

The Relationship Between Multitasking and Attention Deficit Among Young Adults

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Abstract: University students are increasingly required to divide their attention across competing digital and academic demands, raising concerns about the impact of habitual multitasking on attentional functioning. This study examined the relationship between multitasking and attention deficit among young adults, drawing on Cognitive Load Theory and the Load Theory of Attention. A cross-sectional correlational design was employed with a sample of 300 university students (135 male, 165 female) recruited from universities in Islamabad and Rawalpindi through convenience sampling. Multitasking was assessed using the Everyday Multitasking Scale (EMS; $\alpha = .87$), and attention deficit was assessed using the Attention-Related Cognitive Errors Scale Short Form (ATQ-Short1; $\alpha = .90$). Results revealed a significant positive correlation between multitasking and attention deficit ($r = .51, p < .01$), indicating that university students who engage more frequently in multitasking report greater difficulty sustaining attention, higher distractibility, and more frequent attention-related cognitive errors. Mindfulness was negatively correlated with attention deficit ($r = -.49, p < .01$), suggesting a possible protective role. These findings support the view that habitual multitasking is associated with measurable declines in attentional functioning among young adults, with implications for academic policy and student support services.

Keywords: Machiavellianism, moral behavior, university students, Pakistan

Introduction

University students today are rarely engaged in a single task at a time. Lectures, assignments, social media, and messaging platforms compete continuously for attention, and switching between them, commonly referred to as multitasking, has become a defining feature of academic life (Uncapher et al., 2021). While multitasking is often assumed to reflect efficiency,

a growing body of cognitive research suggests that it comes at a considerable cost to attentional functioning.

Attention deficit, in a non-clinical sense, refers to persistent difficulty in sustaining focus, heightened vulnerability to distraction, and a reduced capacity to engage in goal-directed activity (Kessler et al., 2005). Unlike a clinical diagnosis, attention deficit in this context reflects everyday lapses in concentration and cognitive control that can nonetheless meaningfully disrupt learning, academic performance, and daily functioning.

The relationship between multitasking and attention deficit is theoretically grounded in the Load Theory of Attention (Lavie, 2010), which proposes that high cognitive load impairs an individual's capacity to filter out irrelevant stimuli, leading to attentional lapses. Cognitive Load Theory (Sweller, 2019) similarly suggests that the constant task-switching involved in multitasking taxes working memory, leaving fewer resources available for sustained, focused attention.

In the Pakistani context, the rapid expansion of hybrid and online learning has intensified students' reliance on digital devices, plausibly increasing both the frequency of multitasking and its potential impact on attention. Understanding this relationship among young adults is therefore important for informing academic practices that support sustained attention and learning.

This study examines the relationship between multitasking and attention deficit among young adults, testing the proposition that habitual multitasking is associated with poorer attentional functioning.

Literature Review

Attention is a foundational cognitive process that allows individuals to prioritize relevant information while filtering out distractions, and it plays a central role in learning, decision-making, and academic performance. Attention deficit, understood broadly as difficulty sustaining focus and resisting distraction, has been linked in prior research to impairments in executive functioning, particularly inhibitory control and sustained attention (Kessler et al., 2005).

A substantial body of research has examined how multitasking undermines attentional control. Ophir, Nass, and Wagner (2009), in a seminal study of media multitaskers, found that individuals who multitask heavily perform worse on tasks requiring attentional control and filtering of irrelevant information, and are more vulnerable to distraction. Uncapher and Wagner (2018) similarly found that individuals with greater attentional difficulties performed worse on sustained attention and working memory tasks.

Rosen, Lim, Carrier, and Cheever (2011) found that students were often unable to sustain focus on a task for more than a few minutes without checking a digital device, identifying this behavior as a major disruptor of attentional processes. Mark, Gudith, and Klocke (2008) similarly reported that task interruptions and multitasking reduced attentional focus and increased the time needed to complete tasks. Wood et al. (2012) extended these

findings to the classroom, showing that students who experienced attentional lapses during lectures performed more poorly on subsequent exams.

Ralph et al. (2013) linked attentional failures directly to cognitive overload, suggesting that excessive cognitive demand — of the kind generated by multitasking — is a key driver of attention deficit. This is consistent with the Load Theory of Attention (Lavie, 2010), which proposes that high cognitive load reduces the capacity to filter distractions, resulting in attentional lapses.

Collectively, this literature suggests that attention deficit among university students is not solely an individual trait but is substantially shaped by environmental demands and behavioral patterns, particularly the growing prevalence of digitally driven multitasking. However, comparatively few studies have directly quantified the strength of this relationship using validated self-report instruments in South Asian university populations, a gap the present study addresses.

Methodology

Research Design

A cross-sectional correlational design was used to examine the relationship between multitasking and attention deficit among university students, allowing for the assessment of associations between variables in a naturalistic setting without experimental manipulation.

Sample

The sample consisted of 300 university students ($N = 300$; 135 males, 165 females) recruited from universities in Islamabad and Rawalpindi using a convenience sampling technique. Participants were aged 18 to 24 years and were currently enrolled in a university at the time of data collection. Individuals with a diagnosed psychological or neurological condition that could impair cognitive functioning were excluded from the study.

Measures

Multitasking was assessed using the Everyday Multitasking Scale (EMS; Fang et al., 2023), a 16-item self-report measure rated on a 5-point Likert scale, comprising a Multitasking Performance subscale and a Multitasking Preference subscale. Higher scores reflect more frequent multitasking behavior and greater perceived competence in managing multiple tasks. The EMS demonstrated good internal consistency in the present study ($\alpha = .87$).

Attention deficit was assessed using the Attention-Related Cognitive Errors Scale Short Form (ATQ-Short1), which measures difficulties in concentration, vulnerability to distraction, attentional shifting, and everyday cognitive lapses. Items are rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), and scores are summed across items, with higher totals indicating poorer attentional control and more frequent attention-related cognitive errors (Cheyne et al., 2006; Kessler et al., 2005). The scale demonstrated excellent internal consistency in the present study ($\alpha = .90$).

Procedure

Data were collected through a self-administered questionnaire that included a demographic form followed by the EMS and the ATQ-Short1, alongside additional measures used for the broader thesis project. Participants were briefed individually on the purpose and procedure of the study, and written informed consent was obtained prior to data collection. Participation was voluntary, responses were anonymous, and participants were informed of their right to withdraw at any point without consequence.

Results

Table 1 presents the descriptive statistics and correlations among the study variables, including multitasking (EMS), cognitive overload (COS), attention deficit (ATQ), and mindfulness (MAAS).

Table 1

Correlation Analysis for the Study Variables (N = 300)

Variables	1	2	3
1. EMS	—	—	—
2. ATQ	.51**	.47**	—

Note. ** $p < .01$. EMS = Everyday Multitasking Scale; COS = Cognitive Overload Scale; ATQ = Attention-Related Cognitive Errors Scale; MAAS = Mindfulness Attention Awareness Scale.

As shown in Table 1, multitasking (EMS) was significantly and positively correlated with attention deficit (ATQ) ($r = .51, p < .01$), indicating that university students who reported higher levels of everyday multitasking also reported greater attention-related cognitive errors and difficulty sustaining focus. Attention deficit was also positively correlated with cognitive overload ($r = .47, p < .01$). Mindfulness (MAAS) was negatively correlated with attention deficit ($r = -.49, p < .01$) and with multitasking ($r = -.40, p < .01$), suggesting that students with higher dispositional mindfulness reported fewer attentional difficulties and lower levels of multitasking.

Discussion

The results of this study provide clear support for the hypothesis that multitasking is significantly and positively associated with attention deficit among young adults. This finding is consistent with a substantial body of prior research demonstrating adverse effects of habitual multitasking on attentional control (Ophir et al., 2009; Uncapher et al., 2021), and with the notion that constant task-switching disrupts the continuity of cognitive processing and increases susceptibility to distraction.

The strength of this correlation ($r = .51$) suggests that multitasking is one of the more robust behavioral correlates of attention deficit identified in this dataset, exceeding even the

association between multitasking and cognitive overload. This is broadly consistent with the Load Theory of Attention (Lavie, 2010), which holds that high cognitive load impairs the ability to filter out irrelevant stimuli, producing attentional lapses. It also aligns with earlier findings by Ralph et al. (2013) linking attentional failures to excessive cognitive demand.

It is worth noting, however, that this correlational finding does not by itself establish the underlying mechanism connecting multitasking to attention deficit. Broader analysis within the same dataset indicates that a meaningful portion of this relationship operates indirectly through cognitive overload — that is, multitasking appears to elevate cognitive strain, which in turn is associated with poorer attentional functioning. This suggests that interventions aimed at reducing cognitive load during study and academic tasks may be at least as important as directly discouraging multitasking behavior itself.

The negative association between mindfulness and attention deficit ($r = -.49$) further suggests that dispositional mindfulness may serve a protective function, consistent with prior work linking mindfulness to improved attentional control and reduced distractibility (Brown & Ryan, 2003; Liu et al., 2022). This raises the possibility that mindfulness-based strategies could help offset some of the attentional costs associated with habitual multitasking, although this study cannot establish this causally.

These findings carry practical relevance for higher education settings. Given the robust association between multitasking and attention deficit, universities may benefit from educating students about the attentional costs of habitual task-switching, particularly during study and lecture periods. Strategies such as limiting smartphone use during class, encouraging single-task study blocks, and introducing brief mindfulness or attention-focused exercises into student support programs may help reduce the attentional difficulties associated with chronic multitasking.

As a cross-sectional study, causal direction cannot be determined from these findings; it remains possible that students with pre-existing attentional difficulties are simply more prone to multitasking, rather than multitasking causing attention deficit. Future research using longitudinal or experimental designs, along with objective attention and cognitive performance measures, would help clarify the direction and mechanisms of this relationship.

Conclusion

This study demonstrates a significant positive relationship between multitasking and attention deficit among university students, reinforcing concerns that habitual, digitally driven multitasking is associated with measurable declines in attentional functioning. Alongside the observed protective association with mindfulness, these findings point to practical avenues, such as reducing unnecessary multitasking and incorporating attention-focused strategies, for supporting student attention and academic performance in increasingly digital learning environments.

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