



Scrolling and Studying: The Impact of Social Media on Students' Productivity

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ABSTRACT

This study examines how social media simultaneously supports and undermines the academic productivity of university students in Khyber Pakhtunkhwa, Pakistan. A qualitative exploratory design involved seven gender-segregated focus group discussions and eleven key informant interviews with students, faculty and digital literacy experts in public and private universities of Peshawar and Mardan. Thematic analysis identified four main findings: (1) platforms such as WhatsApp and Facebook act as academic enablers, enabling rapid information exchange, peer collaboration, access to supplementary resources and professional networking; (2) the same platforms drive distraction, as algorithm-based feeds, fear of missing out and late-night scrolling cause procrastination, sleep disruption and reduced concentration; (3) gender and context shape use, with female students especially from conservative households preferring “safer” platforms and rural students facing intermittent connectivity that both limits access and helps curb overuse; and (4) students adopt coping strategies such as muting notifications and using timer applications, while calling for structured digital-literacy programmes and official course-based social media channels. Overall, social media emerges as a double-edged tool: it broadens learning opportunities yet threatens sustained academic focus. A coordinated approach combining institutional policies, student self-regulation and government investment in digital literacy and infrastructure is essential to capture its pedagogical benefits while minimizing negative effects on higher-education productivity.

Introduction

Social media has moved from being a peripheral leisure activity to becoming an essential component of university students' academic and social lives. Platforms such as WhatsApp, Facebook, Instagram, TikTok and LinkedIn now mediate daily communication and provide powerful channels for learning, networking and collaboration (Greenhow & Lewin, 2016; Manca & Ranieri, 2021). Globally, more than 90% of young adults report using at least one social networking site (Perrin & Atske, 2021). In Pakistan, smartphone and internet penetration have grown rapidly: broadband subscriptions surpassed 150 million by mid-2025, rising from 142.3 million in September 2024, with PTA's monthly indicators recording 146 million mobile broadband users as of June 2025 (Pakistan Telecommunication Authority [PTA], 2025). This rapid diffusion has transformed how students in provinces such as Khyber Pakhtunkhwa (KP) communicate, access information and engage in their studies.

An expanding body of research documents the positive role of social media in higher education. Studies highlight its potential to bridge the gap between formal and informal learning, facilitating quick communication and peer collaboration (Aydin, 2020; Tess, 2013). Course-specific WhatsApp groups, for instance, have been shown to increase participation, enhance motivation and strengthen student–student and student–teacher interactions (Bouhnik & Deshen, 2014). Social networking sites can also broaden students' professional horizons by providing access to mentors, experts and networks of practice (Chugh & Ruhi, 2018). These platforms allow students to share lecture notes, clarify difficult concepts and disseminate information in real time, which is particularly valuable in resource-constrained environments (Habes et al., 2022). For many Pakistani universities, especially in KP where physical library resources and formal learning management systems remain limited—such virtual learning spaces can reduce geographic and socio-economic barriers to higher education (Al Mamun & Griffiths, 2022).

Despite these benefits, an equally robust literature warns that social media can undermine academic performance when used without regulation. The design of major platforms driven by algorithmic curation, infinite scrolling and push notifications, has been optimized to maximize user engagement and attention (Lukoff et al., 2021). This “attention economy” encourages habitual checking, often at the expense of focused study time. Empirical evidence from diverse settings demonstrates that heavy, non-academic social media use is negatively correlated with academic achievement and self-reported productivity (Junco, 2012; Kirschner & Karpinski, 2010; Paul et al., 2012). Emotional factors such as fear of missing out (FOMO) amplify these tendencies; FOMO is associated with compulsive checking behaviours, anxiety and sleep disturbance, all of which can reduce cognitive performance (Przybylski et al., 2013; Levenson et al., 2017; Elhai et al., 2020). Recent work links excessive late-night social media use to delayed sleep onset and diminished next-day concentration among university students (Kircaburun et al., 2020; Montag et al., 2021). The phenomenon of “academic procrastination”, where students knowingly delay study tasks in favour of social media browsing has been widely reported and linked to lower grades and poorer time management (Geng et al., 2018; Meier et al., 2016). These risks are not merely individual; they are built into platform architecture designed to monetize attention (Anderson & Jiang, 2018).

The impact of social media on students' productivity does not occur in a vacuum but is shaped by socio-cultural and infrastructural conditions. Pakistan continues to face a pronounced digital gender gap: women are significantly less likely than men to use the internet or own a smartphone (GSMA, 2022). Gender norms and concerns about online safety further limit women's participation in digital spaces (Mahmood & Farooq, 2020). Such constraints may influence both

the intensity and the purpose of female students' social media engagement, often leading to platform preferences perceived as safer, such as WhatsApp and Facebook Messenger. Infrastructure also remains uneven. Although broadband coverage has expanded, rural and semi-urban areas of KP continue to experience lower internet quality and intermittent connectivity (PTA, 2025; World Bank, 2021). This urban–rural divide affects not only the frequency of social media use but also the balance between its educational and distracting functions. While limited connectivity may restrict access to academic resources, it can also act as a natural brake on overuse—a dynamic noted in other South Asian settings (van Laar et al., 2019).

Against this backdrop, the problem is that despite the global literature recognizing both the opportunities and the risks of social media for student learning, empirical evidence from Pakistan's Khyber Pakhtunkhwa province remains scarce and fragmented. Most existing Pakistani studies have concentrated on urban centers such as Lahore or Karachi (Mahmood & Farooq, 2020; Habes et al., 2022) or have focused narrowly on social media's role in political participation (Ali et al., 2019) and mental health outcomes (Elhai et al., 2020), rather than its influence on academic productivity. KP presents a unique combination of factors rapidly expanding internet access, significant gender disparities, and uneven rural–urban infrastructure that may shape social media's influence on students in ways distinct from other regions. Without locally grounded research, universities and policymakers risk adopting interventions that fail to reflect these contextual realities and may overlook critical gender and rural–urban differences. There is thus a pressing need to investigate how KP's university students experience the enabling and disruptive roles of social media in their academic lives and to identify strategies that can both harness its pedagogical potential and protect academic productivity.

By providing a context-specific understanding of social media's impact on academic productivity, this study fills a critical gap in both national and international literature. Its findings will guide university administrators in designing digital literacy and wellbeing initiatives tailored to the cultural and infrastructural realities of KP. It also informs policymakers and regulators, highlighting the need for investment in equitable digital infrastructure and for national campaigns promoting responsible social media use. More broadly, the research contributes to the global debate on how higher education institutions can leverage social media's pedagogical potential while safeguarding students' ability to focus and learn effectively (UNESCO, 2021; Redecker, 2017).

The main aim of the study is to explore the impact of social media use on the academic productivity of university students in Khyber Pakhtunkhwa, Pakistan. The specific objectives are: (1) to examine students' patterns of social media usage, including frequency, purpose and platform preference; (2) to analyze how social media use influences key aspects of academic productivity such as concentration, study habits and time management; (3) to investigate the role of gender, socio-economic background and urban–rural context in shaping the effects of social media on students' academic work; and (4) to identify coping strategies adopted by students and gather their recommendations for institutional or policy interventions.

Methodology

This research employed a qualitative exploratory design to examine how social media use influences the academic productivity of university students in Khyber Pakhtunkhwa, Pakistan. A qualitative approach was chosen to capture students' lived experiences and to understand the contextual factors shaping their engagement with social media, consistent with the interpretive

tradition of qualitative inquiry (Naz et al., 2025; Riaz et al., 2024a; Riaz et al., 2024b; Naz et al., 2023c; Creswell & Poth, 2018; Patton, 2015).

The study was conducted in four purposively selected higher education institutions; two public and two privates located in the districts of Peshawar and Mardan. These sites were chosen to reflect KP's diversity in terms of urban–semi-urban settings and socio-cultural characteristics (Pakistan Bureau of Statistics, 2021). The participants were undergraduate and postgraduate students who reported regular use of social media for both academic and recreational purposes. Using purposive sampling (Palinkas et al., 2015), a total of seven gender-segregated focus group discussions (FGDs), each comprising 6–8 students, and eleven key informant interviews (KIIs) with faculty and digital literacy experts were completed. Recruitment continued until data saturation was reached, when no new themes were emerging (Guest et al., 2020).

Data were collected between February and April 2025 using semi-structured FGD and interview guides. The guides explored patterns of social media use, its perceived effects on study habits, time management and concentration, and the coping strategies students adopted to balance online engagement with academic responsibilities. All sessions were audio-recorded with participants' informed consent and, where appropriate, conducted in a mix of English and Urdu. Audio recordings were transcribed verbatim and analyzed using thematic analysis following Braun and Clarke's (2006) six-phase framework of familiarization, initial coding, theme development, review, definition, and reporting (Naz et al., 2024a; Naz et al., 2024b; Naz et al., 2023a; Naz et al., 2023b). NVivo 12 software facilitated the organization and coding of transcripts (Edhlund & McDougall, 2019). To enhance the trustworthiness of the findings (Lincoln & Guba, 1985), member checking was undertaken by sharing preliminary interpretations with a subset of participants; detailed field notes and an audit trail of coding decisions ensured dependability and confirmability, while rich descriptions of the research context support transferability. All participants gave informed consent and were assured that their identities would remain confidential using pseudonyms and secure data storage (Israel & Hay, 2006).

While the study provides rich, context-specific insights into how social media affects academic productivity in KP, it does not offer statistically generalizable conclusions, and self-reported experiences may be influenced by recall or social desirability bias (Bryman, 2016). Nevertheless, the qualitative evidence offers a nuanced understanding of the opportunities and challenges that social media presents to higher education in the province.

Results

The analysis revealed a nuanced picture of how social media use shapes the academic productivity of university students in Khyber Pakhtunkhwa. Four overarching themes emerged, each with distinct sub-themes, capturing both the enabling and disruptive dimensions of social media in students' academic lives (Table 1). In the subsequent sections of this article, the themes and their sub-themes are presented.

Table-1: Themes and Sub-Themes on the Impact of Social Media on University Students' Academic Productivity

Main Theme	Sub-Themes	Illustrative Meaning
Social media as an Academic Enabler	Rapid Information Exchange	WhatsApp and Facebook groups allowed instant sharing of notes, exam schedules and assignment instructions.
	Peer-to-Peer Collaboration	Students clarified difficult concepts and coordinated group work in closed online spaces.
	Access to Supplementary Resources	Links to online tutorials, recorded lectures and digital libraries enhanced learning beyond the classroom.
	Networking and Professional Exposure	LinkedIn and discipline-specific Facebook pages created opportunities for internships and professional contacts.
Continuous Distraction and Time Displacement	Algorithm-Driven Distractions	Auto-play videos and endless feeds on TikTok and Instagram triggered unplanned, prolonged use.
	Sleep and Study Interference	Late-night social media sessions delayed sleep and impaired next-day concentration.
	Procrastination and Reduced Study Hours	“Quick breaks” often turned into lengthy scrolling, displacing dedicated study time.
	Emotional Triggers and FOMO	Fear of missing out and social comparison heightened anxiety and fragmented attention.
Gendered and Contextual Differences in Usage	Gendered Platform Preferences	Female students preferred WhatsApp and Messenger for perceived safety; males reported more recreational use of TikTok and gaming groups.
	Cultural Norms and Mobility Restrictions	Social expectations constrained female students' public interactions and shaped usage times.
	Urban–Rural Digital Divide	Intermittent internet in rural areas sometimes restricts overuse but also limited access to resources.
	Differential Academic Integration	Urban universities offered more structured, course-related social media engagement than rural campuses.
Coping Strategies and Institutional Support Needs	Personal Regulation Strategies	Students muted notifications, used timer apps (e.g., Forest), and scheduled social media “blackouts” before exams.
	Peer Accountability	Informal peer agreements helped limit recreational use during examinations.
	Faculty-Led Digital Literacy	Participants called for orientation sessions on healthy digital practices and critical evaluation of online information.
	Institutional Policies and	Recommendations included official course-based social media channels and curriculum-based digital literacy

Social Media as an Academic Enabler

Participants consistently described social media platforms, especially WhatsApp and Facebook as critical tools for academic communication and collaboration. Students explained that departmental WhatsApp groups served as “unofficial notice boards,” where lecture notes, assignment guidelines, and exam schedules were circulated instantaneously. This rapid information exchange was particularly valuable for students from rural or peri-urban areas, who often faced delays in accessing physical notices. Peer-to-peer collaboration extended beyond sharing notes: students reported forming virtual study circles to clarify difficult concepts and coordinate group projects. Key informants confirmed that these platforms had effectively become “informal learning management systems,” supplementing formal classroom instruction. Several students also highlighted the availability of supplementary resources, including recorded lectures and YouTube tutorials, and a smaller group pointed to professional networking opportunities through LinkedIn and discipline-specific Facebook pages. These findings echo earlier evidence that social media, when purposefully employed, can broaden learning opportunities and extend the boundaries of formal education (Greenhow & Lewin, 2016).

Continuous Distraction and Time Displacement

Despite these academic benefits, students almost universally acknowledged the disruptive pull of recreational social media use. Algorithm-driven feeds, auto-play videos and persistent notifications on platforms such as TikTok and Instagram were repeatedly described as “traps” that transformed short study breaks into extended scrolling sessions. Many students linked such behaviour to sleep disruption, reporting late-night use delayed bedtime and undermined next-day concentration. Others spoke of procrastination and reduced study hours, admitting that social media often displaced planned academic tasks. These accounts corroborate prior research associating heavy non-academic social media use with diminished academic performance and attentional control (Junco, 2012; Kirschner & Karpinski, 2010). Several participants also noted the role of emotional triggers, particularly fear of missing out (FOMO) and social comparison, which heightened anxiety and further fragmented attention (Przybylski et al., 2013).

Gendered and Contextual Differences in Usage

Patterns of social media use were strongly mediated by gender norms and infrastructural contexts. Female students, particularly those from more conservative households, reported a preference for WhatsApp and Facebook Messenger, platforms they perceived as safer and more acceptable within family and community expectations. Their engagement was largely academic or family-oriented and tended to follow fixed daily schedules. Male students, in contrast, described more recreational and entertainment-driven usage, including participation in gaming groups and sports forums. Students from rural districts such as Swat and Mardan pointed to intermittent internet connectivity, which at times limited their access to resources but also “protected” them from excessive use. Key informants observed that urban universities provided more structured, course-related integration of social media than their rural counterparts, underscoring how cultural and infrastructural conditions shape digital practices (Livingstone, 2014).

Coping Strategies and Institutional Support Needs

While many students expressed frustration at their own difficulty in exercising self-control, they also reported a range of personal coping strategies. These included muting notifications, using timer applications such as Forest, and establishing “blackout periods” before examinations. Some groups described peer accountability practices, where friends agreed to limit non-academic

social media use during critical study periods. Faculty and student counselors recommended more formal measures, including digital literacy training, orientation sessions on healthy technology use, and the creation of official course-based social media channels to reduce dependence on informal groups. These suggestions align with wider calls for universities to promote responsible technology use and to integrate social media into structured learning environments (Manca & Ranieri, 2016; Van Deursen et al., 2015).

Overall, the findings depict social media as a double-edged tool in the higher-education context of KP. On the one hand, it enhances access to information and fosters collaborative learning; on the other, its attention-capturing design and recreational appeal often erode students' ability to sustain focus and manage time effectively. Gender norms and infrastructural disparities further mediate these effects. The evidence underscores the need for both individual self-regulation and institutional digital literacy initiatives if the academic potential of social media is to be fully realized while its disruptive impact is minimized.

Discussion

This study highlights the paradoxical role of social media in shaping the academic productivity of university students in Khyber Pakhtunkhwa (KP), Pakistan. The findings confirm that social networking sites have become essential to students' academic lives, providing unprecedented opportunities for collaboration, yet they also create persistent distractions that undermine concentration and effective time management. Such ambivalence has been observed globally in higher education research (Greenhow & Lewin, 2016; Manca & Ranieri, 2016; Tess, 2013).

The study found that WhatsApp and Facebook functioned as informal learning management systems, enabling rapid dissemination of lecture notes, exam schedules and assignment guidelines. This echoes earlier work showing that social media can bridge formal and informal learning environments and improve access to educational resources (Aydin, 2020; Selwyn, 2012). In settings with limited physical infrastructure or library access, as in many KP universities, such virtual spaces become critical for equitable information flow (Al Mamun & Griffiths, 2022; Habes et al., 2022). Peer-to-peer collaboration and the sharing of supplementary resources, including YouTube tutorials and recorded lectures, mirror the conclusions of Junco (2012) and Shensa et al. (2018), who observed that when social media is used intentionally, it fosters active learning and stronger engagement. Furthermore, some students reported professional networking through LinkedIn and discipline-specific groups, consistent with evidence that social platforms can broaden career opportunities and professional identity formation (Chugh & Ruhi, 2018).

While students valued these academic functions, they also described the disruptive pull of algorithm-driven feeds—a finding consistent with studies on the “attention economy” design of social media (Anderson & Jiang, 2018; Montag et al., 2021). Auto-play videos and push notifications triggered prolonged unplanned use, often displacing scheduled study hours and delaying sleep. Similar patterns of time displacement and sleep disturbance have been reported in North American and Asian contexts (Levenson et al., 2017; Kircaburun et al., 2020). The negative association between heavy non-academic social media use and academic performance, documented in our study, is well supported in the literature (Junco, 2012; Kirschner & Karpinski, 2010; Paul et al., 2012). Emotional factors such as FOMO and social comparison emerged as triggers of compulsive checking, echoing the work of Przybylski et al. (2013) and Elhai et al. (2020) on the psychological correlates of FOMO and its link to reduced concentration and increased anxiety. These results reinforce arguments that students' struggles with social media are not solely individual failures of self-control but are partly driven by platform architectures deliberately optimized for engagement (Lukoff et al., 2021).

The analysis also revealed that gender norms and digital infrastructure shape social media practices. Female students, particularly from conservative households, preferred WhatsApp and Messenger for academic and family-related communication, perceiving these as safer and socially acceptable. This resonates with research on gendered online participation and the role of perceived online safety (Jackson et al., 2018; Mahmood & Farooq, 2020). Male students reported more entertainment-oriented use, including gaming communities and sports forums, paralleling international findings on gender differences in online leisure activities (Pempek et al., 2009). Students from rural districts highlighted intermittent internet connectivity an issue consistent with national assessments of Pakistan's digital divide (Pakistan Telecommunication Authority [PTA], 2022) and similar infrastructural gaps observed across South Asia (World Bank, 2021). Interestingly, some rural students saw poor connectivity as a "protective factor" against overuse, reflecting the complex relationship between access and digital wellbeing noted by van Laar et al. (2019).

Despite these challenges, students demonstrated growing awareness of the need for self-regulation. Strategies included muting notifications, using timer apps such as Forest, and scheduling social media "blackouts," in line with recommendations for digital detox and mindful use (Van Deursen et al., 2015; Montag et al., 2021). Informal peer accountability where students agreed collectively to limit recreational use before exams resemble the community-based coping mechanisms identified by Al-Menayes (2015) and Marwick (2018). Importantly, participants and faculty called for institutional digital literacy programs, including formal orientation sessions and the creation of official course-based social media channels. Such calls align with international policy recommendations advocating structured digital skills training to develop critical and reflective social media practices (Livingstone, 2014; UNESCO, 2021; Redecker, 2017).

Overall, these findings position social media as a double-edged educational tool. It can reduce geographic and socio-economic barriers to education (Habes et al., 2022) and strengthen collaborative learning (Greenhow & Lewin, 2016), yet its attention-capturing design can undermine students' ability to sustain focus and manage time (Elhai et al., 2020; Levenson et al., 2017). For KP's higher education institutions, many of which operate with limited physical infrastructure and uneven internet access, this duality requires a balanced policy response. Universities should not simply caution students against overuse but actively harness social media's pedagogical potential by integrating it into coursework, while simultaneously providing training in digital wellbeing and self-regulation (Manca & Ranieri, 2016; Redecker, 2017).

Conclusion

This study demonstrates that social media has become an inseparable part of the academic and social lives of university students in Khyber Pakhtunkhwa, functioning simultaneously as a powerful educational resource and a source of distraction. Platforms such as WhatsApp and Facebook were found to act as informal learning management systems, enabling rapid exchange of lecture notes, collaborative group work, and access to supplementary materials, an especially important advantage in a context where traditional educational infrastructure is often limited. At the same time, algorithm-driven feeds and the fear of missing out encouraged prolonged, unplanned use, displacing study time and disrupting sleep, thereby reducing concentration and academic performance.

Gender norms and digital inequalities further shaped these patterns: female students gravitated toward "safer" platforms such as WhatsApp, while male students reported more entertainment-oriented engagement; rural students faced intermittent internet connectivity, which both limited and moderated their exposure. These findings underscore that the impact of social media on

productivity is not merely a matter of individual self-control but also reflects structural and cultural factors including platform design, gendered expectations, and the digital divide. In short, social media in KP universities is a double-edged tool. When used intentionally, it can democratize access to learning and strengthen peer support; when used without discipline, it can erode the very productivity it has the potential to enhance.

Recommendations

To harness social media's educational value while curbing its disruptive effects, coordinated action is needed at institutional, individual, and policy levels:

Universities and Higher Education Institutions

- Embed short digital-literacy and wellbeing sessions in student orientation and core curricula to strengthen critical evaluation skills and attention management.
- Provide official, moderated course-based social media channels (e.g., WhatsApp or LMS-linked groups) to streamline academic communication and reduce reliance on informal networks.
- Enforce policies that encourage healthy technology use, such as limiting late-night notifications and designating periodic "digital wellbeing" days.

Students

- Practice self-regulation by muting non-essential notifications, using timer/focus apps, and scheduling regular offline periods before exams.
- Create peer groups that hold members accountable for limiting recreational social media use during key academic periods.

Policymakers and Regulators

- Expand equitable broadband infrastructure to close the urban–rural access gap and ensure equal benefit from online academic resources.
- Lead nationwide digital literacy campaigns to highlight both the educational potential and the risks of excessive social media use.

A shared commitment across these three levels will help maximize the pedagogical strengths of social media while protecting students' academic productivity.

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