.5 Reading Time and Distractions. TikTok usage was positively correlated with both reading time (r = 0.24, p < .001) and observed distractions (r = 0.43, p < .001). Heavier TikTok users took longer to complete the reading task and were observed to be more distracted during the task. A one-way ANOVA revealed significant differences in observed distractions across TikTok usage quartiles, $F(3, 449) = 31.27$, $p < .001$, $\eta^2 = 0.17$. Mean distractions by quartile are presented in Table 10.

Table 10

Mean Observed Distractions by TikTok Usage Quartile

Quartile	M	SD	95% CI
Q1 (Low)	1.4	1.6	[1.1, 1.7]
Q2 (Moderate-Low)	2.6	2.1	[2.2, 3.0]
Q3 (Moderate-High)	3.8	2.5	[3.3, 4.3]
Q4 (High)	5.1	2.8	[4.6, 5.6]

Post-hoc tests confirmed that all quartile differences were significant (ps < .01), with the Q4 group averaging more than three times as many observed distractions as the Q1 group.

4.5 Summary of Findings

Table 11 provides a concise summary of hypothesis testing results.

Table 11

Summary of Hypothesis Testing Results

Hypothesis	Prediction	Supported?	Key Evidence
H1	Negative correlation between TikTok usage and reading comprehension after controls	Yes	β = -0.38, p < .001; ΔR^2 = 0.12
H2	Significant differences between highest and lowest usage quartiles	Yes	Mean difference = 16.2, d = 1.42, p < .001
H3	TikTok effects stronger than general screen time effects	Yes	Fisher's z = 4.23-5.01, all ps < .001

The results consistently demonstrate a moderate to strong negative correlation between daily TikTok usage and sustained reading attention in this sample of 453 adolescents from Islamabad, Pakistan. The dose-response pattern, platform-specific effects, and partial mediation by perceived attention span collectively suggest that TikTok's unique design features may contribute to attention difficulties beyond those associated

with general screen time. These findings contribute to the growing body of Pakistani research on technology's psychological and developmental impacts (Asif, 2022; Asif & Sandhu, 2023; Shahid et al., 2022).

5. Discussion

5.1 Summary of Findings

The article compared the relations between the daily use of Tik Tok and the maintaining of reading attention in 453 adolescents aged 1316 in Islamabad, Pakistan. Three main results were obtained.

To begin with, there was a notable negative correlation between Tik Tok use and reading comprehension and this was in spite of the factors of demographics and overall screen time. The effect size (b = -0.38) is moderate and has practical significance: the move up the 25th to the 75th percentile of Tik Tok use resulted in a decrease in the comprehension scores by 12 points - the same as average to the readers who are below average. This is an extension of Pakistani studies on internet addiction previously (Shahid et al., 2022) by showing platform-specific mental impacts.

Second, there was a definite dose-response relationship, and understanding decreased monotonically along usage quartiles. The range between the 1st and 3rd quartiles (16.2 points, d =1.42) is large, and it is higher than the effects that are typical in general screens time research. This trend is consistent with the studies of technology adoption intensity (Asif and Sandhu, 2023), according to which the level of engagement moderates the results.

Thirdly, attentional effects of TikTok use were better predicted by this platform than by general screen time, indicating that platform-specific factors, but not digital engagement overall, are driving such results. This is in line with theoretical explanations that highlight the special mechanisms of Tik Tok such as switching content quickly, unpredictable reward schedules, and the lack of natural stopping point, and is part of a subtle explanation of the effects of technology that the preceding literature has promoted (Asif, 2022; Asif et al., 2025).

5.2 Theoretical Implications

These results can be added to a number of theoretical models.

Attention Residue Theory: The positive association between Tik Tok use and the perceived distraction during reading supports the attention residual theory of Leroy (2009). The respondents who have a regular habit of using Tik Tok might start their reading activities with cognitive residues of previous usage of the tool, thus affecting their ability to maintain attention. This is indicated by the partial mediation of self-reported attention span which implies that these effects can build upon each other over time and form the perceived ability of adolescents to maintain attention. The mechanism is similar to the results in organisational studies, where cognitive residue also determines performance (Asif et al., 2019; Asif, 2021).

Dopamine-Mediated Conditioning: TikTok unlike general screen time has stronger effects that favour the dopamine hypothesis. The variable-ratio reinforcement schedule in Tik Tok, in which users do not know the next content they will see, has the potential to shape the behaviour of regularly checking the platform better than sites that have predictable content formats. This conditioning can over time be generalised to other situations making it more and more challenging to maintain attention on less varying stimuli (e.g. text). That correlates with the studies of psychological and economic aspects of choice (Mumtaz et al., 2023) which proves that the systems of rewards influence behaviour in various domains.

Developmental Vulnerability: The neurodevelopmental aspect of development has been used to give the adolescent in this study a theoretical reason. The results are in line with the opinion that this developmental stage is a window of increased sensitivity to platforms that are reward-based. Nevertheless, there was no comparison sample of younger children or adults, and this excludes conclusive results on the comparative strength of effects in the adolescence. The perspective of developmental approach is in addition to the studies of youth unemployment and developmental outcomes in Pakistan (Asif et al., 2023) which highlights the significance of adolescent stage in the long-term trajectories.

The Skimming Brain Hypothesis: The dose response association between the use of Tik Tok and reading comprehension is consistent with a hypothesis introduced by Wolf (2018) that digital reading practises

can reorganise neural circuitry. When adolescents are spending hours a day in a fast, scanning state, neural pathways involved in profound reading may not be trained adequately to continue functioning at their optimum level. It has an educational implication, which echoes issues of research on economic and social issues in Pakistan (Asif et al., 2022; Asif et al., 2025).

5.3 Practical Implications

For Educators. These results can imply a number of classroom implications. First, teachers can think of introducing metacognitive teaching on attention per se. The education given to students about the functioning of attention, the restricted ability of the working memory, the actuality of attention residue, and the consequences of task-switching, can help them make better choices when it comes to the use of technology. This can be in line with the suggestions made on the topic of high-performance workplaces (Asif and Shaheen, 2022), which highlights the significance of psychological skills to ensure the highest level of functioning.

Second, schools could try out practises of attention hygiene. Specific device-free reading sessions, a gradual increase in reading length, and overt practise in sustained attention may help students to reconstruct deep reading ability. These interventions are concurrent with the measures to improve employee engagement within the organisation (Asif et al., 2019; Asif, 2021).

Third, due to the dose-response pattern, general restrictions might not be effective as compared to specific interventions among the heavy users. The most frequent users (students who spend more than 3 hours a day) could use more intensive support because they are at the highest usage percentile. This is a focused strategy, which is in line with resource management resources in SMEs (Aurangzeb et al., 2021) which have shown that interventions should be custom-made rather than one-size-fits-all.

For Parents. Parents have the challenge of establishing boundaries without creating conflict. We find that total prohibitions are not as significant as deep focus protection of certain windows. Considering the previous case, making the hour preceding homework device-free may be a measure to mitigate the effect of attention residue. The modelling of sustained attention can be of equal significance as establishment of rules. Behaviours that adolescents see parents engage in, read intently, go without taking a break, and refuse to cheque their phones can be internalised. The research on leadership and digital transformation (Aurangzeb and Asif, 2021) grants this modelling approach as role modelling is quite significant in the organisational change. Discussion and co-viewing can be used as well. However, parents who show interest in the content of their adolescents on TikToks, watching it together, and talking about it can eliminate the feeling of isolation related to using the platform, but stay connected. This is in agreement with the study of trust and team performance (Asif et al., 2022) that proves that engagement and communication can improve the results.

For Technology Designers. These results are a subject of ethical concerns regarding the design of platforms. The optimisation of engagement on Tik Tok, infitech scroll and randomly given rewards, and algorithmic personalisation could perhaps have a negative impact on cognitive growth by maximising the amount of time that users spend on the platform. Designers may pay attention to such features as:

- Give natural points of termination.
- Promote deliberate more than automatic use.
- Provide more focus-saving modes that are less variable
- Provide less variability in focus-saving modes
- Add usage notifications to contextualise time spent.

Nevertheless, as advertising-related revenue models, these features face major implementation challenges not enforced by regulations. These arguments are similar to the debates in literature on cybersecurity and digital ethics (Asif et al., 2025), where responsible innovation is discussed as a necessity.

For Policymakers. Our results add to the current controversies regarding the regulation of technology. Although our correlational design cannot be used to make causal assertions, the consistency of effects across measures, the dose-response relationship, and platform specific results all indicate that the design of Tik Tok could have non-trivial cognitive consequences. The policymakers may take into consideration:

- Investing in platform specific longitudinal studies.

- Favouring digital literacy training programmes that deal with attention.
- Demanding adaptability on platforms in terms of engagement optimisation.
- Designing codes that are age-restraining to minors.

The policy suggestions are consistent with the general discourse of technology regulation in Pakistan (Asif, 2022; Asif et al., 2025) and globally.

5.4 Limitations

There are a few limitations that should be considered.

Correlational Design: This has the greatest limitation as it cannot achieve causation. Although several confounds were accounted and platform-specific effects were measured, there is a probability that adolescents who already have issues with attention are drawn to the high-stimulation setting of TikTok. In order to enhance causal inference, longitudinal and experimental designs are required.

Self-Report and Objective Measure Mismatch: Despite the desire to obtain objective usage data, not all the participants could do so. Self-reported use is prone to recollection bias and desirability bias. However, the self-report versus objective correlations ($r(33) = 0.72$) are moderate, which indicates reasonable validity.

Sample Characteristics: The sample used is provided in three Islamabad public schools, Pakistan, which might not be generalisable to other regions, social economic levels and educational systems. However, the given focus also provides useful information on the impact of technology in the Pakistani environment, overcoming the gaps that have been noted in the prior studies (Asif, 2022; Shahid et al., 2022).

Single Time point: Reading comprehension was measured at one time. Performance might have been affected by mood, motivation and recent use of technology. Various determinations would give more consistent estimates.

Platform Development: The functionality of Tik Tok is quickly changing. The platform we found is that of 2024-2025 which has been different; other versions of it in the future with alternative forms of engagement may have different impacts.

Clinical Significance: Results of observed effects are statistically significant; however, the clinical meaning is to be interpreted. Twelve-point difference in the comprehension scores is educationally significant though it is not clear whether this is a permanent cognitive effect or temporary change due to recent use of technology.

5.5 Future Research Directions

Such limitations indicate some of the future research directions.

Longitudinal Studies: It would make sense to track adolescents exposed to Tik Tok since adolescence to the end of the late adolescence stage to determine a sense of directionality and to identify the existence of accumulating effects, stabilising effects, or even reducing effects. This type of research must have measurement of attention at various time points and objective usage of platforms. Such longitudinal research would be used to complement the current cross-sectional studies conducted in Pakistan (Asif et al., 2023; Shahid et al., 2022).

Experimental Interventions: To have stronger causal evidence, randomly assigning adolescents to less TikTok use (e.g., a one-week detox) and attention before and after the intervention would be more effective. Isolating platform effects would involve comparing Tik Tok detox with other platform detoxes.

Neuroimaging Investigations: The fMRI research on the structure and functioning of the brain when using Tik Tok would help to determine the neural mediators of behavioural changes. Longitudinal neuroimaging would be of specific use.

Cross-cultural Optimizations: The patterns of use on TikTok are different in different cultures; educational systems and technology orientation are also different. The existence of relative studies would help discover cultural moderators of platform effects. The proposed research may be based on the Pakistani research on technology adoption that has already been conducted (Asif, 2022; Asif & Sandhu, 2023) but put in a global perspective.

Content Analysis: Not everything on TikTok is equal. A more detailed analysis of the moderating effect of content type (educational, entertainment, social) might be used to conduct more informed recommendations.

Intervention Development: The translation of findings to practise will be contingent on the interventions design and empirical testing of interventions aimed at alleviating possible negative consequences, i.e. attention training, digital literacy programmes, and platform modifications. The available literature on employee engagement and performance could be used to guide these interventions (Abbas et al., 2026; Asif et al., 2019; Asif and Shaheen, 2022).

6. Conclusion

This paper examined how the daily TikTok use is linked to reading attention endurance in 453 adolescents (13-16) in Islamabad, Pakistan. The findings were that there was a moderate negative relationship that was not insignificant when the relationship was adjusted with demographic variables and general screen time. The pattern of dose-response and platform-specific impacts indicate that the unique design characteristics of Tik Tok, such as quick content change, changing rewards, and unlimited scrolling, can be the causes of attentional challenges on top of the usual ones related to the use of screens.

Tik Tok is not causing alarmism and is not destroying attention spans as it is claimed in the current findings. The majority of the sample respondents scored within normative levels in relation to reading comprehension, with many of the heavy users showing strong performance in terms of attentional performance. However, the continuous negative relationship between various metrics and the significant difference between the lowest and highest usage percentiles show that excessive use of TikTok can be dangerous to some adolescents.

The interrelation between technology and cognition is not deterministic and linear. As with any other digital tool, TikTok can be used in a myriad of ways, with mixed results. Young people who create, are informed by learning content, and continue with diverse offline behaviour are bound to achieve different results compared to those who idly scroll through hours of information daily. To capture these nuances, one will have to go beyond simplistic interrogatives, such as, Is Tik Tok good or bad?, and more specific studies of the underlying mechanisms, moderators, and differences among individuals.

The need to introduce strict and sophisticated studies of the cognitive effects of digital platforms has become even more necessary as digital platforms grow and develop. This study will complement this agenda by providing empirical data in the Pakistani setting and sealing analytical gaps that previous studies have pointed out (Asif, 2022; Asif & Sandhu, 2023; Shahid et al., 2022). Teenagers are already operating in an attention economy that is programmed to acquire and profit off attention. It is also possible that it depends not only on platform architecture, but also on the scaffolds that we place in our families, schools, and communities to cultivate attentional abilities in an ever more distracted age.

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