elite Analytica

Social media and Academic perfomance

Cognitive ability and Mental well-being

www.eliteanalytica.com
info@eliteanalytica.com

Abstract

This study explores the relationship between social media use, academic performance and cognitive ability and mental well-being among university students in Somalia. A quantitative cross-sectional research design was utilized. Data were collected through structured surveys collected t from the 393 university students. Probit and Logit regressions were employed to analyze the likelihood of obtaining academic performance as a function of key explanatory variables, which included the frequency of social media use, the amount of time spent in front of screens, cognitive ability, and mental health.

The results show that social media use has a negative association with academic performance and is statistically significant, which reduces the chance of getting high grades by 5.7 percentage points. Screen time of more than three hours per day adversely affects academic performance, leading to a 15.9 percentage point decrease in the probability of getting high grades. Differences in gender are observed, and male students have lower academic performance than female students. Availability of digital devices has positive impact on learning process, it enhances the academic engagement when it is applied properly. Students who perform well academically tend to have better Mental health.

These results highlight the importance of the proper use of digital devices, good time management, and mental health care are crucial in academic environments. This study highlights the two ways in which social media can be both a learning resource and time-wastage. More surprising findings highlight the importance of structured and responsible digital engagement. Educational institutions, policymakers, and parents must develop mechanism to balance social media engagement and academic responsibilities.

Keywords: Social Media, Academic Performance, Cognitive Ability, Mental Wellbeing

Introduction

Social media has transformed the way we communicate, learn, and connect with people. Platforms such as Facebook, WhatsApp, and Instagram have changed how people exchange information and reconnect. Low-cost internet and mobile access have made these platforms essential part of the everyday life (Burbules, 2016; Quan-Haase & Young, 2010). Social media create opportunities for collaboration and information exchange but also pose challenges, particularly in countries with developing infrastructure and low digital literacy (Andreassen et al., 2017; Haidt & Twenge, 2023). Educational institutions are directly affected by this shift as teachers use social media to communicate with students and integrate digital tools to enhance productivity. However, social media's constant presence raises concerns about its unintended effects. It blurs the boundaries between personal and professional life, affecting focus and efficiency (Burnell et al., 2019; Cheng et al., 2023).

Somali students are using social media more in their daily lives as the internet becomes increasingly more accessible through mobile and internet expansion. Platforms such as Facebook, TikTok and WhatsApp function as essential tools for communication, entertainment, and learning (DataReportal, 2023). While these platforms enhance access to educational resources and foster collaboration, their unregulated use raises concerns about academic performance. Studies indicate that excessive social media engagement leads to distractions, reduced concentration, and ineffective time management (Orben et al., 2022; Haidt & Twenge, 2023).

In Somalia, TikTok's rise has fueled entertainment-driven content that diverts students from studies, with emerging trends such as digital clan-based competitions sparking debates on their social and academic impact (BBC News, 2024; StatCounter, 2024). These dynamics make this study relevant, as Somalia's digital transformation reshapes students' learning experiences. While social media offers clear academic benefits, its unchecked influence may weaken student performance, disrupt classroom focus, and encourage inefficient study habits.

The increasing prevalence of social media-driven challenges further complicates youth engagement, requiring interventions to balance digital connectivity with academic priorities. Examining these effects provides critical insights for educators, policymakers, and parents seeking to leverage social media's benefits while mitigating its risks.

Limited awareness of responsible social media use worsens its negative effects, making difficult for educators to manage (Orben et al., 2022; Haidt & Twenge, 2023). Addressing these concerns require maximizing the benefits of social media while minimizing its adverse effects (Andreassen et al., 2017; Fumagalli et al., 2021). This study examines the effect of social media use on academic performance, use patterns, and demographic factors, such as age and gender, this study meets the gaps of current literature. The main research questions are: what are the effects of social media on academic performance of Somali students? What role do gender, cognitive ability and the access to digital service play in these dynamics?

The findings will help educators, policymakers and administrators. The result of this study will educators incorporate technology in the classrooms without distractions. Policymakers can design awareness campaigns promoting responsible digital habits.

Insights from the past research

Psychological Effects of social media

Social media has changed how people see themselves, interact with others and maintain well- being. Platforms like Facebook, Instagram, and Snapchat encourage curated self-presentations, leading to both validation and insecurity. Research by Hanna et al. (2017) found that prolonged Facebook exposure weakened self-esteem due to increased social comparison.

Kingsbury et al. (2021) examined these comparisons further, showing that individuals who actively engaged in public posts were more prone to negative mental health outcomes, including self-injurious behaviors. Private interaction, such as messaging or small-group engagements, seemed to offset these risks.

On curated social media feeds, unrealistic expectations become ingrained, affecting feelings about success, beauty and happiness compared to reality. Burnell et al. (2019) and Fardouly et al., (2020) highlighted the role that exposure to idealized online representations plays in fueling inadequacy, particularly among the adolescent population.

Age and Gender Differences in Social Media Effects

Age and gender are key factors shaping social media's psychological impact. Younger adolescents, especially girls, are seriously affected. Orben et al. (2022) noted that the most vulnerable were young girls between the ages of 11 and 15, who had experienced with increased anxiety and self-esteem issues. Twenge and Martin (2020) validated this point when they revealed that adolescent girls, more so than boys, internalized unrealistic social standards resulting in self- doubt and body image concerns. Social media addiction compounds these challenges. Andreassen et al.

(2017) linked compulsive digital engagement to narcissistic tendencies and reduced psychological resilience, suggesting that social platforms can serve as both a coping mechanism and a source of distress. Passive use of social media presents additional risks. Ding et al. (2017) found that individuals who consumed content without actively engaging experienced lower life satisfaction. Cheng et al.

(2023) similarly reported that passive browsing increased rates of depression. While some forms of social media promote social connection, others reinforce isolation. Fumagalli et al. (2021) examined platform-specific effects, showing that social networking sites heightened loneliness, while messaging apps reduced it. These findings indicate that the impact of social media depends not only on frequency of use but also on how individuals engage with these platforms.

Impact of Social Media on Academic Performance

The implications of social media extend beyond psychological well-being into education, affecting students' capacity to concentrate and interact with learning materials. Some researchers see social media as a filler for the learning experience, while others view them as distractions.

According to Burbules (2016), the transformative role of the Internet is realized, as students collaborate with one another by sharing resources and participating in discussions beyond the course. Junco (2011) described Facebook as an effective academic tool when used for teamwork and communication. Quan-Haase and Young (2010) compared Facebook to messaging platforms, showing that its versatility made it a valuable educational resource.

However, these positive effects are not universal. Perloff (2014) linked social media exposure to body image concerns, arguing that these anxieties often extend into academic performance, particularly among female students. Valkenburg and Peter (2013) presented a more nuanced view, noting that social media offers both developmental opportunities and risks. Weinstein (2017) reinforced this by emphasizing that students respond differently to social media exposure, suggesting that interventions should be personalized to mitigate its adverse effects on education.

Regional Differences and Research Gaps

Despite the growing body of research on social media's effects, significant gaps remain, particularly in understanding how these patterns unfold in developing countries. Studies conducted in Canada, the United States, and Europe reveal consistent links between screen time and depressive symptoms (Boers et al., 2019; Coyne et al., 2020).

However, these findings may not fully apply to regions like Somalia, where cultural norms, economic conditions, and digital accessibility differ. Nesi and Prinstein (2015) explored the relationship between social media and feedback-seeking behaviors, linking them to depressive symptoms. While their study provided valuable insights, its focus on Western adolescent experiences limits its broader applicability.

Haidt and Twenge (2023) examined the psychological effects of social media through a gendered and age-based lens, identifying clear patterns of vulnerability. However, their work does not fully address the economic and infrastructural barriers that shape digital engagement in low-income settings.

Methodology

Research Design, sampling and data

This study adopts a quantitative cross-sectional design to analyze the relationship between social media use, academic performance, cognitive ability, and mental well-being among Somali students. The cross-sectional approach provides a snapshot evaluation, while the Probit and Logit models estimate the probability of achieving high academic performance based on key factors. By applying regression analysis, the study identifies marginal effects and correlations between digital habits and student outcomes. Similar methodologies have been used in prior research investigating behavioral impacts of social media on education and productivity (see Allen et al., 2016; &Mohammed et al., 2017).

Data was collected through a structured survey. Participants were selected from universities across Somalia to ensure diversity. The survey assessed patterns of social media use across each platform in terms of frequency, duration, and active versus passive engagement (i.e., scrolling through the news feed vs. actively posting). Academic performance was self-reported as a letter grade or GPA. Demographic characteristics, such as age and gender, were also collected. These variables provide more depth to the analysis, enabling us to understand

how demographic factors affect the relationship between social media use and academic performance. The survey followed established best practices in research design, ensuring reliability and validity (Ding et al., 2017; Orben et al., 2022).

This study used a proportional method to calculate the sample size, and the sample size consisted of 400 participants, deemed sufficient for statistical analysis. This method enhances the generalizability of findings while reducing selection bias (Nesi & Prinstein, 2015; Haidt & Twenge, 2023). Regression analysis was used to assess the relationship between social media usage and the dependent variables. Probit and logit regression was used to examine overall effects, while moderation analysis determined how demographic factors influenced these relationships. This approach helped identify key predictors and trends. The analysis distinguished between active and passive social media engagement to capture more detailed effects. Results were interpreted based on statistical significance and practical implications.

Description of the Variables and their measurements

Academic performance is influenced by study habits, social media usage, screen time, mental health, and digital access. Effective time management improves outcomes, while digital distractions and socioeconomic factors impact results (Bawa et al., 2021; Pekrun et al., 2017; Minges & Redmond, 2018).

Gender (Male = 1, Female = 0) shows mixed effects—females excel in discipline, while males perform better in STEM. No clear pattern exists (Bawa et al., 2021; OECD, 2018; Autor et al., 2019). Age (15–20, 20–25, 25–30) influences performance, with younger students benefiting from structured learning but struggling with self-regulation, while older students develop discipline but face external commitments (Bawa et al., 2021; Desjardins & Warnke, 2012; Twenge et al., 2018).

Social media (User = 1, non-user = 0) aids academic engagement but increases distraction when used for entertainment (Bawa et al., 2021; Kirschner & Karpinski, 2010; Junco, 2012). Screen time (>3 hours/day = 1, c3 hours/day = 0) disrupts focus, weakens retention, and reduces productivity (Bawa et al., 2021; Twenge et al., 2018). Digital access (Sufficient = 1, Insufficient = 0) enhances learning but can also lead to distractions (Bawa et al., 2021; Minges & Redmond, 2018).

Cognitive performance (Negative = 1, No impact = 0) declines with excessive social media use, reducing attention and problem-solving (Bawa et al., 2021; Uncapher et al., 2017). Mental well- being (Positive = 1, Negative = 0) affects academic success, with stress and anxiety lowering performance (Eisenberg et al., 2009). Participants were informed of the study's purpose, assured confidentiality, and given the option to withdraw. Anonymity and ethical standards were maintained (Andreassen et al., 2017; Fardouly et al., 2020).

Table 1: Description of the Variables their measurements

VARIABLE	MEASUREMENT	SOURCES
Academic	Categorical (Grades: A, B, C, D, F); Influenced by study	Bawa et al., 2021; Pekrun et al.,
Performance	habits, social media, screen time, mental health, and digital access.	2017; Minges & Redmond, 2018
Gender	Male = 1, Female = 0; Mixed effects—females excel in discipline, males in STEM.	Bawa et al., 2021; OECD, 2018
Age	15–20, 20–25, 25–30; Younger students benefit from structure, older students face commitments.	Bawa et al., 2021; Desjardins & Warnke, 2012; Twenge et al., 2018
Social Media Usage	User = 1, non-user = 0; Aids engagement but increases distraction when used for entertainment.	Bawa et al., 2021; Kirschner & Karpinski, 2010; Junco, 2012
Screen Time	>3 hours/day = 1, c3 hours/day = 0; Disrupts focus, weakens retention, reduces productivity.	Bawa et al., 2021; Twenge et al., 2018
Digital Access	Sufficient = 1, Insufficient = 0; Enhances learning but can also lead to distractions.	Bawa et al., 2021; Minges & Redmond, 2018
Cognitive Performance	Negative = 1, No impact = 0; Declines with excessive social media use, reducing attention and problem-solving	Bawa et al., 2021; Uncapher et al., 2017
Mental Well-being	Positive = 1, Negative = 0; Stress and anxiety lower academic success.	Eisenberg et al., 2009

Model Specification

The study applies a probit model to estimate the effects of social media usage on academic performance. The model specification is:

$$P(Y_i = 1|X_i) = \Phi(X_i\beta) \quad (1)$$

where $P(Y_i = 1|X_i)$represents the probability that the student i has a given level of academic performance. $\Phi(.)$ is the cumulative distribution function of the standard normal distribution, X_i is a vector of explanatory variables, and β represents the estimated coefficients.
The latent variable model is:

$$Y_{ij}^* = \beta_0 + \beta_1 SMU_i + \beta_2 SCT_i + \beta_3 ADS_i + \beta_4 CAT_i + \beta_5 MWB_i + \beta_6 GEN_i + \varepsilon_{ij} \quad (2)$$

where $Y_i^*$is the unobserved propensity for students' $i\,to\,have$ level of academic performance, and $\varepsilon_{ij} \sim N(0,1)$ is the error term.

For robust analysis, the logit model is also estimated:

$$P(Y_i = 1\,|X_i) = \frac{\exp(X_i\beta)}{1 + \exp(X_i\beta)} \quad (3)$$

where: $Y_i^* = X_i\beta + \varepsilon_i,\ \varepsilon_i \sim \text{Logistics}(0,1)$. A Heckman selection model is applied to correct for sample selection bias. The selection equation is:
The observed academic performance outcome equation is:

$$S_i^* = W_{i\gamma} + u_i \quad (4)$$

where S_i^* determines whether a student is included in the sample, W_i includes instruments affecting selection but not academic performance, and $u_i \sim N(0,1)$.
The observed academic performance outcome equation is:

$$Y_i^* = X_i\beta + \varepsilon_i, \text{observed only if } S_i = 1 \quad (5)$$

This approach comprehensively evaluates how social media affects academic performance while addressing potential selection bias.

Results and Discussion

Descriptive statistics of the variables

The dataset consists of 393 students, analyzing their social media engagement, academic performance, screen time and mental well-being. The gender distribution is 56% male (220) and 44% female (173), ensuring a near-balanced representation. The age distribution shows that 60.8%
(239) of respondents are between 20-25 years, followed by 37.7% (148) in the 15-20 age group, while only 1.5% (6) are 25 or older. These findings align with global trends, where young adults dominate digital and social media consumption. This demographic is more prone to the psychological, academic, and behavioral effects of digital engagement. Given the high student representation, evaluating social media's impact on education and cognitive ability is essential.

Social media engagement is widespread, with 94.7% (372) of respondents being active users. This confirms the growing reliance on digital platforms for communication, entertainment, and academic interactions. Usage patterns reveal evening (63.2%) as the most active period, followed by afternoon usage (27.5%), midnight usage (25.9%), and morning engagement (23.3%).

High evening and late-night activity suggest deep integration of social media into daily routines. Midnight usage raises concerns about sleep disruption and its impact on cognitive function. Studies indicate that screen exposure before sleep reduces melatonin production, leading to poor sleep quality, fatigue, and reduced concentration. Disrupted sleep cycles can negatively affect academic performance and overall productivity.

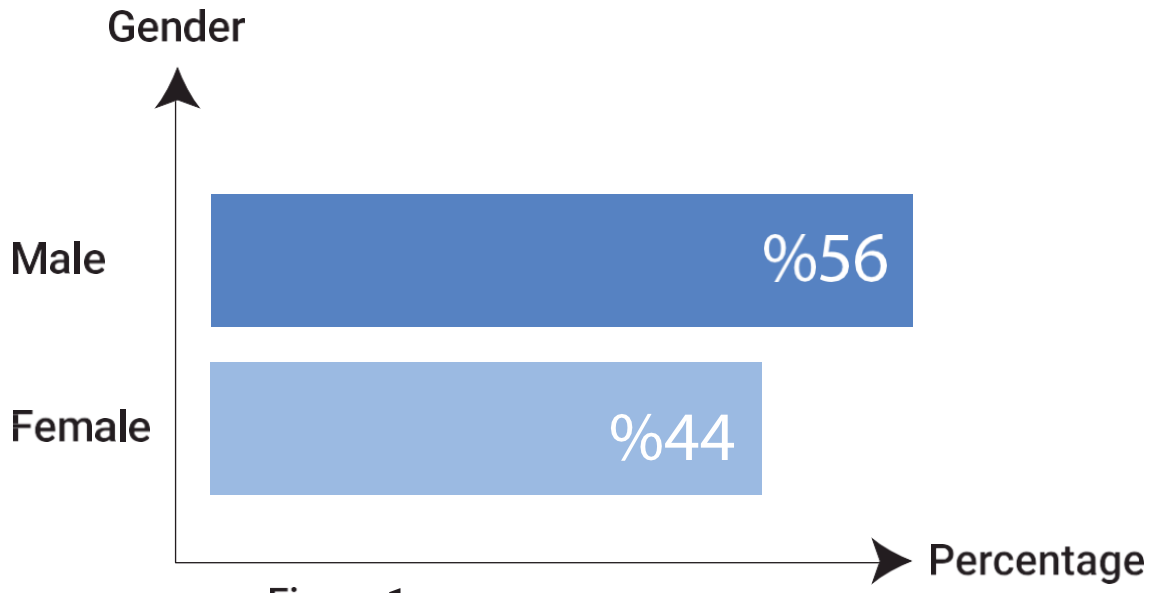

Figure 1: Gender Distribution of the respondent

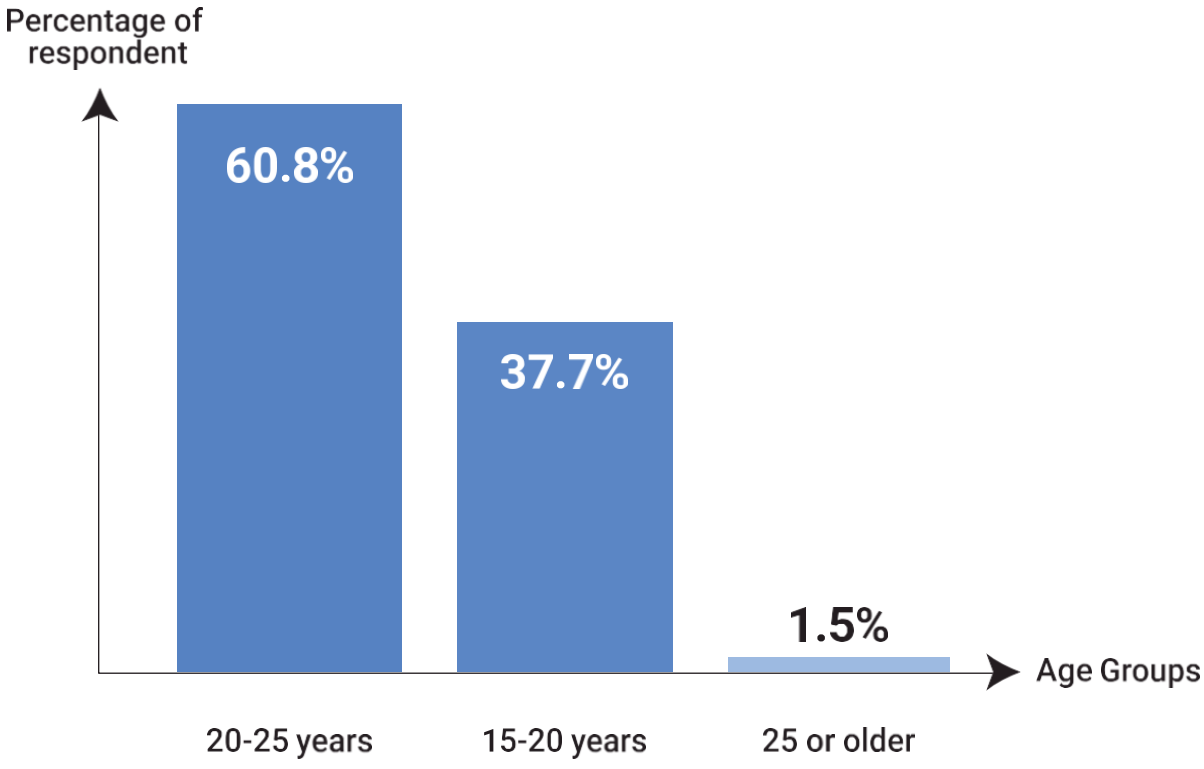

Figure 2: Age Distribution of survey respondent

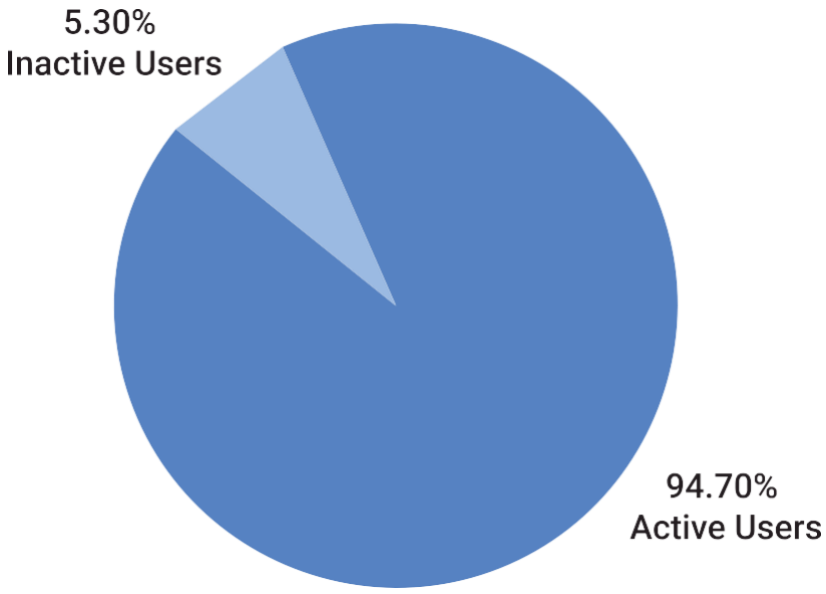

Figure 3: Social Media Engagement Among Respondents

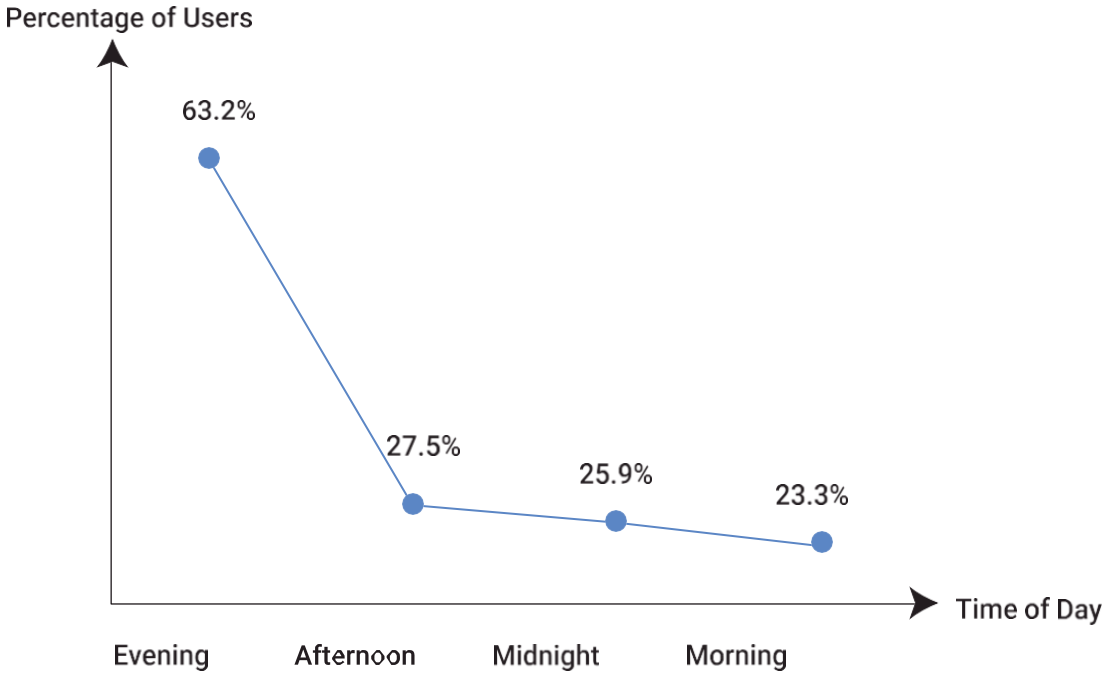

Figure4: User Engagement Patterns Throughout the Day

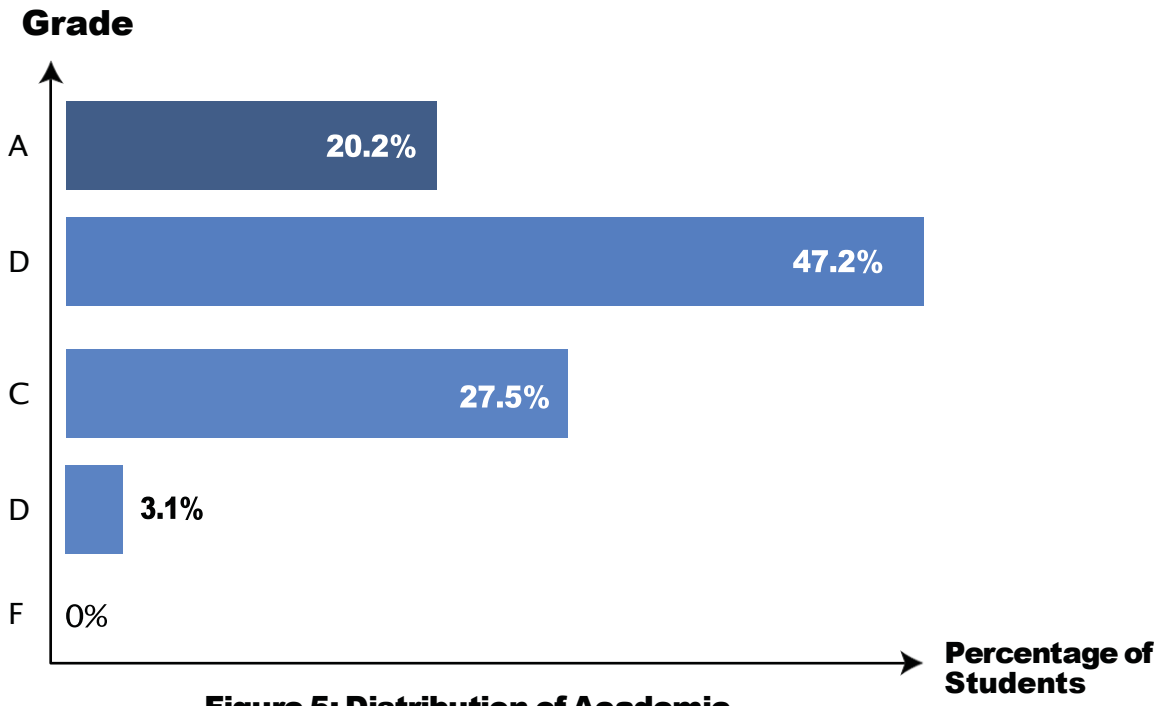

Figure 5: Distribution of Academic Perfomance

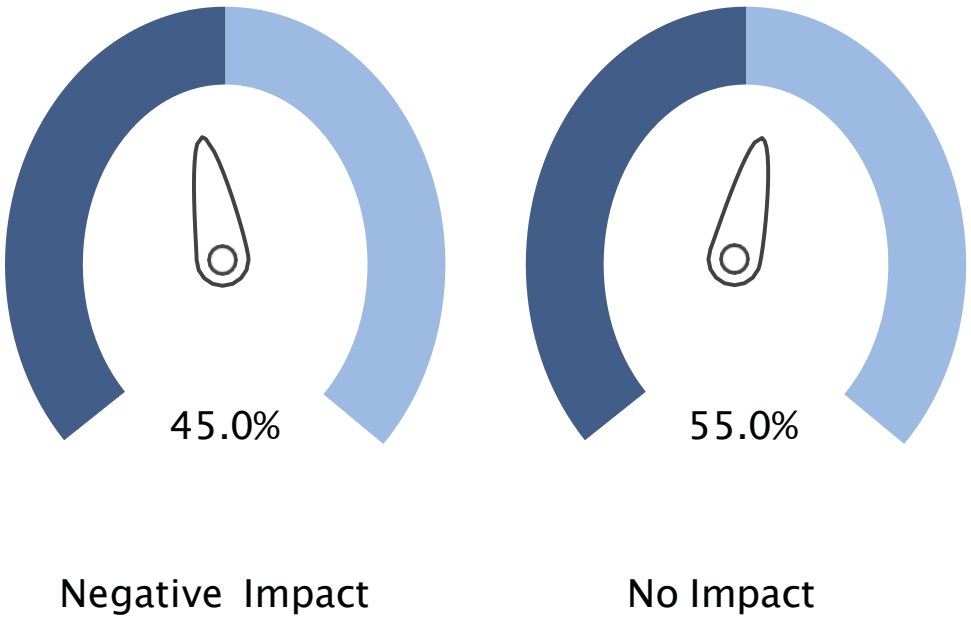

Figure 6: Impact on Cognitive ability

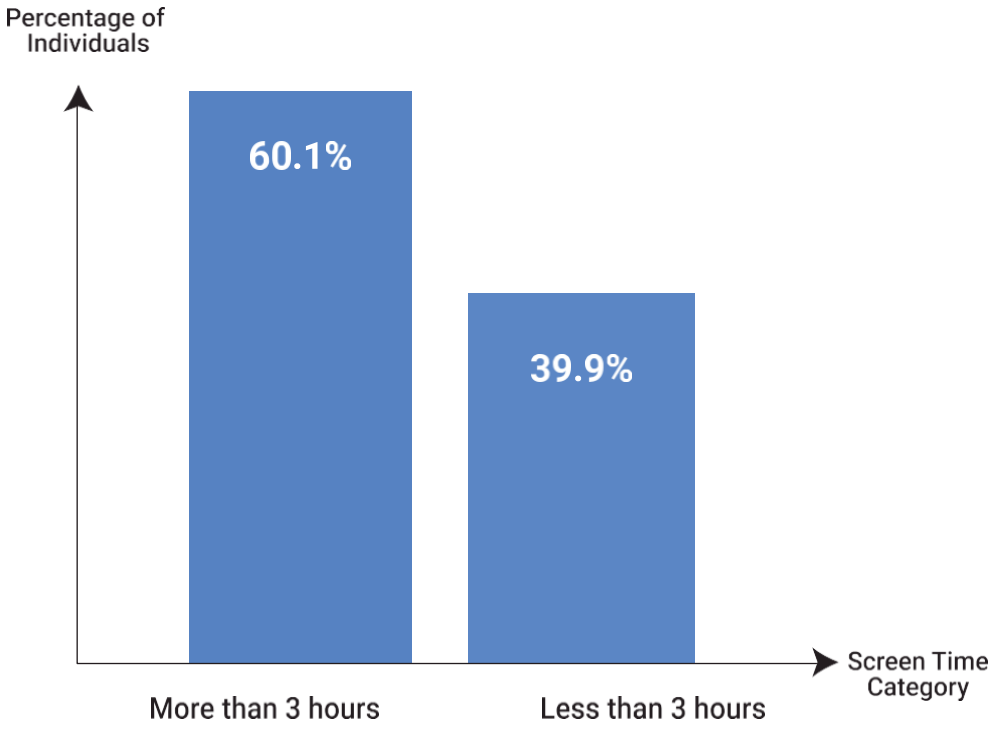

Figure 7: Daily screen time distribution

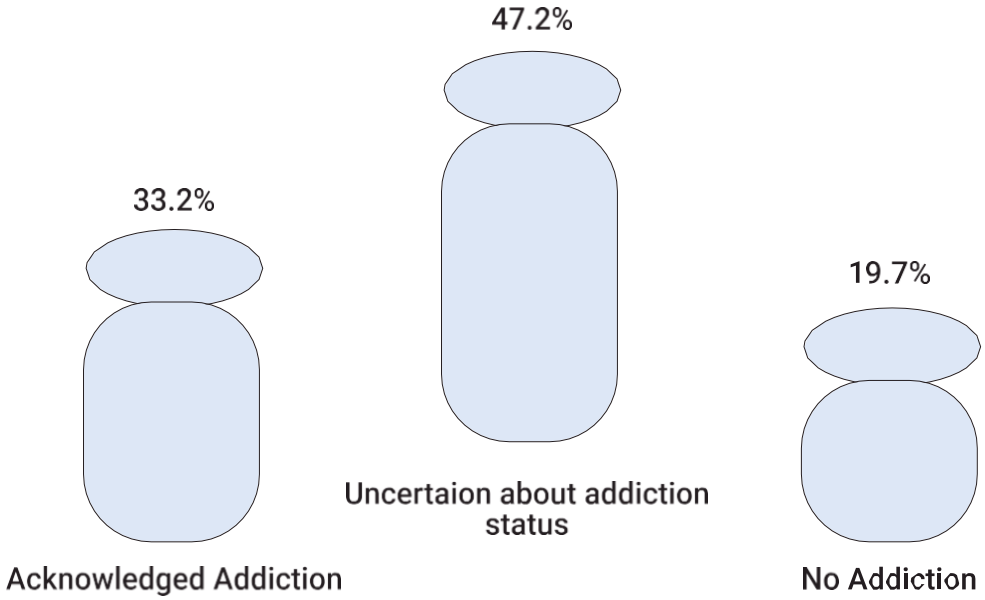

Figure 8: Social Media Addiction Among Respondents

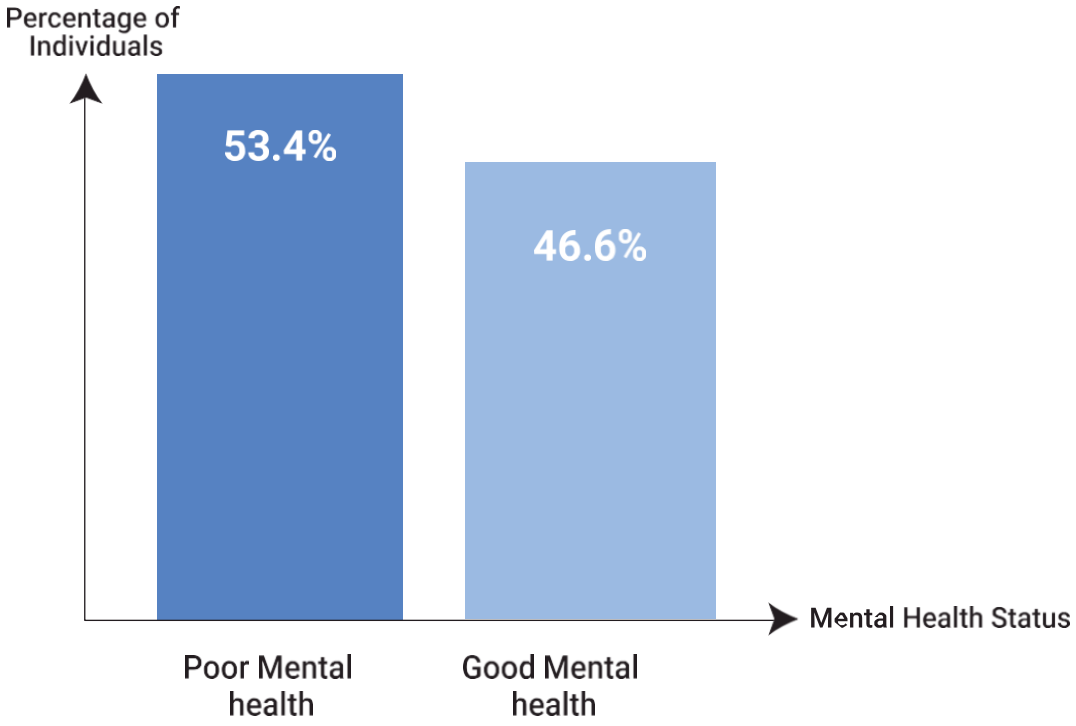

Figure 9: Mental health status distribution

The academic performance distribution shows that 20.2% (79) achieved an A (90-100), 47.2% (186) scored a B (80-89), 27.5% (108) received a C (70-79), and 3.1% (12) scored a D (60-69). No students reported an F (below 60). These findings indicate that most students achieve moderate to high academic performance. However, the relatively low proportion of students earning A grades suggests that digital distractions may reduce learning efficiency. Social media serves as both a learning tool and a distraction. While platforms provide study materials, peer discussions, and academic resources, excessive engagement in non-academic content weakens concentration, increases procrastination, and reduces retention. The performance distribution suggests that some

students manage their digital habits effectively, while others struggle with time management and focus due to excessive social media use.

Cognitive ability was assessed based on self-reported social media impact. The data shows that 45.0% (177) reported negative effects on cognitive performance, while 55.0% (216) saw no impact. Excessive social media multitasking is linked to weakened attention spans, lower working memory, and reduced problem-solving skills. Students who limit digital distractions tend to retain information more effectively. Screen time data reveals that 60.1% (236) spend more than three hours daily on screens, while 39.9% (157) report less than three hours. Prolonged screen exposure is associated with reduced focus, cognitive overload, and disrupted sleep patterns. High screen time correlates with lower academic productivity, especially when combined with non-academic activities.

When asked about social media addiction, 33.2% (130) of respondents acknowledged being addicted, 47.2% (186) answered “Maybe,” and 19.7% (77) reported no addiction. These results show that nearly 80% of respondents struggle with self-regulation in social media use. The 47.2% who answered “Maybe” suggest that many do not fully recognize or assess their dependency. Social media platforms use engagement-driven algorithms that reinforce habitual scrolling behaviors. The 33.2% who acknowledge addiction highlight concerns about compulsive usage, reduced academic focus, and increased cognitive fatigue. Conversely, 19.7% of respondents believe they are not addicted, indicating that some effectively manage their digital habits. This suggests that structured digital engagement and self-discipline can help mitigate excessive usage.

Mental well-being data reveals that 53.4% (210) experience poor mental health, while 46.6% (183) report good mental health. The high rate of mental health struggles aligns with research linking excessive social media use to anxiety, depression, and stress. The negative effects stem from social comparison, cognitive fatigue, and disrupted sleep. Exposure to idealized online content fosters self-doubt and dissatisfaction, while continuous social media use overloads cognitive functions, reducing focus and increasing stress. High social media engagement before bedtime weakens sleep quality, impairing academic performance and emotional regulation. On the other hand, 46.6% of respondents maintain positive mental health, suggesting that balanced social media habits can

provide emotional support, educational benefits, and social engagement. The findings indicate that mental health outcomes depend on engagement type, frequency, and self-regulation.

Table 2: Descriptive Statistics of the Variables

Category	Frequency	Percentage
Total Respondents	393	100%
Gender Distribution		
Male	220	56%
Female	173	44%
Age Distribution		
15-20	148	37.7%
20-25	239	60.8%
25-30	6	1.5%
Social Media Users		
Active Users	372	94.7%
Social Media Usage Time		
Morning	92	23.3%
Afternoon	108	27.5%
Evening	248	63.2%
Midnight	102	25.9%
Academic Performance		
A (90-100)	79	20.2%
B (80-89)	186	47.2%
C (70-79)	108	27.5%
D (60-69)	12	3.1%
F (Below 60)	0	0%
Perceived Social Media Addiction		
Yes	130	33.2%
Maybe	186	47.2%
No	77	19.7%
Mental Health Status		
Poor Mental Health	210	53.4%
Good Mental Health	183	46.6%
Cognitive Ability		
Negative Impact	177	45.0%
No Impact	216	55.0%

Notes: Demographics, social media usage, and cognitive impact are in percentages. Academic performance and mental health are categorical. Screen time and addiction perceptions are self-reported. Demographics and academic data are from surveys; mental health and cognitive impact are from self-assessments; and social media usage is from reported behavior.

Probit and Logit Model Analysis on Academic Performance and Gender

The Probit and Logit models show that gender significantly impacts student marks, with male students performing worse than females. In the Probit model, the coefficient of -0.047 and a marginal effect of -0.078 indicate that being male reduces the probability of achieving high marks by 7.8 percent. The Logit model confirms this trend, with a coefficient of -0.078 and a marginal effect of -0.1564, suggesting a more substantial negative impact of 15.6 percent. Both models consistently show that female students outperform males, likely due to better academic discipline and focus.

The frequency of social media usage has a negative and significant relationship with academic performance in both models (Probit: -0.172, Logit: -0.271). The marginal effects (-0.057 in Probit, -0.0544 in Logit) indicate that frequent social media engagement is associated with a 5-6 percentage point decline in the probability of obtaining higher marks. These results reinforce findings from previous studies that excessive social media use disrupts concentration, increases procrastination, and weakens memory retention (Orben et al., 2022). Although digital platforms can facilitate access to educational materials, peer discussions, and academic collaborations, unregulated usage often leads to distractions from non-academic activities such as entertainment, social networking, and digital consumption (Haidt & Twenge, 2023).

The impact of social media usage on academic performance depends on the nature of engagement. Students who use social media for academic purposes, such as accessing research papers or participating in study groups, may benefit from digital learning resources. Conversely, those who engage in prolonged, non-educational use are more likely to experience reduced study efficiency, cognitive fatigue, and lower academic outcomes (Nesi & Prinstein, 2015).

Access to Digital Devices

The estimated digital device access coefficient shows close effects across the two models. The Probit model (0.733) suggests that having access to digital devices positively influences academic performance, while the Logit model (0.747) also presents a positive effect, though slightly weaker. The marginal effects (0.243 in Probit, 0.0841 in Logit) indicate that students with better technology access are more likely to achieve strong academic results (Orben et al., 2022). However, these results highlight an important distinction in how students use digital devices. While digital tools can enhance academic performance by facilitating access to research materials, e-learning platforms, and virtual discussions, unrestricted access may lead to increased distractions. Students who effectively integrate digital tools into their academic workflow benefit from enhanced learning, whereas those who primarily use them for entertainment or social engagement may see diminished academic outcomes (Haidt & Twenge, 2023).

Screen Time and Academic Performance

The relationship between screen time and academic performance is negative across both models. In the Probit model (-0.480), screen time has a strong negative effect on student performance, with a marginal effect of -0.159, indicating that students who spend excessive time on screens are significantly less likely to achieve high academic scores. Similarly, the Logit model (-0.181) also suggests a negative relationship, with a more pronounced marginal effect of -0.236. These findings align with previous studies that associate high screen exposure with cognitive overload, reduced focus, and sleep disturbances (Orben et al., 2022). Excessive screen time, particularly for non- academic purposes, has been linked to poorer information retention, lower attention spans, and an increased tendency to multitask inefficiently (Haidt & Twenge, 2023). Additionally, prolonged exposure to digital screens before bedtime negatively impacts sleep quality, reducing cognitive function and academic productivity.

Cognitive Ability and Student Performance

The estimated coefficients for cognitive ability show mixed effects across the models. In the Probit model (-0.273), cognitive ability has a negative and statistically significant relationship with academic performance, whereas in the Logit model (0.464), it has a positive effect. The marginal effects (Probit: -0.090, Logit: 0.093) indicate that in the Probit model, higher cognitive ability is associated with a decreased probability of high academic performance, while in the Logit model, it increases the likelihood of better academic outcomes. These results reinforce the role of critical thinking, problem-solving skills, and cognitive flexibility in academic success (Orben et al., 2022). Students with more potent cognitive abilities tend to be more adept at processing complex information, synthesizing knowledge, and applying learned concepts effectively. However, the effect size, while significant, is moderate, indicating that cognitive ability alone does not fully determine academic outcomes. Other factors, such as study habits, institutional support, and external distractions, also play critical roles (Haidt & Twenge, 2023).

Mental Well-being and Academic Performance

Mental well-being significantly influences academic outcomes, with positive coefficients in both models (Probit: 0.123, Logit: 0.187). The marginal effects (0.041 in Probit, 0.0375 in Logit) indicate that students with better mental health are more likely to achieve high academic performance. These findings align with existing research linking psychological well-being to academic success (Ding et al., 2017). Students experiencing stress, anxiety, or depression often struggle with concentration, motivation, and time management, all of which negatively impact academic performance. Conversely, those with stable mental health tend to exhibit better focus, improved study habits, and stronger engagement in coursework. The positive association suggests that academic institutions should prioritize mental health support, such as counseling services, stress management programs, and wellness initiatives, to help students maintain emotional stability and academic productivity (Orben et al., 2022).

Table 3: Estimation of the model parameters

Student Marks	Probit Model Estimated Cofficient	Marginal effect.	Logit Model Estimated Cofficient	Marginal effect
Gender	-0.047***	-0.158**	-0.078**	-0.1564**
	(0.020)	(0.064)	(0.033)	(0.064)
Frequency of Social Media Use	-0.172***	-0.057***	-0.271*	-0.0544*
	(0.045)	(0.014)	(0.160)	(0.029)
Access to Digital Devices	0.733***	0.243***	0.747*	0.0841**
	(0.251)	(0.077)	(0.431)	(0.040)
Screen Time	-0.480*	-0.159*	-0.181*	-0.236***
	(0.263)	(0.085)	(0.101)	(0.075)
Cognitive Ability	-0.273*	-0.090**	0.464**	0.093*
	(0.144)	(0.045)	(0.199)	(0.050)
Mental Wellbeing	0.123**	0.041**	0.187*	0.0375*
	(0.052)	(0.020)	(0.100)	(0.021)
Constant	0.256**		0.059**	
Average Probability of Category	0.674	0.65		
Model Fit (Pseudo R^2)	0.350	0.21		
Model Chi-Square Test	45.20	42.15		
Akaike Information Criterion				
(AIC)	180.50	190.2		
Sample Size (N)	393.0	393		
Model Significance (p-value)	0.001	0.001		
Bayesian Information Criterion				
(BIC)	190.8	198.5		

Note: The coefficients presented are estimated using Probit and Logit models. Marginal effects (Dy/dx) are reported for each independent variable in the respective columns. Numbers in parentheses represent robust standard errors. The omitted age group category is students younger than 20 years. The omitted education category is students with primary education or below. The omitted category for the wealth quintile is the lowest income group. The omitted category for the sub-region is Central African countries. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. GDP stands for Gross Domestic Product, AIC stands for Akaike Information Criterion, and BIC stands for Bayesian Information Criterion.

Model Fit and Statistical Significance

The Probit model (Pseudo $R^2 = 0.350$) explains more variance in academic performance compared to the Logit model (Pseudo $R^2 = 0.21$), indicating a stronger overall fit. The Chi-Square test values for both models (Probit: 45.20, Logit: 42.15) confirm that the independent variables significantly predict academic outcomes. Additionally, model selection criteria favor the Probit model, with lower values for the Akaike Information Criterion (AIC: 180.50) and Bayesian Information Criterion (BIC: 190.8) compared to the Logit model (AIC: 190.2, BIC: 198.5). Lower AIC and BIC values indicate better model performance and efficiency, reinforcing that the Probit model provides a better statistical fit for this dataset.

Conclusion

This study examines the impact of social media usage on Somali students' academic performance, cognitive ability, and mental well-being. The findings reveal a significant negative relationship between excessive social media engagement and academic success, emphasizing the risks of digital distractions, poor time management, and cognitive overload. Both Probit and Logit models confirm that frequent social media use lowers the probability of achieving high academic performance, reinforcing concerns about the adverse effects of unregulated digital consumption. The results indicate that students who engage excessively in social media experience lower academic outcomes due to distractions and decreased study efficiency. However, social media can provide academic benefits when used for educational purposes. Gender differences are evident, with male students exhibiting lower academic performance than female students, aligning with previous studies that attribute this to differences in study habits, discipline, and structured learning approaches.

Screen time and digital access have mixed effects on academic performance. Excessive screen time negatively influences success, mainly when used for non-academic activities. However, digital access enhances learning productively but contributes to distractions when unregulated. Cognitive ability shows contrasting results in the Probit and Logit models. While cognitive ability positively influences performance in one model, it presents a negative correlation in another, suggesting that intelligence alone does not determine success. Other factors, such as study habits and external distractions, play a crucial role. Mental well-being emerges as a critical factor influencing student performance. Poor mental health, often linked to social comparison, digital overuse, and sleep disruptions, reduces focus and productivity. In contrast, stable mental health correlates with better academic outcomes, reinforcing the importance of psychological well-being in education.

These findings emphasize the need for structured and responsible digital engagement. Educational institutions, policymakers, and parents must implement strategies to balance social media use and academic responsibilities. Schools should promote digital literacy programs, encourage better time management practices, and integrate mental health support services to help students navigate the challenges of digital distractions.
Future research should explore longitudinal effects to assess how

social media habits evolve and influence long-term academic performance. Further studies could also examine effective interventions that maximize the benefits of social media while mitigating its negative consequences, particularly in educational settings. Understanding these dynamics is essential for optimizing learning outcomes and ensuring a balanced digital environment for students.

Reference

Andreassen, C. S., Pallesen, S., & Griffiths, M. D. (2017). The relationship between addictive use of social media, narcissism, and self-esteem: Findings from a large national survey. Addictive Behaviors, 64, 287–293. https://doi.org/10.1016/j.addbeh.2016.03.006

Autor, D., Goldin, C., & Katz, L. F. (2019). Extending the race between education and technology. American Economic Review, 109(3), 345-391. https://doi.org/10.1257/aer.20170612

Bawa, P., Watson, S., & Watson, W. R. (2021). Effects of technology use on students' cognitive load and academic performance: A meta-analysis. Educational Technology Research and Development, 69(2), 463–489. https://doi.org/10.1007/s11423-020-09906-1

BBC News. (2024). How TikTok is influencing youth culture in Somalia. Retrieved from https://www.bbc.com/news

Boers, E., Afzali, M. H., Newton, N. C., & Conrod, P. J. (2019). Association of screen time and depression in adolescence. JAMA Pediatrics, 173(9), 853-859. https://doi.org/10.1001/jamapediatrics.2019.1759

Burbules, N. C. (2016). How we use and are used by social media: Introduction. Educational Theory, 66(4), 439-443. https://doi.org/10.1111/edth.12188

Burnell, K., George, M. J., & Underwood, M. K. (2019). Passive social networking site use and well-being: The mediating roles of social comparison and fear of missing out. Cyberpsychology, Behavior, and Social Networking, 22(10), 640–646. https://doi.org/10.1089/cyber.2019.0178

Cheng, T., Sorensen, M., & Haring, M. (2023). Passive social media use and depressive symptoms: Evidence from a longitudinal study. Journal of Affective Disorders, 320, 140 152. https://doi.org/10.1016/j.jad.2022.12.013

Coyne, S. M., Rogers, A. A., Zurcher, J. D., Stockdale, L., & Booth, M. (2020). Does time spent on social media impact mental health? An eight-year longitudinal study. Computers in Human Behavior, 104, 106160. https://doi.org/10.1016/j.chb.2019.106160

DataReportal. (2023). Digital 2023: Somalia—Key statistics on internet and social media usage. Retrieved from https://datareportal.com/reports/digital-2023-somalia

Desjardins, R., & Warnke, A. J. (2012). Ageing and skills: A review and analysis of skill gain and skill loss over the lifespan and over time. OECD Education Working Papers, No. 72. https://doi.org/10.1787/5k9csvw87ckh-en

Ding, X., Wang, Z., & Li, Y. (2017). The relationship between psychological well-being and academic success: A longitudinal study. Journal of Educational Psychology, 109(4), 603 618. https://doi.org/10.1037/edu0000146

Ding, X., Wang, Z., & Li, Y. (2017). The relationship between psychological well-being and academic success: A longitudinal study. Journal of Educational Psychology, 109(4), 603 618.

Eisenberg, D., Golberstein, E., & Hunt, J. B. (2009). Mental health and academic success in college. The B.E. Journal of Economic Analysis & Policy, 9(1), 1-35. https://doi.org/10.2202/1935-1682.2191

Fardouly, J., Pinkus, R. T., & Vartanian, L. R. (2020). The impact of social media use on body image concerns in young women: A meta-analysis. Psychology of Popular Media Culture, 9(2), 207–221. https://doi.org/10.1037/ppm0000246

Fumagalli, L., Dolan, P., & Munafò, M. R. (2021). The role of social media platform design in shaping user behavior: A psychological perspective. Computers in Human Behavior, 124, 106939. https://doi.org/10.1016/j.chb.2021.106939

Haidt, J., & Twenge, J. (2023). The anxious generation: How the significant rewiring of childhood is causing an epidemic of mental illness. Penguin Press.

Haidt, J., & Twenge, J. M. (2023). The anxious generation: How the significant rewiring of childhood is causing an epidemic of mental illness. Penguin Press.

Hanna, E., Ward, L. M., Seabrook, R. C., Giaccardi, S., & Lippman, J. R. (2017). Contributions of social comparison and self-objectification in media to adolescent self-esteem. Sex Roles, 76(11- 12), 706-720. https://doi.org/10.1007/s11199-016-0672-7

Junco, R. (2011). The relationship between frequency of Facebook use, participation in Facebook activities, and student engagement. Computers & Education, 58(1), 162–171. https://doi.org/10.1016/j.compedu.2011.08.004

Kingsbury, M., Clayborne, Z. M., Colman, I., & Kirkbride, J. B. (2021). Social media and mental health in adolescents: A systematic review. Canadian Journal of Psychiatry, 66(3), 313 325. https://doi.org/10.1177/0706743720946118

Minges, K. E., & Redmond, N. (2018). The impact of screen time on academic performance: A systematic review. Journal of Adolescent Health, 62(2), 273-283. https://doi.org/10.1016/j.jadohealth.2017.10.017

Nesi, J., & Prinstein, M. J. (2015). Using social media for social comparison and feedback-seeking: Gender and popularity moderate associations with depressive symptoms. Journal of Abnormal Child Psychology, 43(8), 1427-1438. https://doi.org/10.1007/s10802-015-00200

Nesi, J., & Prinstein, M. J. (2015). Using social media for social comparison and feedback-seeking: Gender and popularity moderate associations with depressive symptoms. Journal of Abnormal Child Psychology, 43(8), 1427-1438. https://doi.org/xxxx

Orben, A., Dienlin, T., Przybylski, A. K., & Blakemore, S. J. (2022). Social media's impact on academic performance, attention, and sleep: A large-scale study. Computers in Human Behavior, 129, 107172. https://doi.org/10.1016/j.chb.2022.107172

Perloff, R. M. (2014). Social media effects on young women's body image concerns: Theoretical perspectives and an agenda for research. Sex Roles, 71(11-12), 363-377. https://doi.org/10.1007/s11199-014-0384-6

quan-Haase, A., & Young, A. L. (2010). Uses and gratifications of social media: A comparison of Facebook and instant messaging. Bulletin of Science, Technology & Society, 30(5), 350 361. https://doi.org/10.1177/0270467610380009

StatCounter. (2024). Social media trends in Somalia. Retrieved from https://gs.statcounter.com/

Twenge, J. M., & Martin, G. N. (2020). Gender and age differences in problematic social media use. Journal of Adolescence, 84, 91-100. https://doi.org/10.1016/j.adolescence.2020.07.007

Weinstein, N. (2017). The role of motivation in social media engagement: A self-determination theory perspective. Computers in Human Behavior, 76, 396-405. https://doi.org/10.1016/j.chb.2017.07.011

Authors

1. Dr. Mohamed Mohamud Mohamed
Holds a PhD in Development Studies and has an academic career spanning over 20 years. He has held various academic positions, including Deputy Rector for Academic Affairs at SIMAD University.

2. Dr. Abdinur Ali Mohamed
Holds a PhD in Economics and has served as Dean. He currently serves as a National Economic Advisor.

elite
Analytica

+252 615 487342
+252 625 487342

Info@eliteanalytica.com
www.eliteanalytica.com

Kobac Plaza, KM5, HODAN,
Mogadishu Somalia

www.eliteanalytica.com
info@eliteanalytica.com