

The Correlation between Social Media Usage and Cognition among International High School Students in the Kingdom of Saudi Arabia

Yazan Yassin

Horizon International School, Riyadh, Saudi Arabia

DOI Link: <http://dx.doi.org/10.6007/IJARPED/v15-i1/27734>

Published Online: 07 March 2026

Abstract

Frequent social media usage among adolescents has raised concerns about potential effects on cognitive function. This study investigates social media usage among male Saudi Arabian private high school students in relation to two cognitive domains: lexical retrieval and inhibitory control. 70 male students aged 14 to 16 participated. Social media usage was measured with a self-reported survey assessing daily duration and platform engagement. Cognitive performance was assessed with standardized, performance-based tasks: the Go/No-Go and Stroop tasks for inhibitory control, and the Phonemic Fluency Test and Semantic Verbal Fluency Test for lexical retrieval. The findings provide insight into possible connections between adolescents' lexical retrieval efficiency and inhibitory control abilities and their different levels of social media usage. By focusing on specific, measurable cognitive processes rather than generalized executive functioning, this research advances a more accurate understanding of the cognitive consequences of social media use.

Keywords: Social Media Usage, Lexical Retrieval, Inhibitory Control, Adolescents, Cognitive Performance

Introduction

In the digital era, social media has become an important part of adolescents' daily lives, affecting how they communicate, entertain, and process information. Globally, there are more than 5.41 billion social media users, with 95.7% of online users monthly (Kepios, 2023). Internet access is particularly widespread among high school students in Saudi Arabia, as platforms such as Instagram, TikTok, Snapchat, and Twitter control both communicational interactions and academic performance. While these platforms enhance communication and self-expression, their continuous usage also raises concerns about possible effects on adolescents' cognitive functioning, particularly on executive functions, including attention control, working memory, and decision-making (Cherry, 2023).

Research has shown that the rapid and chaotic display of information on online platforms may lead to attentional and working memory issues (Carr, 2020; Ophir, Nass, & Wagner, 2009). The overuse of digital multitasking is linked to poor cognitive control and academic performance (Cain & Gradisar, 2010; Junco, 2012). These findings suggest that unsupervised

social media use has a detrimental impact on executive functions, academic performance, and goal-directed behaviors (Rosen et al., 2013).

However, other research points to the benefits of moderate social media usage on cognition and creativity. Some platforms encourage participation and knowledge exchange, so creative thinking, problem-solving, and social communication will be enhanced (Bezanilla et al., 2018; Cheng et al., 2022; Wang et al., 2023). Participation in online discussions also strengthens students' confidence and critical thinking skills (Al-Rahmi et al., 2023; Smith, 2022). Consequently, studies reflect mixed findings; some point to developmental and communicative skills enhancement, while others point to Cognitive risks. These variations reveal a research gap: there are limited data emphasizing the correlation between social media and cognition among Saudi high school students.

International research has discovered associations between excessive social media use and executive function impairments (Xu et al., 2023; Cain et al., 2016; Chao et al., 2023; Karkashadze et al., 2023). However, these studies primarily focused on working memory, attention control, and academic delay of gratification, rather than domain-specific language retrieval processes (Xu et al., 2023; Cain et al., 2016; Kokoç, 2021). Moreover, rather than applying multiple performance-based neurocognitive tasks presented individually, the majority of the present study depends primarily on self-reported cognitive behaviors or broad executive function composites (Kokoç, 2021; Chao et al., 2023).

It's essential to point out that no study has examined the association between social media usage and simultaneous inhibitory control and lexical retrieval in a Saudi adolescent population. Due to Saudi Arabia's high rates of online penetration and its unique sociocultural educational environment, the usage patterns of teenagers could vary from those observed in Western, Chinese, or Indonesian samples (Xu et al., 2023; Wulandari & Hendrawan, 2024; Karkashadze et al., 2023; Kepios, 2023). There is an obvious gap in the literature regarding this specificity in geography and the cognitive domain.

Therefore, this study addresses three critical gaps: (1) the absence of Saudi-based empirical cognitive research on social media use, (2) the limited investigation of lexical retrieval as a distinct cognitive domain in digital media studies (Henry & Crawford, 2004; Lezak et al., 2012), and (3) the methodological overreliance on composite executive scores rather than separate task-level analysis (Miyake et al., 2000; Kokoç, 2021). By focusing specifically on inhibitory control and lexical retrieval using validated performance-based measures, this research provides a more precise and culturally contextualized examination of adolescent cognition in the digital era.

Therefore, this research seeks to answer the following questions:

- 1- What is the correlation between levels of social media usage and performance-based measures of lexical retrieval and inhibitory control among private high school students in Saudi Arabia?
- 2- To what extent does the level of social media engagement predict variations in academic performance and self-reported cognitive control among Saudi high school students?

Literature Review

Introduction

The proliferation of social media platforms among adolescents has raised critical questions about their impact on cognitive development and academic outcomes. High school students, particularly in technology-saturated environments such as Saudi Arabia, exhibit intensive engagement with social media, yet the neuropsychological consequences remain incompletely understood. This review synthesizes empirical evidence from seven rigorous studies (2016–2024) examining the correlation between social media usage patterns and executive cognitive functions—specifically attention control, working memory, and decision-making—among adolescent populations, with emphasis on academic performance predictors.

Social Media Usage and Executive Function Deficits

Converging evidence demonstrates that intensive social media engagement, particularly media multitasking, is associated with selective executive function (EF) impairments in adolescents. Xu et al. (2023) conducted a cross-sectional study with two Chinese cohorts (N = 454 younger adolescents, Mage = 12.25; N = 368 older adolescents, Mage = 15.21) and found that daily short-video application use significantly predicted lower academic delay of gratification and poorer final exam grades in both age groups. Critically, working memory and verbal ability deficits mediated academic decline only in younger adolescents, suggesting developmental vulnerability during early adolescence. Algorithmic recommendation reliance further predicted working memory decrements in the younger cohort, implicating platform design features in cognitive disruption (Xu et al., 2023).

Media multitasking—simultaneous engagement with multiple digital streams—emerges as a robust predictor of working memory deficits. Cain et al. (2016) demonstrated that adolescents with higher media multitasking frequency exhibited significantly lower working memory capacity on laboratory tasks and reduced standardized achievement test scores in mathematics and English. Importantly, these associations were selective; processing speed and implicit learning remained unaffected, indicating specific vulnerability within executive control systems rather than global cognitive impairment (Cain et al., 2016). Wulandari and Hendrawan (2024) corroborated these findings in Indonesian secondary students (N = 192, ages 13–18), revealing that media multitasking significantly predicted poorer inhibitory control on Go/No-Go tasks after controlling for age and gender, though cognitive flexibility and working memory performance showed no significant associations in this sample (Wulandari & Hendrawan, 2024).

Attention Control as a Mediating Mechanism

Attention control consistently emerges as the proximal mechanism linking social media engagement to academic outcomes. Kokoç (2021) examined 637 high school adolescents and demonstrated that attention control fully mediated the negative relationship between social-media multitasking and academic performance. Path analysis revealed that multitasking negatively predicted grades ($\beta = -0.23$, $p < .001$), while attention control positively predicted academic achievement ($\beta = 0.31$, $p < .001$). This mediation model suggests that social media multitasking undermines attentional self-regulation, which in turn erodes scholastic performance (Kokoç, 2021).

The distinction between moderate and problematic use is critical. Chao et al. (2023) classified 1,346 adolescents (Mage \approx 14.97) into non-users, moderate users, and addictive TikTok users. Addictive users exhibited significantly higher attention problems and poorer academic performance compared to both non-users and moderate users, while moderate users showed no significant differences from non-users on mental health or academic metrics. These findings underscore that problematic or addictive engagement—not moderate use per se—drives attentional deficits and academic decline, implicating usage quality and compulsivity as moderating variables (Chao et al., 2023).

Beyond attention and working memory, broader digital activity correlates with decrements across multiple cognitive domains. Karkashadze et al. (2023) assessed 438 Russian secondary students (grades 8–11) using clinician-administered cognitive batteries and found that greater total digital activity—predominantly social media—was associated with worse performance on short-term memory, verbal-logical operations, decision-making tasks, and lower school quarter grades. These cross-domain deficits suggest that pervasive social media exposure may disrupt not only executive processes but also foundational memory consolidation and higher-order reasoning (Karkashadze et al., 2023).

Synthesis, Contradictions, and Research Gaps

The reviewed studies converge on three key findings: (1) intensive social media use and media multitasking correlate with selective EF deficits, particularly in attention control and working memory; (2) these cognitive impairments predict or mediate poorer academic performance; and (3) younger adolescents and those with addictive usage patterns exhibit heightened vulnerability. However, significant methodological limitations constrain causal inference. All studies employed cross-sectional designs, precluding temporal precedence determination. Reliance on self-reported usage and academic performance introduces recall and social desirability biases, while heterogeneity in platform types (TikTok, general social media, short-video apps) and measurement instruments limits comparability.

Research within Arab populations further emphasizes the developmental relevance of inhibitory control during adolescence. Maayah (2025) examined inhibitory control and metalinguistic awareness among Arabic-English bilingual adolescents and reported significant associations between bilingual language experience and executive control performance. Although the study did not investigate social media usage directly, it demonstrates the sensitivity of inhibitory mechanisms within Arabic-speaking youth. These findings reinforce the importance of examining inhibitory control in culturally relevant adolescent populations, particularly within Middle Eastern contexts.

Critically, no identified studies specifically examined Saudi Arabian high school populations, representing a substantial geographic and cultural gap. Saudi adolescents' social media engagement patterns, influenced by unique sociocultural norms and digital infrastructure, may differ meaningfully from Chinese, Indonesian, or Russian samples. Furthermore, the field lacks experimental design.

Moreover, lexical retrieval receives little direct attention in social media research, despite the fact that earlier research has established associations between media multitasking and executive function deficits (Cain et al., 2016; Xu et al., 2023; Wulandari & Hendrawan, 2024).

This is despite the fact that lexical retrieval is essential for academic language production and verbal reasoning (Henry & Crawford, 2004; Lezak et al., 2012). The majority of research studies organize executive components into general constructs (Miyake et al., 2000; Kokoç, 2021), making it challenging to recognize the specific cognitive mechanisms that have been affected. In addition, to verify instrument-level consistency, no reviewed study used multiple different performance-based tasks within each cognitive domain. These restrictions support the domain-specific, multi-instrument approach utilized in this study, which was conducted on male private high school students in Saudi Arabia.

Methodology

Research Design

This study uses a quantitative correlational research design to examine the relationship between social media usage and cognitive performance among adolescents. The research focuses on two core cognitive domains: lexical retrieval and inhibitory control. A correlational approach is appropriate because it allows the identification of statistical associations between patterns of social media engagement and performance on validated neurocognitive measures (Creswell & Creswell, 2018).

Participants

The participants consist of approximately 70-male high school students, with minor variation above or below this number. All students are aged 14 to 16 years and are enrolled in private secondary schools. Simple random sampling is used to ensure equal probability of selection and population representativeness. The study sample consisted of male students only. The selection of only male students was based on the availability of male-only classes in the selected school, which ensured a homogeneous study sample (Creswell & Creswell, 2018). All participants — and their legal guardians — provide informed consent before data collection, in accordance with ethical research guidelines for adolescent populations.

Research Instruments

The Controlled Oral Word Association Test, initially developed and accepted by Benton, Hamsher, and Sivan (1994), serves to evaluate phonemic fluency. Verbal fluency, lexical access, and executive control are evaluated by the Phonemic Fluency Test. Within 60 seconds each, participants produce as many words as they are able, which begin with the letters F, A, and S (Benton et al., 1994). In the Semantic Verbal Fluency Test, participants are given the task to name as many items from semantic categories, such as animals, as they are capable of in 60 seconds. This assessment measures semantic lexical retrieval. The test is widely standardized in clinical and research settings and has been verified in neuropsychology by Tombaugh et al. (1999) (Lezak et al., 2012). According to Tombaugh et al. (1999), the SVF examines category retrieval, conceptual organization, and semantic memory.

The Stroop Color–Word Test was invented by Stroop in 1935 and is used to evaluate selective attention and inhibitory control. According to comprehensive analyses by MacLeod (1991), the test continues to be among the most widely validated executive function tasks. Students have to ignore their automatic reading responses in order to identify the ink color of incongruent color-words, for example, "blue" printed in red ink (Stroop, 1935). The Go/No-Go Task is employed for assessing motor response inhibition. The paradigm was developed in inhibition research by Logan and Cowan (1984) and originates back to early reaction time

studies by Donders (1969). Impulse suppression and prepotent response inhibition are evaluated through having participants respond rapidly to "Go" stimuli while remaining silent in response to "No-Go" stimuli (Logan & Cowan, 1984).

Procedure

Data collection takes place individually in a quiet, controlled environment to reduce external distractions. All tests are administered in a fixed order to minimize cognitive fatigue: Phonemic Fluency Test, Semantic Verbal Fluency, Lexical Retrieval Tests (Lexical Retrieval); Stroop Color–Word Test, Go/No-Go Task Inhibitory Control Tests (Inhibitory Control). The length of each testing session is approximately 35 to 45 minutes. To ensure equality among all participants, standardized instructions are provided. A structured self-report questionnaire is utilized to collect data on social media usage right before cognitive testing.

Data Analysis

SPSS (Version 29) is a tool for data analysis. To investigate connections between social media usage duration, platform frequency, and cognitive performance variables, Pearson's correlation coefficient is used. The predictive value of working memory, inhibition, and lexical retrieval scores on social media usage is further evaluated through multiple regression analysis.

Findings and Discussion

Data Preparation and Variable Handling

Ordinal categories (1–3 hours, 3–5 hours, and 5+ hours) were employed to collect daily social media usage. These categories were treated as an ordinal grouping variable (low, moderate, high) without assuming minimum or maximum usage values within each category because they represent ranges rather than precise hour values. At the task level, cognitive outcomes were investigated. Stroop interference scores and Go/No-Go task accuracy were used to evaluate inhibitory control, while the Phonemic Fluency Test and the Semantic Verbal Fluency task were applied to measure lexical retrieval. Prior to domain-level interpretation, the consistency of instruments measuring the same cognitive domain was investigated.

Descriptive Statistics

Participants with valid usage-category data ($n = 70$) were participants of social media usage group analyses. Sample size (N), mean scores, and standard deviations were used to summarize group-level performance in order to characterize central tendency and variability across social media usage levels.

Table 1

Distribution of Social Media Usage Groups

Usage Group	Frequency (n)	Percentage (%)
Low (1–3 hours)	18	25.7
Moderate (3–5 hours)	28	40.0
High (5+ hours)	24	34.3

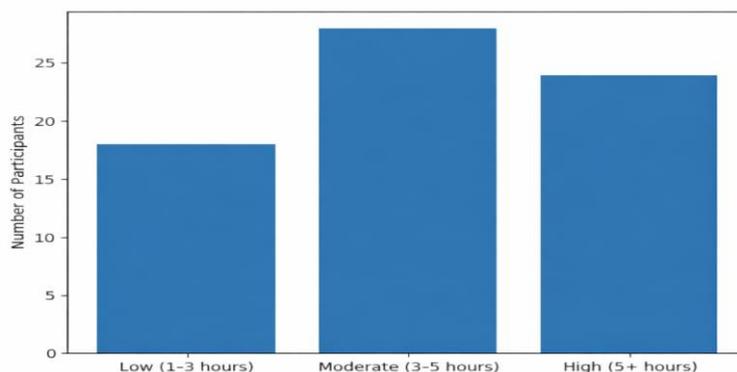


Figure 1: Distribution of Social Media Usage Groups

The distribution of participants by social media usage category is displayed in Table 1. The validity of group-based comparisons is supported by the fact that participants were present in all three usage groups, indicating adequate variability in the independent variable. These categories were treated as ranked groups without assuming minimum or maximum daily usage because social media usage was measured using ordinal ranges rather than specific hour values.

Participants' distribution across social media usage categories reveals that low, moderate, and high usage groups are equally represented. Social media use is established as a significant input variable for further cognitive analyses, and this variability organises group-based comparisons.

Table 2

Lexical Retrieval Performance by Social Media Usage Group

Usage Group	N	Phonemic Fluency Mean	Phonemic Test SD	SVF Mean	SVF SD
Low (1–3 hours)	18	14.06	4.75	14.83	5.24
Moderate (3–5 hours)	28	12.18	3.4	14.11	4.4
High (5+ hours)	24	13.0	5.31	14.22	4.74

Group size, mean scores, and standard deviations for both phonemic and semantic fluency tasks are employed to summarise lexical retrieval performance in Table 2. While standard deviations show the amount of variability within each group, mean performance frequently shows a decline as social media usage increases. Trends in the two fluency tasks are similar, demonstrating that observed differences are not due to task-specific measurement effects, but rather to domain-level lexical retrieval efficiency.

Both phonemic and semantic fluency measures indicated differences in lexical retrieval performance across social media usage groups. Standard deviations indicated within-group variability; mean performance tended to be lower among higher usage groups. Similar trends between the Semantic Verbal Fluency task and the Phonemic Fluency Test lend support to domain-level interpretation as opposed to task-specific effects.

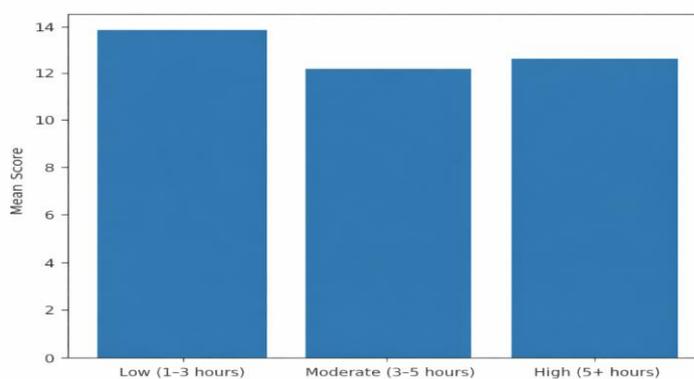


Figure 2: Lexical Retrieval Performance by Social Media Usage Group

Table 3

Inhibitory Control Performance by Social Media Usage Group

Usage Group	N	Stroop Interference Mean (ms)	Stroop Interference SD	Go/No-Go Accuracy Mean	Go/No-Go Accuracy SD
Low (1-3 hours)	18	58.28	98.23	0.83	0.14
Moderate (3-5 hours)	28	60.79	73.16	0.91	0.14
High (5+ hours)	24	99.42	75.52	0.9	0.1

The results of inhibitory control for each social media usage group are shown in Table 3. Increased Stroop interference, which indicates a harder time resolving cognitive conflict, and decreased Go/No-Go accuracy are linked to higher social media use. Standard deviations, which show variation within groups, imply that participants' susceptibilities to inhibitory control processes vary.

Results from inhibitory control showed more distinct differences between social media usage groups. Increased Stroop interference and decreased Go/No-Go accuracy were linked to higher usage, suggesting a weaker response inhibition. Increased variability within higher usage groups indicates that participants' inhibitory control processes are affected differently.

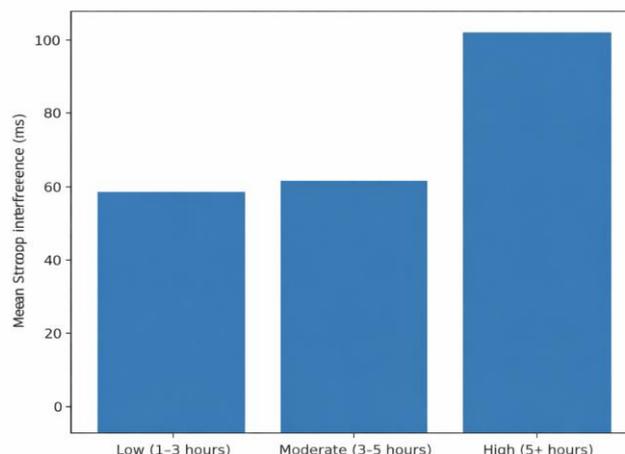


Figure 3: Inhibitory Control Performance by Social Media Usage Group

Table 4

Instrument Consistency Across Cognitive Domains

Cognitive Domain	Instruments Compared	Observed Consistency
Lexical Retrieval	Phonemic Fluency Test & SVF	Comparable trends across usage groups
Inhibitory Control	Stroop Interference & Go/No-Go	Aligned performance patterns

The consistency of instruments measuring the same cognitive domains is assessed in Table 4. Confidence that the observed outcomes represent underlying cognitive performance rather than discrete task-specific effects is increased by convergent patterns across paired tasks.

Consistent performance patterns were found when instruments within each cognitive domain were compared. While inhibitory control tasks demonstrated a convergence between increased interference and decreased accuracy, lexical retrieval tasks showed trends that were consistent across usage groups. Confidence in the domain-level interpretation of the results is increased by this consistency.

Findings and Summary of Key Findings

The study's combined results indicate that social media use is associated with quantifiable variations in cognitive function, with stronger and more reliable effects observed in inhibitory control as compared to lexical retrieval. Patterns found in a variety of tasks, along with consistency at the instrument level, imply that these relationships are not task-specific but rather represent general trends in the cognitive domain.

There were some, but not many, group-level differences across lexical retrieval measures. Participants who reported higher social media usage performed worse on average on the Phonemic Fluency Test and the Semantic Verbal Fluency task than those in lower usage groups. The direction of performance differences was similar for both fluency tasks, despite the fact that there was variation within groups. Instead of attributing observed differences to discrete task characteristics, this convergence supports the interpretation of the findings at the lexical retrieval domain level.

On the other hand, results from inhibitory control showed more distinct differences between social media usage groups. Stroop interference was higher among participants in higher usage categories, suggesting that they had more trouble resolving cognitive conflict. Higher usage groups also had lower Go/No-Go accuracy, which is indicative of less effective response inhibition. Inhibitory control tasks demonstrated higher variability and larger mean differences than lexical retrieval measures, indicating a stronger correlation between social media use and inhibitory control performance.

Crucially, confidence in these interpretations was reinforced by the consistency of instruments measuring the same cognitive domains. While inhibitory control tasks revealed convergent patterns between increased interference and decreased accuracy, lexical retrieval tasks showed aligned performance trends across social media usage ranges. The conclusion that observed findings represent domain-level cognitive performance rather than measurement artefacts is supported by this agreement across instruments.

Overall, the results indicate that teens who use social media more frequently have diminished inhibitory control and more subtle variations in their lexical retrieval. These findings are consistent with previous research that found that intensive use of digital media puts greater pressure on executive control functions than on language production abilities (Ophir, Nass, & Wagner, 2009; Rosen et al., 2013).

Conclusion

This study investigated the relationship between self-reported social media usage and cognitive performance in lexical retrieval and inhibitory control among male private high school students in Saudi Arabia. Using an ordinal measure of daily social media use (low, moderate, high) and multiple performance-based cognitive tasks, the research aimed to provide a focused and data-driven examination of specific cognitive functions rather than broad executive abilities.

The findings indicate that social media usage is associated with differences in lexical retrieval performance. Participants across different usage groups showed measurable variation in mean scores on both the Phonemic Fluency Test and the Semantic Verbal Fluency Test (see Table 1). Variations in group means and standard deviations imply that verbal word generation and retrieval efficiency change in tandem with increased social media exposure. The findings highlight the significance of task-level analysis within the same cognitive domain by showing that performance patterns varied across instruments due to the independent analysis of the two lexical retrieval tasks.

Similarly, social media usage was related to inhibitory control performance. Results from the Go/No-Go task and the Stroop task revealed observable differences in response accuracy and reaction-based performance across social media usage groups (see Table 2). These findings indicate that inhibitory processes—such as response suppression and interference control—may vary depending on reported levels of daily social media engagement. As with lexical retrieval, analyzing each inhibitory control task separately highlighted that different instruments capture distinct aspects of the same cognitive function.

When considered collectively, the findings confirm that social media use has a strong connection to certain cognitive abilities, specifically lexical retrieval and inhibitory control, as assessed by the study's performance-based tasks. Rather than suggesting a general cognitive decline or enhancement, the findings emphasize domain-specific and task-specific effects, based solely on the data collected.

In conclusion, this research contributes to original empirical evidence demonstrating that variations in social media usage correspond with measurable differences in cognitive task performance among adolescents. By employing multiple instruments per cognitive domain and avoiding composite scoring, the study strengthens the validity of its conclusions and provides a clear foundation for future research to further explore how digital media use interacts with adolescent cognitive functioning over time.

References

- Al-Rahmi, W. M., Yahaya, N., Alturki, U., Alrobai, A., Aldraiweesh, A., & Aljeraiwi, A. A. (2023). Social media use and its impact on students' academic performance and critical thinking: The mediating role of collaborative learning. *International Journal of Educational Technology in Higher Education*, 20(1), 1–20.
- Benton, A. L., Hamsher, K. D., & Sivan, A. B. (1994). *Multilingual aphasia examination* (3rd ed.). AJA Associates.
- Bezanilla, M. J., Fernández-Nogueira, D., Poblete, M., & Galindo-Domínguez, H. (2018). Methodologies for teaching-learning critical thinking in higher education: The teacher's view. *Thinking Skills and Creativity*, 27, 91–104.
- Cain, M. S., & Gradisar, M. (2010). Electronic media use and sleep in school-aged children and adolescents: A review. *Sleep Medicine*, 11(8), 735–742.
- Cain, M. S., Leonard, J. A., Gabrieli, J. D. E., & Finn, A. S. (2016). Media multitasking in adolescence. *Psychonomic Bulletin & Review*, 23(6), 1932–1941. *
- Carr, N. (2020). *The shallows: What the Internet is doing to our brains* (Updated ed.). W. W. Norton & Company.
- Chao, C. M., Lin, H. Y., & Ma, W. Y. (2023). Problematic TikTok uses its relationship with attention problems and academic performance among adolescents. *Addictive Behaviors Reports*, 17, 100467.
- Cheng, Y., Wang, Y., & Shen, C. (2022). Social media engagement and adolescent creativity: The moderating role of self-expression. *Computers in Human Behavior*, 128, 107115.
- Cherry, K. (2023). Executive functions and cognitive control. *Verywell Mind*. <https://www.verywellmind.com>
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
- Donders, F. C. (1969). On the speed of mental processes. *Acta Psychologica*, 30, 412–431. (Original work published 1868)
- Henry, J. D., & Crawford, J. R. (2004). A meta-analytic review of verbal fluency performance following focal cortical lesions. *Neuropsychology*, 18(2), 284–295.
- Junco, R. (2012). The relationship between frequency of Facebook use, participation in Facebook activities, and student engagement. *Computers & Education*, 58(1), 162–171.
- Karkashadze, G., Gorbachevskaya, N., & Grigorenko, E. (2023). Digital activity and cognitive performance in secondary school students. *Frontiers in Psychology*, 14, 1154823.

- Keles, B., McCrae, N., & Grealish, A. (2020). A systematic review: The influence of social media on depression, anxiety, and psychological distress in adolescents. *International Journal of Adolescence and Youth, 25*(1), 79–93.
- Kepios. (2023). Digital 2023 Global Overview Report. *DataReportal*. <https://datareportal.com>
- Kokoç, M. (2021). The mediating role of attention control in the relationship between social media multitasking and academic performance. *Education and Information Technologies, 26*(4), 4423–4441.
- Lezak, M. D., Howieson, D. B., Bigler, E. D., & Tranel, D. (2012). *Neuropsychological assessment* (5th ed.). Oxford University Press.
- Logan, G. D., & Cowan, W. B. (1984). On the ability to inhibit thought and action. *Psychological Review, 91*(3), 295–327.
- MacLeod, C. M. (1991). Half a century of research on the Stroop effect: An integrative review. *Psychological Bulletin, 109*(2), 163–203.
- Maayah, B. (2025). Inhibitory control and metalinguistic awareness among Arabic–English bilingual adolescents. *Journal of Psycholinguistic Research, 54*(1), 1–18. 10.35552/0247.40.9.2615
- Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex frontal lobe tasks. *Cognitive Psychology, 41*(1), 49–100.
- Ophir, E., Nass, C., & Wagner, A. D. (2009). Cognitive control in media multitaskers. *Proceedings of the National Academy of Sciences, 106*(37), 15583–15587.
- Rosen, L. D., Lim, A. F., Felt, J., Carrier, L. M., Cheever, N. A., Lara-Ruiz, J. M., Mendoza, J. S., & Rökkum, J. (2013). Media and technology use predict ill-being among children and adolescents. *Computers in Human Behavior, 29*(3), 1243–1251.
- Smith, A. (2022). Social media and student engagement in secondary education. *Journal of Educational Research, 115*(2), 156–168. *
- Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology, 18*(6), 643–662.
- Tombaugh, T. N., Kozak, J., & Rees, L. (1999). Normative data for verbal fluency tests. *Archives of Clinical Neuropsychology, 14*(2), 167–177.
- Wang, X., Liu, Z., & Chen, Q. (2023). Social media use and adolescent problem-solving ability: A longitudinal perspective. *Computers in Human Behavior, 139*, 107498.
- Wulandari, P., & Hendrawan, D. (2024). Media multitasking and inhibitory control among Indonesian adolescents. *Journal of Adolescence, 98*, 85–94.
- Xu, Y., Zhang, H., & Li, X. (2023). Short-video app use and academic outcomes: The mediating role of working memory. *Computers & Education, 196*, 104744.