

IMPLICATIONS OF DIGITAL MEDIA AND AI ON ACADEMIC PERFORMANCE OF STUDENTS IN PAKISTAN

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Abstract

The rapid penetration of digital media and artificial intelligence (AI) into daily routines is shifting the way learners, in Pakistan specifically, search for information, use learning resources, and manage their learning tasks. This research aims to provide an understanding of what the use of digital media and AI application means for the academic performance of university students in Pakistan. Using a mixed methods approach, the research presents the positive and negative aspects of the use of digital media and AI application. Quantitative data comprises a structured questionnaire administered to undergraduate and postgraduate students in several of the major universities in Pakistan, while qualitative data is gathered through focus group discussion and interviews with practitioners and students. The results suggest that, to some extent, digital media and AI tools can be beneficial for helping learners learn more efficiently, help with research, and aid collaborative learning. However, the unchecked overuse or improper consideration of digital resources can lead to text based blindness, distraction, decreased attention span, and academic procrastination. As suggested by Berg et al. (2021), it is important to provide university students with a reasonable integration of digital tools in higher educational studies. The study provides insight into digital literacy programs that help students use technology in an optimal way. The findings are intended to guide policy-makers, educators, and students on maximizing educational practice surrounding digital media and AI; while minimizing, to some degree, the detrimental aspects related to students' academic performance.

Introduction

Both digital media and artificial intelligence (AI) technologies have been adopted globally, and they are rapidly changing attitudes and behaviours in higher education contexts. In Pakistan, the use of these technologies are

changing how students are learning, collaborating, and accessing instructional material. Digital media platforms including social networking tools, e-learning portals, and multimedia, are becoming a prominent part of

the daily life of students. Digital media are providing unfettered access to near limitless information and/ or alternatives to traditional learning (Khattak, 2025). At the same time, Artificial Intelligence based tools, including adaptive learning platforms, learner analytics, intelligent tutoring systems, plagiarism checking software, and personalized learning tools, are increasingly being woven into a more broad scale educational experience to help with learners' overall achievement. (Nasir, 2024)

While digital media and AI use is providing significant opportunities to help student's academic performance, both are also presenting operational problems. For example, these technologies can facilitate independent learning, as well as real time collaboration and feedback, and aiding students in understanding a complex concept. On the other hand screen time or use of digital media can lead to distraction and non-academic use of content fixation, and can have a negative effect on level of concentration; all of which can have negative influence on students' overall academic performance. In addition, cognitive offloading based on using artificial intelligence, and not thinking or questioning systematically, may limit students' development of independent analytical thinking and analysis competencies. (Anwar et al., 2025)

Given the current status of the education system in Pakistan with major digital transformation, it is important to explore the nuanced impact of digital media and AI on students' academic performance. As digital resources continue to become more available, there are disparities in digital literacy, internet access, and institutional context that may alter how effectively these sources are used. As a result, it is important to understand how students are navigating these opportunities and challenges of digital media and AI in the academic space in Pakistan. (Nasir et al., 2025)

The purpose of this study is to explore the implications of using digital media and integrating AI on student academic performance in Pakistan. By understanding students' perceptions, their use, and their academic performance, this research offers insight to educators, policymakers, and other stakeholders that will support productive development of

methods to integrate digital technologies within higher education in Pakistan.

Background

The 21st century has introduced a digital explosion that has affected nearly every aspect of human life, and education is no exception. Digital media such as social networks, MOOCs, video streaming services, and interactive media has become an integral part of the education experience for students across the globe. Concurrently, AI technology is steadily being utilized within academic contexts to offer credible alternatives such as, automated grading, adaptive learning, bots, and content delivery systems.

Across the globe teachers and support staff and researchers are acknowledging the possibilities for monumental social opportunities the future holds for learners utilizing these technologies in their education, including enhancing learning possibilities, collaborative knowledge sharing, and personalized learning pathways. When utilized properly, research shows that technology which is now reminiscent of digital media, as opposed to textbooks, can offer new access to information for students which is beyond their textbooks and classrooms, while AI can provide evidence based data gathered from learners, making it subsequent to personalize and manipulate digital media in educational contexts in line with learners and their individual learning abilities. (Razzaq, 2025)

In Pakistan, the growing convergence of digital media and AI with the education sector has accelerated significantly over the past decade due to the increase in internet penetration, increased use of smartphones, and policy initiatives aimed at developing digital literacy. Furthermore, the crisis caused by the COVID-19 pandemic accelerated the transformation of education while ensuring the continuity of education for students. This ultimately meant that universities and colleges moved quickly to implement online and blended learning for their courses. As a result, students have more recently turned to digital media for academic research, facilitated online lectures, virtual discussions, and implementation of assignments. Moreover, AI-powered applications, such as programs for plagiarism detection, automated feedback, and smart study tools are increasingly being introduced to

augment traditional learning in various ways. (Mahmood, 2025)

However, in conjunction with the advent of new technologies there are a growing set of challenges that need to be examined critically, including: students having a strong dependence on their digital devices and social media; students may not be ingesting enough content and learning more about their program, as they are being distracted by too many emails and entertainment; Students may even be at risk of academic cheating using AI-enabled tools. In addition, there is an increasing digital divide in Pakistan, with reliable internet, good quality digital infrastructure being lacking in certain areas, and not everyone being digitally literate among the student/faculty population. (Nasir, 2025)

Considering these transformations, we need to understand how digital media and AI impact students' academic engagement, study behaviours and performance at Pakistani universities. A richer examination of these aspects, provides data for policymakers, administrators, and educators to intervene appropriately to afford students the advantages of digital and AI technology whilst minimizing potential harms. (Asma, 2025)

This research paper, in particular, is situated within this tension and aims to provide evidence and actionable measures to maximize and minimize student academic outcomes, through the implementation of digital media and AI in Pakistan.

Research Gap

While global research extensively explores the impact of digital media and artificial intelligence (AI) on students' learning outcomes, much of this scholarship is concentrated in developed contexts with advanced technological infrastructures and high levels of digital literacy. Existing studies largely focus on how digital tools and AI driven educational applications contribute to personalized learning, increase student engagement, and support innovative pedagogies. However, the challenges posed by these technologies such as distractions, dependency, and ethical concerns have received comparatively less empirical attention, particularly within developing countries.

In the context of Pakistan, although several studies have investigated the use of digital media

in education, most have examined its role broadly within e-learning or online education frameworks, often during the COVID-19 pandemic. There remains a significant lack of comprehensive empirical research specifically examining how the combined use of digital media and AI technologies shapes the academic performance of students in higher education institutions. Additionally, the unique socio-cultural, economic, and infrastructural factors that influence students' access to, and responsible use of, these technologies in Pakistan are rarely addressed in depth. (Nasir, 2024)

Another significant gap in the literature has to do with the lack of inquiry into students' perceptions and lived experiences with the opportunities and challenges surrounding digital media and AI. Much of the existing literature includes only quantitative data and lacks rich qualitative data to explain how and why these technologies impact students' study habits, time management, and academic performance in different contexts.

This research addresses these gaps by providing a more contextualized understanding of digital media and AI's implications on students' academic performance in Pakistan. As a mixed methods study, this research positions itself to provide new empirical evidence, to highlight students' and educators' experiences, and to inform strategies for successfully developing and employing digital media and AI wisely in the landscape of higher education in Pakistan.

Problem Statement

The rapid advancement of digital media and artificial intelligence (AI) within higher education is presenting significant opportunities and challenges for students in Pakistan. Although these technologies create new possibilities for enriching the learning process, enhancing collaboration, and supporting academic success, poor or unrestricted use can also lead to distractions, ineffective time management, academic dishonesty, and a decreased level of critical thinking.

From the overview in this regard, we have seen a marked increase in the use of digital and AI tools in higher education in Pakistan, yet very little empirical investigations examine the extent to which these technologies together impact

students' academic performance within the unique sociocultural and infrastructural context of Pakistan.

The reason for lack of understanding in this regard, is that educators and scholastic leaders cannot devise plans and policies that maximize the potential benefits of digital media and AI while mitigating potential risks. (Sultan, 2025)

The current study, therefore, aims to study and analyze the complex implications (both positives and negatives) of digital media and AI tools on the academic performance of higher education students in Pakistan in hopes of providing some data driven guidance and recommendations for the responsible and balanced use of technology in either teaching or learning.

Research Objectives

1. To investigate how university students in Pakistan employ digital media and AI tools in their academic work.
2. To investigate the positive and negative effects of digital media and AI on students' academics.
3. To provide suggestions to educators and policy makers with respect to the effective and balanced use of digital media and AI in higher education.

Research Questions

1. How do university students in Pakistan use digital media and AI tools for their academic activities?
2. What are the positive and negative implications of digital media and AI usage on students' academic performance in Pakistan?
3. What strategies can educators and policymakers adopt to promote the effective and responsible use of digital media and AI in Pakistani higher education?

Hypotheses

H1: There is a significant relationship between the use of digital media for academic purposes and students' academic performance in Pakistani universities.

H2: Excessive or unstructured use of digital media negatively affects students' academic performance.

H3: The use of AI tools for academic tasks has a positive impact on students' academic performance when used appropriately.

Significance of the Study

This research is valuable at the level of scholarship, practice, and policy given the importance of the higher education sector in Pakistan. Exploring the impact that digital media and artificial intelligence (AI) has on students' academic performance further adds empirical support to a the literature where local literature is decidedly limited, and provides new insights into how digital and AI tools are being integrated by university students into their daily academic activities, as well as the potential threats and rewards regarding their use.

For educators and university administrators, it provides a better understanding of students' digital habits, and helps them understand where students are experiencing difficulties in weighing productive and unproductive uses of technology. With a better understanding of digital habits, institutions can implement better digital literacy programming, create meaningful policy regarding responsible use of technology, and develop genuine learning environments that allow students to take advantage of digital offerings without jeopardizing academic integrity and performance.

The research identifies specific areas for policymakers to target policy and investment directed at issues such as digital infrastructure, equitable access to digital materials, and the integration of AI into teaching without compromising typical teaching practices. In this way the research can inform the development of appropriate strategies to leverage the positive educational possibilities of digital media and AI, to reduce risks or adverse effects of this use in education.

Overall, this study contributes to the wider debate about digital transformation in salvage education in developing contexts that is a source of reference and a compelling example for future research and activities that aims to balance technology with academic quality and student well-being.

Literature Review

AI can help universities support students' well-being, in addition, by improving the aurally Tilill AI to access for students to mental health facilities. AI based wellness apps are now available to help students learn stress management techniques including mindfulness and even meditation skills. Research has established these mental health interventions help academic regulation and reduce anxiety (Hölzel et al., 2018). Additionally, AI is used to help detect symptoms of academic distress among students at universities before they require significant interventions. Predictive analytics assist in recognizing early signs of distress due to academic work that allow institutions to intervene before students are overwhelmed by stress or burnout (Pasquini et al. 2019). AI allows for intervening in a timely manner to ensure students persist in their education and continue their academic success (Romero et al., 2019).

Studies indicate that students who use AI enabled time management applications report better productivity and less stress (Dziuban et al., 2020). AI enabled time management tools also provide strategic recommendations to establish task prioritization, which decreases non-productive forms of stress and anxiety (Kiewra et al., 2019).

Academic performance measures how well students are reaching their educational goals, normally assessed through tests, grades and degrees. As such, it is important to be aware of the many factors impacting educational performance, and, therefore, for the educators and policymakers, and the students themselves to promote effective learning environments that encourage the student's emotional and mental development. It should be noted that students' individual factors such as their motivation, self-control and general intelligence impact academic performance whether effectively or academically. Students with self-regulation and intrinsic motivation propensity likely excel academically (Kocak et al., 2021). In addition to self-regulation and motivation, good time management and goal setting has an equal impact on obtaining academic objectives.

Other factors such as finance and social status, do impact educational outcomes. Students with better financial backgrounds typically have a

more dynamic range of learning tools, supportive colleagues and activities that perpetuate Causational achievement (Hijazi & Naqvi, 2006). Conversely, students from a disadvantaged socioeconomic status may have issues relating to their access to learning tools and colleague support which as logical it indicates that someone's socioeconomic backgrounds would adversely impact educational outcomes. Overall, the previously stated factors are equally significant in the discussion of equity in education.

Academic stress is a pervasive challenge faced by students in post-secondary institutions, with implications for mental health, well-being, and academic performance. (Kessler et al., 2019), Emerging and developing Artificial Intelligence (AI) offers new opportunities in the field of education while providing tools and platforms with the intention of enhancing students' learning and academic success (Kim et al., 2020). Nonetheless, the actual impact AI in education has on students' academic stress is still unclear.

In Social Cognitive Theory (Bandura, 1986), individuals experience the thoughts, feelings, and actions that they do based on their environment, as learning tools via AI allow students to have more agency during their education, and may ultimately indicate a lower level of stress and anxiety for students (Wigfield et al., 2015). However, the relationship between AI and educational stress is nuanced and can also be impacted by other variables such as social media addiction, and self-efficacy.

Social media addiction has been shown to contribute to increased stress and depression of university students (Kuss & Griffiths, 2011). Specifically, social media may create increased distractions with notifications and alerts constantly triggering the senses, which can lead to sensitivity to attention and time (Ophir et al., 2009). Social media also creates unrealistic comparisons, leading to decreased self-efficacy with increased stress (Gentile et al., 2017).

Conversely, self-efficacy related to educational stress, or, the individual's perceived ability to perform tasks and achieve goals (Bandura, 1997), are a major factor in coping with educational stress. Higher levels of self-efficacy create more resilient and more flexible learners, ultimately allowing them to cope with academic demands better (Lent et al., 2017).

The present research employs a mediated moderation model to analyze the relations between AI as it relates to academic stress, moderated by social media addiction and self-efficacy. The central hypothesis of the study is that AI wants to alleviate academic stress by providing opportunities to perceive control over their learning. Social media addiction is hypothesized to moderate this effect and produce an unwanted shoulder of stress and anxiety on the part of the student. Self-efficacy is also ready to moderate this effect; self-efficacious students will perceive more positive AI use while lower, self-efficacious students continue to be affected by AI without stress reduction.

Artificial Intelligence (AI) is emerging as a powerful instrument for reducing academic stress through personalized learning. AI-enabled adaptive learning systems allow students to learn in a manner that is individualized according to need and enable them to learn in their own timeframe, either too rapidly or slowly, according to a prescribed and standardized curriculum model. Research shows that such systems can be used to diminish academic stress in remarkably effective ways by learning how each individual student intends to learn (Kim et al., 2020).

AI chatbots and digital assistants can also provide emotional support through AI enabled emotional support through digital supports; many studies have indicated that AI emotional support can be an effective way to not only provide academic support but emotional support to help manage levels of psychological distress or discomfort in students. An AI provided emotional support can provide helpful, immediate, and judgment free interactions, which are helpful to support and reduce rumination (of distresses). Some studies provide evidence of significant reductions in the reports of depressed levels and anxiety in students as a result of actions taken through AI (Morris et al., 2018). We must also recognize, AI enabled psychological interventions can also provide both preventative and responsive psychological and mental support (Hermann et al., 2019), and ensure that enrolment can provide both emotional and psychological support when needed (Wang et al., 2020).

Another aspect AI supports that can address academic stressors experienced by students relates to time management. AI enabled scheduling

supports provide students the ability to begin organizing their workload, produce priorities, and show ways to break assignments in smaller, manageable workloads. Students who can break assignments into smaller, manageable workloads may experience lower levels of overwhelm.

Teaching practices directly affect how students learn. A recent review of the GCSE curriculum in England indicates that a narrow focus on traditional academic subjects may reduce student engagement and achievement, and a rebalancing with vocational and arts subjects may be needed (Turner, 2023). This demonstrates the need for varied teaching methods to match the many different learning styles and interests of students when encouraging inclusive and productive learning environments.

The form, and content of a curriculum very much determines how, and when, students are learning. Critique of the English Baccalaureate (EBacc) system draws attention to a curriculum focused on a limited number of subjects which do not offer student choice or even engagement opportunities in areas such as vocational or arts based subjects (Turner, 2023). If we could redesign a curriculum delivery model to allow for different and balanced subjects that reflect student interest and potentially their development, this could see a gain for students' academic achievement overall.

Career guidance should be instrumental in helping learners work out the implications of their planning and choices when selecting pathways, and producing courses appropriately. An Australian content provider report claimed that lack of careers planning results in choosing incorrect courses which led to reduced student engagement and retention rates and added enormous costs to their economy as it widened their skills gaps (Hare, 2023). This in particular demonstrates a need for robust careers counselling services that can assist students in aligning their academic decisions with future career aspirations, which in turn positively impacts future academic performance and satisfaction in a job.

Academic achievement occurs through a multitude of factors such as individual characteristics, social and economic backgrounds of each student, and approaches to teaching and learning, the established curriculum and career

counselling availability. Acknowledgement of these factors is important for development of targeted intervention support for students and cohorts alike to achieve academic success. Educators and policy makers unique capabilities should produce academic improvement outcomes and advance social and economic equity improvement for all students by improving intrinsic and extrinsic motivation to learn, address social and economic related risks, reduce prejudices, purposefully develop curricula, and develop effective career counselling supports.

Social media addiction characterizes an individual's social media usage that is overwhelming and depressing to the extent that one cannot refrain from enrolling on platforms like Facebook, Instagram and Twitter, even when social, mental, physical, new-culture, personal relationship responsibilities are in direct conflict (Andreassen et al., 2022; Keles et al., 2020; Kuss & Griffiths, 2011). In a new age society where life habits converge around social media with billions of users worldwide engaging daily, this shared group experience creates a phenomenon of addiction with an ethical dilemma (Pew Research Center, 2023; Statista, 2023; Montag et al., 2021).

The biggest contributor to social media addiction is the element of instant gratification. Social media platforms are designed to engage their users actively, with likes, comments, and shares that stimulate the neural reward mechanism, guiding the release of the neurotransmitter dopamine, which signals pleasure (Turel & Serenko, 2012; Andreassen et al., 2022; Brand et al., 2020). Users grow dependent on social media to feel good or temporarily escape negative feelings or emotions, and these cycles can become repetitive patterns of addiction (Ryan et al., 2021; Keles et al., 2020; Hormes et al., 2014).

Social media addiction has many harmful effects on mental health that are huge. For example, social media addiction can shorten attention span, increase levels of stress and anxiety and impair communication skills in everyday life (Best et al., 2014; Bányai et al., 2017; Twenge & Campbell, 2018). Additionally, excessive social media use tends to decrease productivity, since they now have to devote their time to social media instead of the more important work and school commitments (Kuss & Griffiths, 2011;

Przybylski et al., 2021; Van den Eijnden et al., 2018).

Moreover, social media addiction presents another issue, by increasing the risk of cyberbullying and digital harassment. Unfortunately, many of the digital platforms we use provide anonymity, and many people feel more comfortable engaging in behaviors that they would be less likely to do in face to face context (Hertz et al., 2017; Kowalski et al., 2018; Whittaker & Kowalski, 2015).

Victims of cyberbullying may suffer from low self-esteem, increased stress, and in some cases suicidal ideation (Hertz et al., 2017; Marchant et al., 2017; Sampasa-Kanyinga & Hamilton, 2015). Social media addiction can also negatively impact interpersonal relationships. An excessive amount of time spent online typically leads to less time spent interacting with family and friends face to face, decreased empathy towards others, and diminished emotional connections with others (Kuss & Griffiths, 2011; Nowland et al., 2018; Savci & Aysan, 2017). In addition, social media provides an environment for unrealistic comparisons with others in which people mistakenly believe others' highly curated online lives are better or happier than their own, which can lead to lower self-esteem (Gentile et al., 2017; Verduyn et al., 2020; Fardouly et al., 2015).

To combat urges to rely on social media compulsively, people can try to limit their usage by scheduling their usage, taking numerous breaks from social media, and engaging in activities outside of the online world (Kuss & Griffiths, 2011; Orben et al., 2019; van Rooij et al., 2017). In addition, online social network companies can put in place features that help maintain healthy routines around using social media like tracking the time spent using devices and creating mobile phone constructs that force mobility (Pew Research Center, 2023; Montag et al., 2021; Twenge et al., 2020).

Self-efficacy relates to an individual's beliefs about their ability to perform behaviours and achieve goals (Bandura, 1997). Self-efficacy plays an important role in education, because students who are higher in self-efficacy have more motivation, perseverance, and adaptability (Multon et al., 1991; Honicke & Broadbent, 2016). Goal setting, self-monitoring, and

feedback can enhance self-efficacy (Locke & Latham, 2019; Chen et al., 2020).

Self-efficacy also plays a role in career development because individuals with a high self-efficacy are more proactive and resilient in workplace settings (Sitzmann & Yeo, 2013; Stajkovic & Luthans, 2018). In addition, the success of digital learning is associated with technological self-efficacy, which emphasizes the importance of self-efficacy beliefs in potential and actual use of artificial intelligence (AI)-based tools (Teo et al., 2019; Venkatesh et al., 2021).

Theoretical Framework

This study is predicated upon two relevant theoretical perspectives: Uses and Gratifications Theory (UGT) and the Technology Acceptance Model (TAM).

Uses and gratifications theory (UGT): It is a theoretical framework that describes how and why individuals actively and selectively engage with certain media to gratify their needs. UGT is useful to describe how and why students use digital media and AI tools to satisfy their needs, such as for information, socializing, entertainment, and academic purposes, and how their needs shape the learning outcomes into which these motivational factors eventually lead.

The Technology Acceptance Model (TAM): Identifies how students perceive the usefulness and ease of use of various AI tools and digital platforms, and how that affects their willingness or intention to accept and adopt new digital technologies into their academic life.

Using both UGT and TAM allows this study to examine students' motivations and usage, and students' perceived benefits and barriers to exploiting digital media and artificial intelligence for effective academic performance. The two theories provide the framework to develop hypotheses, collect data and interpret findings.

Research Design

The research design used in this study followed an explanatory sequential research design:

Phases One: Quantitative Phase

- Surveys used to get quantitative data (what are the usage patterns for the

participants?), and how they qualitatively relate to academic performance.

- Analyzing the surveys for trends, and relationships between overall and overall usage, use and academic performance (dependent on the survey participants' self-report of their academic performance).

Phase Two: Qualitative Phase

- Interview and focus group follow up interventions with participants in the quantitative survey, as well as faculty interviews and focus group.
- Exploratory details in the rationale for the patterns in the quantitative phase, and provide nuanced perspectives regarding the students' and educators.

Integration Phase:

- Triangulated findings from both phases in order to develop a more well-rounded understanding of the impacts of digital media and AI for academic performance.
- Combined findings are used to help determine research-based recommendations for students, educators, and policy makers.

Ethical Considerations:

Participants are asked for their informed consent before data collection. The study maintained anonymity and confidentiality and the data is being used for academics only.

Methodology

This study utilizes a mixed methods approach that provides a comprehensive understanding of digital media and AI impacts on student's academic success. Although the study builds upon some quantitative elements, this mixed methods design allowed researchers to obtain both measurable trends while also achieving qualitative depth of understanding with students about their experiences and perceptions on digital media and AI.

Population and Sample:

The target population for this study consists of undergraduate and postgraduate students from public and private universities across Pakistan. To

ensure a range of disciplines, academic years and geographical areas are included in this study, the researchers used a stratified random sampling procedure. The quantitative phase of the study includes a sample size of 300 students. The researchers select 15 students and faculty members purposely for in depth interviews or focus group discussions.

Data Collection Methods:

- Quantitative data points collected through a structured questionnaire, with closed-ended questions in order to measure patterns of digital media usage, frequency of AI tool usage, perceived benefits, challenges, and self-reported academic performance.
- Data points collected through semi-structured interviews or focus group

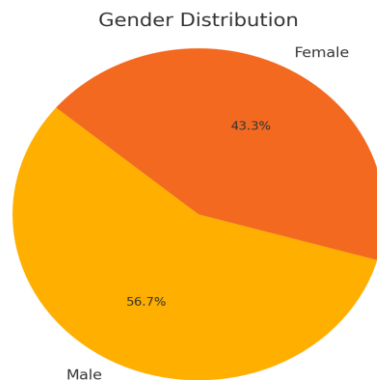
discussions as a means to explore students' experiences, motives, challenges, and suggestions for using digital media and AI in academic contexts.

Data Analysis

As this data analysis encompasses the quantitative and qualitative phases of the research, both data types are analyzed. Analysis include descriptive statistics, tables, and pie charts, as well as a discussion of the findings and its implications. Quantitative data is used to demonstrate students' digital media and AI usage patterns and trends and how they relate to other academic performance indicators while qualitative data add depth and explanation to those trends and usage patterns.

Table 1: Gender Distribution

Category	Frequency	Percentage
Male	170	56.7%
Female	130	43.3%

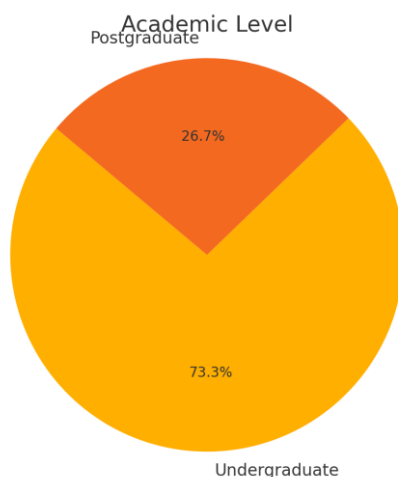


Discussion: The sample includes a slightly higher proportion of male students (56.7%) than female students (43.3%). This reflects typical enrolment

patterns in many Pakistani universities, ensuring gender representation for the study.

Table 2: Academic Level

Category	Frequency	Percentage
Undergraduate	220	73.3%
Postgraduate	80	26.7%



Discussion: The majority (73.3%) of respondents are undergraduate students, indicating that digital media and AI usage is more prevalent at

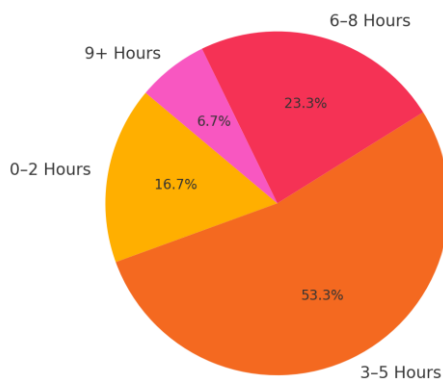
this level due to large enrolment numbers and diverse coursework requirements.

Table 3: Daily Digital Media Usage

Category	Frequency	Percentage
0-2 Hours	50	16.7%
3-5 Hours	160	53.3%
6-8 Hours	70	23.3%
9+ Hours	20	6.7%



Daily Digital Media Usage



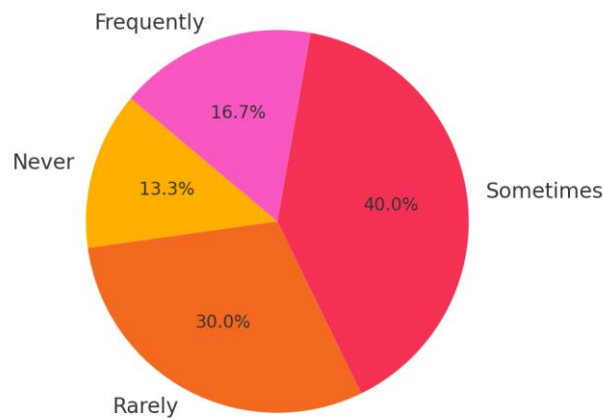
Discussion: Over half of the students (53.3%) use digital media for 3-5 hours daily. This suggests that digital devices are integral to students'

academic and social activities, highlighting the importance of managing screen time effectively.

Table 4: Use of AI Tools

Category	Frequency	Percentage
Never	40	13.3%
Rarely	90	30.0%
Sometimes	120	40.0%
Frequently	50	16.7%

Use of AI Tools



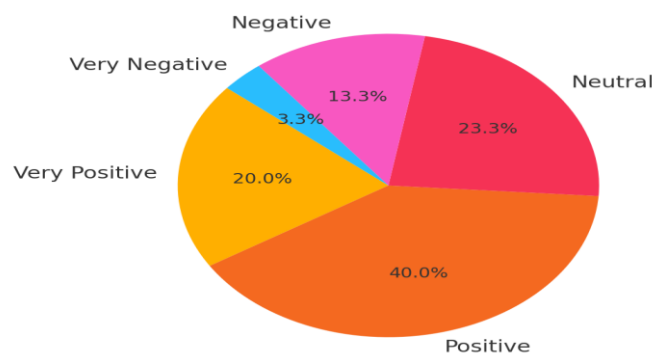
Discussion: 40% of students sometimes use AI tools such as grammar checkers, plagiarism checkers, or AI-based tutoring apps. Frequent

users are fewer (16.7%), indicating that AI integration is growing but not yet mainstream for all students.

Table 5: Perceived Impact

Category	Frequency	Percentage
Very Positive	60	20.0%
Positive	120	40.0%
Neutral	70	23.3%
Negative	40	13.3%
Very Negative	10	3.3%

Perceived Impact



Discussion: Most students (60%) perceive digital media as having a positive or very positive impact on their academic performance. However, a

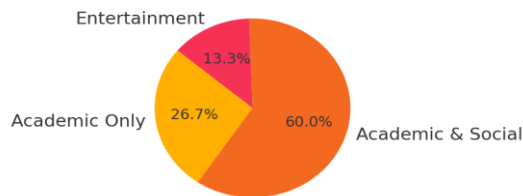
notable minority (16.7%) see it negatively, indicating potential distractions and misuse.

Table 6: Purpose of Use

Category	Frequency	Percentage
Academic Only	80	26.7%

Academic & Social	180	60.0%
Entertainment	40	13.3%

Purpose of Use



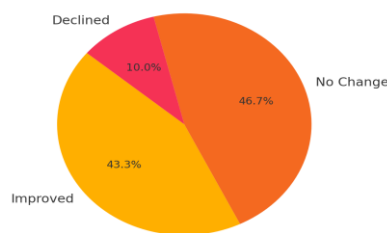
Discussion: Most students (60%) use digital media for both academic and social purposes. This mixed use highlights the double edged

nature of digital tools beneficial for learning but also a source of distraction.

Table 7: Change in Grades

Category	Frequency	Percentage
Improved	130	43.3%
No Change	140	46.7%
Declined	30	10.0%

Institute for Excellence in Education & Research
Change in Grades



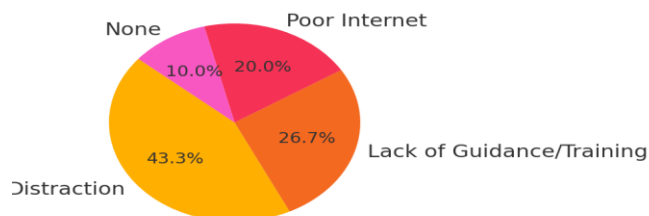
Discussion: A large portion (43.3%) believe that digital media and AI have improved their grades. However, almost half report no change, showing

that benefits may depend on how wisely students use these tools.

Table 8: Challenges Faced

Category	Frequency	Percentage
Distraction	130	43.3%
Lack of Guidance/Training	80	26.7%
Poor Internet	60	20.0%
None	30	10.0%

Challenges Faced



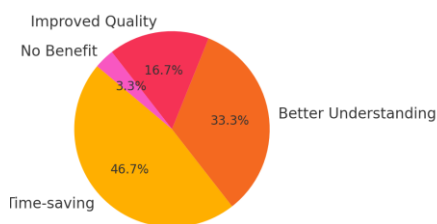
Discussion: The most common challenge is distraction (43.3%), emphasizing the need for

digital literacy training to help students manage their time and focus effectively.

Table 9: Benefits of AI

Category	Frequency	Percentage
Time-saving	140	46.7%
Better Understanding	100	33.3%
Improved Quality	50	16.7%
No Benefit	10	3.3%

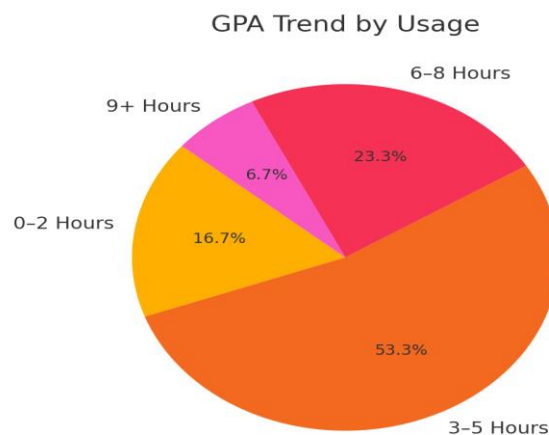
Benefits of AI



Discussion: Time-saving is the top benefit identified by students (46.7%), followed by better understanding of concepts. This supports the positive potential of AI if used wisely.

Table 10: GPA Trend by Usage

Category	Frequency	Percentage
0-2 Hours	50	16.7%
3-5 Hours	160	53.3%
6-8 Hours	70	23.3%
9+ Hours	20	6.7%



Discussion: The data suggests an inverse relationship between excessive digital media use and GPA. Students using digital media for longer hours tend to report lower GPAs, indicating that excessive use may lead to academic decline.

Qualitative Insights

Interviews and focus group discussions revealed several recurring themes

- Many students expressed that lack of awareness and guidance limits the effective use of AI tools.
- Faculty highlighted that while digital media enhances access to resources, self-discipline is crucial to avoid distractions.
- Both students and faculty agreed that digital literacy training should be made part of the curriculum to help students benefit from technology responsibly.

Summary of Findings

The data shows that digital media and AI have considerable potential to support students' academic work when used purposefully. However, excessive or unstructured use can lead to distraction and declining grades. Challenges such as poor digital skills and limited infrastructure must be addressed to ensure positive academic outcomes.

Findings

Based on the quantitative and qualitative data presented, the key findings of this study are as follows

1. Prevalence of Media and AI Usage

A significant proportion of students use digital media daily, with the majority

spending 3-5 hours per day online. While many students use AI tools for tasks like proofreading and research support, frequent use of advanced AI applications remains relatively low.

2. Positive Implications

Most students perceive digital media and AI tools as beneficial for saving time, accessing diverse learning resources, and enhancing understanding of academic content. Many respondents reported improvements in grades when these tools were used responsibly.

3. Negative Implications

Despite the benefits, excessive and unstructured use of digital media is linked to distractions, procrastination, and a negative effect on grades. The GPA trend analysis confirmed that students who spend excessive time on digital media tend to report lower academic performance.

4. Challenges Identified

The students identified distractions, insufficient guidance, and poor internet as some of the biggest barriers to success. The qualitative data points to a strong need for training on how to use digital and AI technologies academically.

5. Stakeholder Perspectives

The faculty highlighted the need to incorporate digital literacy and responsible use of AI in university

courses so that students could gain understandings of the skills to leverage technology professionally while

maintaining strong standards of academic integrity.



Conclusions

This study suggested that while digital media and AI have strong potential to improve students' academic learning in Pakistan, the fundamental events are all contingent on the ways that students use the technologies. Responsible, deliberate, and intentional usage could enhance access to information, support learning and

overall productivity, while careless, unexamined usage can lead to distractions, dependency, and poor academic performance. There is a call for urgency to find balance - to take advantage of the great opportunities for learning, while still recognising risks associated with overuse, maladaptive digital habits, and institutional provision.

Recommendations

Based on the data, the following recommendations are made

1. **Interleave Digital Literacy and AI Training**
Universities should interleave digital media and AI literacy training in delivery structures. Given how technological and social behaviour is changing, students must learn how to utilize these tools effectively and responsibly.
2. **Clarification of Institutional Guidelines**
We recommend that higher education institutions define an

institutional policy and best practice for using digital media and AI tools appropriately and responsibly.

3. **Awareness of Excess Use**
Universities create awareness campaigns that promote or build an awareness of how to balance excessive screen time with either academic goals or to balance digital and non-digital goals.
4. **Invest in Digital Infrastructure**
Policymakers must invest in digital infrastructure for students (at a regional, or local, and global level), requiring reliable internet access and

modern digital resource environments especially where they are not available before.

5. Support for Academic Staff

Universities should provide academic staff with training that helps them use AI tools in meaningful ways

within their teaching, assessment, and engagement with students.

6. Future Research

Research into the long-term implications of AI and digital media in education, including its variation between disciplines and evolving ethical challenges, must continue.



References

- 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.
- Andreassen, C. S., Torsheim, T., Brunborg, G. S., & Pallesen, S. (2022). Development of a Facebook Addiction Scale. *Psychological Reports, 110*(2), 501–517.
- Anwar, S., Khan, S. R., Nasir, T., & Azeema, N. (2025). The AI Revolution in Media, Redefining Journalism Education and Professional Practice from Classroom to Newsroom in Pakistan. *Annual Methodological Archive Research Review, 3*(4), 340–354. <https://doi.org/10.63075/4t3nmg72>
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.
- Bandura, A. (1994). Self-efficacy. In V. S. Ramachandran (Ed.), *Encyclopedia of human behavior* (Vol. 4, pp. 71–81). Academic Press.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.
- Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited. *Journal of Management, 38*(1), 9–44.
- Bányai, F., Zsila, Á., Király, O., Maraz, A., Elekes, Z., Griffiths, M. D., & Demetrovics, Z. (2017). Problematic social media use: Results from a large-scale nationally representative adolescent sample. *PLoS ONE, 12*(1), e0169839.

- Beiter, R., Nash, R., McCrady, M., Rhoades, D., Linscomb, M., Clarahan, M., & Sammut, S. (2015). The prevalence and correlates of depression, anxiety, and stress in a sample of college students. *Journal of Affective Disorders, 173*, 90-96.
- Beyens, I., Frison, E., & Eggermont, S. (2020). "I don't want to miss a thing": Adolescents' fear of missing out and its relationship to adolescents' social needs, Facebook use, and Facebook related stress. *Computers in Human Behavior, 64*, 1-8.
- Best, P., Manktelow, R., & Taylor, B. (2014). Online communication, social media and adolescent wellbeing: A systematic narrative review. *Children and Youth Services Review, 41*, 27-36.
- Brand, M., Wegmann, E., Stark, R., Müller, A., Wölfling, K., Robbins, T. W., & Potenza, M. N. (2020). The interaction of person-affect-cognition-execution (I-PACE) model for addictive behaviors: Update, generalization to addictive behaviors beyond internet-use disorders, and specification of the process character of addictive behaviors. *Neuroscience & Biobehavioral Reviews, 104*, 1-10.
- Chen, G., Gully, S. M., & Eden, D. (2020). Validation of a new general self-efficacy scale. *Organizational Research Methods, 4*(1), 62-83.
- Dziuban, C., Graham, C. R., Moskal, P. D., Norberg, A., & Sicilia, N. (2020). Blended learning: The new normal and emerging technologies. *International Journal of Educational Technology in Higher Education, 15*(1), 3.
- Eisenberg, D., Hunt, J., & Speer, N. (2013). Mental health in American colleges and universities: Variation across student subgroups and across campuses. *The Journal of Nervous and Mental Disease, 201*(1), 60-67.
- Elhai, J. D., Yang, H., & Montag, C. (2020). Fear of missing out (FoMO): A review of the literature and an emerging research agenda. *Current Opinion in Psychology, 36*, 109-114.
- Fardouly, J., Diedrichs, P. C., Vartanian, L. R., & Halliwell, E. (2015). Social comparisons on social media: The impact of Facebook on young women's body image concerns and mood. *Body Image, 13*, 38-45.
- Fazal, I., Nasir, T., & Mahmood, S. (2025). The Impact of Climate Change News on Mental Health of Youth: The Rise of Eco-Anxiety in Pakistan. *Annual Methodological Archive Research Review, 3*(5), 269-283. <https://doi.org/10.63075/m78hhp49>
- Gentile, B., Twenge, J. M., Freeman, E. C., & Campbell, W. K. (2017). The effect of social networking websites on positive self-views: An experimental investigation. *Computers in Human Behavior, 29*(6), 2163-2170.
- Hare, J. (2023). The case for reforming career guidance in Australia. *Australian Economic Review, 56*(1), 12-21.
- Hertz, M. F., Donato, I., & Wright, J. (2017). Bullying and suicide: A public health approach. *Journal of Adolescent Health, 53*(1), S1-S3.
- Hijazi, S. T., & Naqvi, S. M. M. R. (2006). Factors affecting students' performance: A case of private colleges. *Bangladesh e-Journal of Sociology, 3*(1), 1-10.
- Hoermann, S., McCabe, K. L., Milne, D. N., & Calvo, R. A. (2019). Application of synchronous text-based dialogue systems in mental health interventions: Systematic review. *Journal of Medical Internet Research, 19*(8), e267.
- Holmes, W., Bialik, M., & Fadel, C. (2021). *Artificial intelligence in education: Promises and implications for teaching and learning*. Center for Curriculum Redesign.
- Holstein, K., McLaren, B. M., & Alevin, V. (2019). Designing for complementarity: Teacher and student needs for orchestration support in AI-enhanced classrooms. *Proceedings of the ACM on Human-Computer Interaction, 3*(CSCW), 1-30.

- Hormes, J. M., Kearns, B., & Timko, C. A. (2014). Craving Facebook? Behavioral addiction to online social networking and its association with emotion regulation deficits. *Addiction*, *109*(12), 2079–2088.
- Hölzel, B. K., Lazar, S. W., Gard, T., Schuman-Olivier, Z., Vago, D. R., & Ott, U. (2018). How does mindfulness meditation work? Proposing mechanisms of action from a conceptual and neural perspective. *Perspectives on Psychological Science*, *6*(6), 537–559.
- Hussain, S. A., Anwar, S., Iqbal, N., & Nasir, T. (2025). From Newsrooms to Algorithms: AI's Role in the Future of Mass Communication in Pakistan. *Annual Methodological Archive Research Review*, *3*(4), 355–368. <https://doi.org/10.63075/76hgfq50>
- Khattak, M. S., Nasir, T., Usman, M., & Rahim, S. (2025). AI Revolution in Digital Media: Opportunities, Challenges, and the Future of Journalism in Pakistan. *Annual Methodological Archive Research Review*, *3*(4), 398–413. <https://doi.org/10.63075/eer8yc21>
- Kessler, R. C., Petukhova, M., Sampson, N. A., Zaslavsky, A. M., & Wittchen, H.-U. (2019). Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood disorders in the United States. *International Journal of Methods in Psychiatric Research*, *21*(3), 169–184.
- Kiewra, K. A., Creswell, L., & Cavanaugh, S. M. (2019). Teaching time management to students. *College Teaching*, *67*(2), 88–94.
- Kim, Y. J., Park, E., Yoo, S. J., & Yun, H. (2020). What drives the adoption of artificial intelligence technology? Evidence from user-generated content. *Computers in Human Behavior*, *101*, 243–252.
- Kocak, O. F., Toprak, M., & Karatas, H. (2021). Examining the relationship between academic motivation and academic performance of university students: The mediator role of self-regulated learning. *Journal of Education and Learning*, *10*(2), 58–67.
- Kowalski, R. M., Giumetti, G. W., Schroeder, A. N., & Lattanner, M. R. (2018). Bullying in the digital age: A critical review and meta-analysis of cyberbullying research among youth. *Psychological Bulletin*, *140*(4), 1073–1137.
- Mahmood, S., Nasir, T., Fazal, I., & Razzaq, R. (2025). Juxtaposing law, media and human rights: Role of social media in promoting human rights in Pakistan. *Dialogue Social Science Review*, *3*(6), 639–661. <https://dialoguessr.com/index.php/2/article/view/351/403>
- Nasir, T., Azeema, N., Irum, M., & Siraj, S. A. (2025). Influence of AI and Digital Media Trends, Algorithms and Big Data on Agenda Setting and Narrative Building of Media Students: A Case Study of Universities in Islamabad. *Social Science Review Archives*, *3*(2), 335–355. <https://socialworksreview.com/index.php/Journal/article/view/184/208>
- Nasir, T., Khan, S. A., Iqbal, N., & Ahmad, H. (2025). From Awareness to Action: Exploring the Role of Media in Climate Change Education and Engagement in Pakistan. *Annual Methodological Archive Research Review*, *3*(4), 383–397. <https://doi.org/10.63075/pk1e7n43>
- Nasir, T., Mahmood, S., Ali, K., & Abubakar, M. (2025, May 27). Climate change and media policy nexus: Opportunities, challenges, and policy recommendations. Case study of Pakistan. *Dialogue Social Science Review (DSSR)*, *3*(5), 610–631. Retrieved from <https://thedssr.com/index.php/2/article/view/578>
- Nasir, T., Qazi, U., Fazail, A., Tareen, H., & Hussain, W. (2025). Media narratives regarding climate change influencing tourism patterns in Pakistan. *Journal of Media Horizons*, *6*(3), 343–360. <https://doi.org/10.5281/zenodo.15835956>

Nasir, T., Siraj, S. A., Hannan, F. Z. U., Hussain, W., & Javed, S. (2024). A Perception of University Students Regarding the Influence of Social Media on the Academic Performance. *Journal of Peace, Development and Communication*, 8(03), 431-450.
<https://doi.org/10.36968/JPDC-V07-101-25>

Razzaq, R., Riaz, R., Nasir, T., & Hussain, W. (2025). Public opinion and policy development: A psychological approach to understanding the role of public sentiment in shaping legislation - a case study of law, psychology, media and policy development nexus. *Annual Methodological Archive Research Review*, 3(5), 296-310.
<https://doi.org/10.63075/8jz5fk62>

