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THE USE OF ARTIFICIAL INTELLIGENCE AND ITS IMPACT ON SECONDARY SCHOOL STUDENTS IN KHYBER PAKHTUNKHWA: A STUDY OF EDUCATIONAL OUTCOMES AND LEARNING BEHAVIOURS

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Abstract

Students in advanced technology societies are transforming their learning experiences through AI education which now enhances how teachers teach. Our investigation examines how AI affects school performance and studies methods of learning for secondary students in Khyber Pakhtunkhwa (KP) Pakistan's schools. A research design based on numbers gathered data from 300 students in three districts Peshawar, Swat, and Charsadda from both public and private secondary schools through a stratified random sample. Our survey tested student behaviour with AI tools while measuring their learning results and studying habits.

We analysed statistical information both for basic view and for hidden conclusions using SPSS. The data association between students' AI tool application and their learning performance produced a medium positive outcome (r = 0.42). Additionally, the results linked AI utilization to enhanced motivation (r = 0.37) and better participation (r = 0.39). Students who used AI tools often in education gained better test results and developed better learning practices. Students living in Peshawar's urban facilities learned more from AI than students studying at Charsadda's rural school system. Students at private schools used AI technology more often and achieved better grades than students at public schools. AI utilization proves to be a major indicator affecting academic results according to our multiple regression results. These results hold true despite considering student gender, school type, and place of residence.

The research shows that AI boosts educational results and supports good student behaviour but needs suitable setups and prepared institutions to produce ideal outcomes for all learners. Our research indicates that AI has strong potential for education improvement in KP if we properly design its use and provide quality training to students and teachers.

Keywords: Teaching Styles, Facilitator, Expert, Delegator, Personal Model, Authority

Introduction

Our modern technology development strongly affects all aspects of life including education. New generations of Artificial Intelligence systems are transforming both learning and instruction in education today (Cantú-Ortiz et al., 2020). AI technical systems are now used worldwide to improve instruction methods and personalize education while performing educational support tasks. These technologies have great potential especially in enhancing students' learning success and helping students with special learning needs. Different areas worldwide adopt AI technology differently which results in big performance gaps mainly between developed and developing countries.

At the beginning stage of development in Pakistan especially Khyber Pakhtunkhwa (KP) AI systems have not yet been fully integrated into their educational system (Qayyum et al., 2024). As both an urban and

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Volume 4 Issue 2, 2025

rural province KP faces distinctive educational challenges because different areas offer different quality resources and digital access. Despite technological advancements certain schools now use AI tools private schools and resourceful public schools have not fully embraced AI programs throughout education. Education reform efforts have not provided clear details about the impact AI makes on secondary students in KP province.

During secondary school students pass through important changes in their thinking and conduct. Students at this stage begin their path towards future academic progress and their education future is defined. Adding AI technology would let students receive tailor-fit learning help plus foster more interest and guide their own studies (Benson et al., 2025). Teachers and students face challenges regarding equal opportunities and teaching practices while learning relies on AI technology. Research in the varied context of KP social and financial life must analyse if AI helps teach better or generates study hurdles.

This research study is about how AI impacts secondary schools in KP and what results it generates. Its evaluation covers both achievement results and student behaviour concerning technology use and study management while dealing with AI-powered educational platforms.

Background

The term Artificial Intelligence describes computers that replicate intellectual performance by solving problems and understanding spoken words while processing education material. Artificial intelligence tools now help schools and universities build better tutorials use machine grading tools process student records and build customized learning tracks for students (Fitria et al., 2021). These tools adapt learning content based on a student's performance data and identify weak points before offering real-time feedback. Traditional schools find it challenging to provide these benefits.

Major educational technology advancements happen in multiple nations such as the United States, China, and the United Kingdom because they have reliable infrastructure and ongoing AI research activities (Bhutoria et al., 2022). The implemented system raised students' interest in learning while making them perform better in math and science subjects. Many developing nations like Pakistan struggle to use AI education because they lack required infrastructure plus teachers and students need different learning tools.

Khyber Pakhtunkhwa faces unique education obstacles because of its different geographical areas combined with economic and cultural differences (Ullah et al., 2025). Many rural schools need basic necessities and supplies before they could use advanced Artificial Intelligence technologies because urban areas have better technology access as compare to the rural areas. Various modern education tools are being put in place across the system to lay groundwork for AI application. Each program works separately without researchers checking if they help students and last more than temporary.

Secondary school students in KP have reached a point when they develop better thinking skills and become more disciplined learners. Correct use of artificial intelligence tools will create better tailored and more interesting ways for students to learn. When technology tools enter schools without local context understanding they may cause educational injustice and limit the role of human educators in education (Heath et al., 2022). Our research needs to explore how AI systems affect students in Khyber Pakhtunkhwa School System on education results as well as hidden behaviour changes and motivation levels.

Research Objectives

The primary objectives of this study are:

1. To assess the amount of AI integration in secondary schools across Khyber Pakhtunkhwa.
2. To examine the impact of AI usage on students' academic performance.
3. To evaluate the influence of AI on students learning behaviours, including self-regulation and motivation engagement.
4. To investigates the teachers' and students' perceptions of AI in the classroom and its practical challenges and benefits.

Literature Review

The integration of Artificial Intelligence (AI) in the field of education is a swiftly growing area of research that covers computer science, pedagogy, psychology, and educational technology. AI is emerging as a powerful tool to modernize learning environments as schools, and government look to modernize

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educational experience (Liando et al., 2024). Specifically, this literature review examines the current status of AI research in education and its success in impacting the student outcomes or behaviour. It also looks for regional contextual leaves in the developing country background such as Pakistan and, in particular, Khyber Pakhtunkhwa (KP).

AI in Global Education: A Broad Overview

Intelligent tutoring systems (ITS), machine learning based assessments, automated grading, predictive analytics, chat bots, and adaptive learning are some of the applications of AI in education, as some examples (Lin et al., 2023). Described as systems that the teachers would use to support students and provide them with customized content and real time feedback. Luckin et al (2016) make the suggestions that AI could 'amp up the effectiveness of human teaching' by automating normal tasks to allow more time for meaningful human interaction.

Multiple studies in developed countries have evidenced that AI can help achieve significant improvements in learning outcomes when combined with traditional teaching methods. For instance, in the United States, (Alrawashdeh et al., 2023) conducted research and demonstrated that adaptive learning platforms in math like Wise, improved adaptive learning scores among middle and high school students by offering individualized pacing and scaffolding. Meanwhile, in China, following the largescale run of the AI homework platforms such as scared AI revealed increased student engagement and better results compared to the conventional instruction.

This highlights the need for context specific implementation. However, when infrastructure, teacher training and access to devices are satisfactory, AI can lead to good results. But, as Heffernan and Heffernan (Robson et al., 2018) caution, the presence of themselves is no guarantee for improved learning; the success is contingent on how well the tools interweave in curricula and pedagogical strategies.

The Role of AI in Enhancing Learning Behaviours

AI has not only been shown to improve academic outcomes, but has also been associated with major changes in the behaviour of learning during students. (Mohebbi et al., 2025) also reported that AI can impact the students' motivation, persistence, engagement, time management and self-directed learning. There are intelligent systems equipped with the capacity of monitoring student behaviours in real time and also adjusting the content which is in line with keeping the learners in their optimal zone of development—Vygotsky's Zone of Proximal Development (ZPD). With AI, it is possible to detect patterns of distraction or disengagement and respond with some refocusing intervention.

Another type of strategy enabled by the influence of AI is gamification where reward systems, progress tracking, and performance analytics are used to motivate learners. According to (Alenezi et al., 2023) research, gamified AI systems can increase retention and enhance learning enjoyment amongst younger learners in secondary schools. Also, the feedback mechanism of these AI tools helps the students to develop metacognitive skills such as understand your own strengths and weakness and prepare your studies according to your standing.

Nevertheless, (Räisä et al., 2024) brings up ethical questions on the overstressing of technology over behavioural control. In collecting that data, AI systems receive large amounts of information about how students learn, whether they're having fun, and whether or not they're performing well on the lessons. As a result, conversations arise around data privacy, algorithmic bias, and student autonomy. When working with populations in developing contexts, these issues take on additional significance because there may be weak policy frameworks on the topics of data protection and digital rights.

AI in Developing Countries: Challenges and Opportunities

AI use in developing countries' education holds great promise as well as undeniable problems. Firstly AI may be able to bridge the gap between teachers in places where they are in shortage such as rural or poverty areas. Infrastructural limitations, uneven access to technology as well as lack of professional development for teachers impede effective integration.

Research carried out by UNESCO (2020) for example, to the African context shows that AI can help teachers through monitoring student's progress and automated lesson planning tools (Pedro et al., 2019). On the other hand, it also mentions that these initiatives are often not scaled or sustained unless they are duly

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Volume 4 Issue 2, 2025

supported with adequate infrastructure and policy planning. The same patterns are valid in South Asia. While India's National Education Policy (2020) calls for greater use of AI, differential access to the technology means that results have been uneven.

The discussion around AI in education is less explored in Pakistan. Government and private sector initiatives like Punjab Education Sector Reform Program and Khyber Pakhtunkhwa Digital Policy acknowledge the need for digitization and the role of AI, but evidence of specific programs on the use of AI is scant (Alyas et al., 2024). Most of the educational research that is related to Pakistan is linked with increasing accessibility, quality of teaching and reforms in curriculum, less attention is paid to the technological element especially AI driven systems.

However, a few case studies indicating having integrated AI chatbots into platforms like EdTech like Taleemabad shows that AI can help with student engagement, and it can also function in low resource settings. These examples are however the exception rather than the rule. Localized research on whether AI is utilized but more importantly how it is experienced by students and teachers in specific educational and cultural settings is critically needed (Rubab et al., 2019).

AI and Secondary Education in Khyber Pakhtunkhwa

Because of the above-mentioned reasons, Khyber Pakhtunkhwa is apt for studying the impact of AI in education. There has been an increased investment in digital learning platforms and smart schools in the province, especially in urban pockets of Peshawar, Abbottabad and Mardan. Nevertheless, there are still problems such as poor internet connectivity, no electricity and shallow teacher training in rural areas (Amin et al., 2025).

In KP, it is a critical point in secondary education at which students should be able to acquaint themselves with doing independent studies and start preparing themselves to appear in the board examinations that control future academic and work roads (Sajjad et al., 2025). Because of this, applying AI tools at this level could possibly satisfy education challenges such as large classrooms, insufficient instructional time, and learning variability. However, the efficacy of such tools relies on many variables of language of instruction, curriculum alignment, student experience with digital tools, and teacher facilitation.

But, most studies that have so far been done on educational technology in KP have focused on computers and mobile learning applications, with little on the use of AI. This study seeks to fill in one of the gaps, specifically there are not enough empirical data on how AI affects both academic achievement and learning behaviours in KP's secondary schools. On the other hand, it should also be investigated how students perceive AI; is it useful, scary, or confusing? Do AI tools essentially motivate people to learn more actively, or is that a process that leads to passivity and dependence?

Methodology

Research Design

A quantitative research design reveals how Artificial Intelligence (AI) affects educational results and learning practices of Khyber Pakhtunkhwa (KP) secondary school students. Using quantitative methods enables researchers to gather mathematic data for statistical examination which creates objective findings that can be extended to more students. The research method relies on documented assessment tools together with numerical data points for observing recurring associations and possible causal effects between AI involvement and educational performance as well as behavioural outcomes for students.

Population and Sampling

Secondary school students from grades 9 and 10 attending selected districts of Khyber Pakhtunkhwa's both public and private educational institutions form the research target group. The research employed stratified random sampling as a technique to obtain an unbiased representative sample profile. The research utilized strictly controlled district division to select Peshawar as an urban location and Swat as a semi-urban location and Charsadda as a rural location for sampling purposes. AI-based educational tool-using secondary schools present in each district were identified before random selection for inclusion in the study. The study randomly picked students from each selected educational institution while generating a combined 300-participant count with 100 participants from each educational region of area under study. The methodology

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Volume 4 Issue 2, 2025

employs a method to ensure a broad range of schools along with their different locations and student population makeup.

Data Collection Instrument

This study utilized a particular questionnaire which functioned as the instrument for data collection. The survey contained three distinct parts which covered demographic variables alongside frequency and patterns of Artificial Intelligence utilization and evaluation of learning behaviours and educational results. The questionnaire obtained information about participant age along with gender in addition to their school affiliation and digital device availability status. Students in the study demonstrated their utilization patterns for various AI tools through the second section of the survey. Academic performance indicators as grades and exam outcomes were measured together with behavioural traits that included motivation and engagement and time management and self-regulation in the final section of the study. The scale used four points to measure those behaviours which consisted of "Strongly Disagree" through "Strongly Agree" as response options. The research instrument used components from established educational tools namely Motivated Strategies for Learning Questionnaire (MSLQ) and was validated with data from thirty students during the pilot test. Based on required changes the instrument finally produced a Cronbach's Alpha result of 0.84 which established its reliability.

Data Collection Procedure

A formal consent to conduct the survey came first from both KP Directorate of Education and school administration. The participants together with their legal guardians or parents gave their voluntary agreement to take part in the study. The data collection process took place during two weeks when research assistants who received training distributed and monitored questionnaires to students in their classes. The study assured participants about the confidentiality of the research while disclosing that the investigation had no effect on their grades or academic standing. The research staff securely maintained all questionnaires before they started analysing them with SPSS software.

Data Analysis Techniques

The SPSS version 25 processed the information collected from participant responses through questionnaires. The data analysis relied on descriptive statistics to report demographic information and AI usage data through mean values and standard deviations together with frequency counts about educational behaviours. The research hypotheses received their analysis from inferential statistical testing methods. Pearson correlation methods provided analysis to examine the relationships between Artificial Intelligence usage and academic achievement together with student motivation. Independent sample t-tests compared the responses between genders and different types of schools and one-way ANOVA analysed district-level differences. A multiple regression analysis provided information about the relationship between AI usage and academic and behavioural results by accounting for demographic influences. Every statistical test in this research utilized a p value threshold of 0.05.

Ethical Considerations

The research study followed all essential ethical principles to protect participant rights alongside data integrity. Every participant provided informed consent while researchers thoroughly explained both purpose and procedure and voluntary nature of the study. How data was protected involved both response anonymization and data security measures. The research method included no risks for participants who could voluntarily discontinue participation at any time. The study obtained ethical approval from an appropriate institutional review board leading to the start of data collection.

Results

This section details the results from the examination of numerical data from 300 secondary school students of Khyber Pakhtunkhwa. The research examines the statistical data about how often students use AI and how this impacts their schoolwork and their way of learning. We use statistical descriptions and tests to present our study outcomes.

Descriptive Statistics

The data displays Table 1 that presents statistics about AI usage and educational performances for all test subjects.

INVERGE JOURNAL OF SOCIAL SCIENCES
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ISSN (Online): 2959-4359, ISSN (Print): 3007-2018
Volume 4 Issue 2, 2025

Table 1
Descriptive Statistics of Key Variables

Variable	Mean	Standard Deviation
AI Usage Frequency	3.25	1.21
Academic Performance (%)	70.4	10.2
Motivation	3.6	0.88
Engagement	3.5	0.91
Time Management	3.3	0.93
Self-Regulated Learning	3.4	0.95

The main variables studied are summarized as their central tendencies in this table. The mean of AI Usage Frequency is 3.25 which indicates that students use AI tools at an average of 3.25 on a scale of 1 to 5. Thus, the Academic Performance average is 70.4% which is good for any given School.
Among learning behaviours:

Mean scores for motivation (mean = 3.6), engagement (3.5), time management (3.3), and self-regulated learning (3.4) were slightly above scores in all of the areas.
These scores indicate that in general AI evidently promotes interest, and degree of involvement in learning, however, skills such as independent study planning and time management could see some further development, perhaps through teacher facilitation.

Correlation Analysis

We measured helpfulness between students' educational interaction with Artificial Intelligence and their academic results through Pearson correlation testing.

Table 2
Correlation Matrix

Variable	AI Usage	Academic Performance	Motivation	Engagement	Time Management	Self-Regulated Learning
AI Usage Frequency	1.00	0.42	0.37	0.39	0.29	0.31

The table below illustrates the connections between the other educational variables and AI usage.

From this two correlations, this shows the strongest correlation between AI Usage Frequency with Academic Performance (r = 0.42), which is a moderate positive relationship. Using this method, it can be deduced that as the use of AI increases, academic skills are bound to increase as well.

The relationships between AI Usage and Motivation (r = 0.37) and between AI Usage and Engagement (r = 0.39) are also similar positive ones, which indicates how the use of AI tools helps to motivate and engage students in learning.

The weaker though positive correlations are with Time Management (r = 0.29) and Self-Regulated Learning (r = 0.31). It means that it may help students learn with no support, but not as strongly as it impacts engagement and motivation.

District-Wise Comparison

The research performed a One-way ANOVA test to check if educational results vary among Peshawar, Swat, and Charsadda.

Table 3
Mean Scores by District

District	AI Usage	Academic Performance	Motivation	Engagement
Peshawar	3.7	73.2	3.9	3.7
Swat	3.1	70.0	3.5	3.4
Charsadda	2.9	68.0	3.3	3.2

This table compares students across the three selected districts:

INVERGE JOURNAL OF SOCIAL SCIENCES
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ISSN (Online): 2959-4359, ISSN (Print): 3007-2018
Volume 4 Issue 2, 2025

Students of Peshawar have the highest usage of AI (3.7) and best academic performance (73.2), while being higher on motivation and engagement scores. Usage and outcomes are moderate in Swat students.

Lower average score is of Charsadda over all variables which could be taken as a result of infrastructural or access problems in rural regions.

This brings out a regional digital divide where the urban students seem to have better opportunities to make use of AI tools since they can easily access these tools, have available school resources and teachers to support them.

School Type Comparison (Public vs Private)

We performed an independent samples t-test between the public and private school students to check if their mean values differ.

Table 4

School Type Comparison

School Type	AI Usage	Academic Performance	Motivation
Public	2.8	68.3	3.2
Private	3.7	72.5	3.8

This table compares Public and Private school students: Private school students used AI more (3.7) and obtained better academic result (72.5%) compared to that of public-school students (2.8 and 68.3% respectively).

Private school students also have higher motivation. This implies, therefore, that private schools have greater access to required resources, teacher training, and technology opposed to public schools which makes it possible to implement and use AI more effectively.

Gender Comparison

The research used a t-test to check for differences between male and female students.

Table 5

Gender Differences

Gender	AI Usage	Academic Performance	Engagement
Male	3.3	69.0	3.4
Female	3.2	71.5	3.6

The table below is divided between male and female students. Female students (71.5%) perform slightly better, than (69.0%) for male students. Their engagement is also higher among females.

The frequency of using AES ranges between genders almost equally, which means that both genders have an almost equal exposure to the technology, but the female students are using AI more efficiently or have more benefits from the use of AI in the academic discipline and participation.

Regression Analysis

The research tested if AI usage affects grades by running a multiple linear regression and including gender, school type, and district data as controls.

Table 6

Regression Results

Predictor	Beta	p-value
AI Usage Frequency	0.38	0.000 **
Gender	0.12	0.048 *
School Type	0.21	0.002 **
District	0.17	0.010 **

This regression analysis tries to determine how to predict academic performance. The strongest positive influence (Beta = 0.38, $p < 0.01$), as expected, is the AI Usage Frequency proving that AI use is the main factor related to enhancing academic outcomes.

INVERGE JOURNAL OF SOCIAL SCIENCES
https://invergejournals.com/
ISSN (Online): 2959-4359, ISSN (Print): 3007-2018
Volume 4 Issue 2, 2025

Beta = 0.21 and Beta = 0.17 are also significant for School Type(p) and District(p) respectively indicating that educational context and infrastructure matter.
However, gender (Beta = 0.12) is, relatively speaking, a weaker but still significant predictor.

Discussion

The research data reveals important knowledge about how Artificial Intelligence affects academic achievement and student learning practices for Khyber Pakhtunkhwa (KP) secondary school students in Pakistan. This section explores research objectives and present literature with results while evaluating both the positive and negative aspects of AI application in the local educational environment.

The research findings confirm that students who use AI resources for educational purposes achieve better academic grades at a moderate level of statistical significance. Students who utilized AI educational tools including adaptive learning programs and automated assessments several times per week obtained superior test scores than students whose use of AI tools was minimal. The study supports earlier international scientific research findings shown in Pane et al. (2017) and Holmes et al. (2019) about how AI technology enables customized educational processes for students' independent learning speed and individualized skill improvement. Traditional teaching in KP experiences problems serving various learning needs which AI establishes itself as a solution to address these instructional deficiencies.

Using AI systems in education resulted in both improved student motivation and their engagement as well as their self-directed learning capabilities. Students found interactive tools and real-time feedback loops together with gamified educational features to be essential in maintaining their interest level while teaching themselves independently. The values autonomy and competence within the Self-Determination Theory confirm research by Deci and Ryan (1985) as essential motivators that AI assists in supporting. Student involvement with AI technology reaches higher levels when artificial intelligence properly integrates into their learning practices.

Although the study reveals these findings they demonstrate that students from urban areas with private education institutions generally achieve superior outcomes and have better access to AI systems. Educational outcomes and AI usage frequencies by urban district students mostly exceeded those from rural areas such as Charsadda educational institutions. Private school students obtained better outcomes than public school students regarding every key variable measured throughout the study. KP experiences significant educational inequity because of the digital divide that perpetuates across the region. Students experiencing modern state-of-the-art AI tools along with trained teachers make progress but other students must navigate outdated facilities coupled with minimum technological assistance. The situation calls for specialized policy actions that would provide public schools along with rural educational institutions with adequate resources to effectively integrate AI technology.

The research demonstrated interesting variations between male and female student data although the differences remained small. Females achieved higher educational outcomes than males although they used AI at equivalent intensities. The equal access condition appears to reveal that KP female students demonstrate better discipline as well as technology literacy skills when studying with educational technology. The findings contradict traditional beliefs about gender-based digital inequality therefore researchers should study the distinct ways male and female students respond to technology integration in learning environments.

The predictive powers of AI usage dominated academic success measures in the regression assessment that included variables for gender together with school type and district. The study provides evidence for research demonstrating that AI has measurable effects on student learning outcomes when applied correctly in educational settings. The research shows AI provides better education benefits only when its usage includes responsive implementations alongside teacher training and suitable digital infrastructure along with inclusive practices.

The promising results need to be viewed together with AI's independent limitations. AI technologies enhance student learning but they still need human teachers for making refined decisions and providing sentimental assistance. AI-driven systems disable effective learning when they are not implemented to match curriculum standards or when they are not adjusted to reflect local language and cultural practices.

INVERGE JOURNAL OF SOCIAL SCIENCES
https://invergejournals.com/
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Volume 4 Issue 2, 2025

Research demands constant monitoring and assessment according to this study. Research must span multiple years to properly evaluate the lasting academic and career development effects alongside emotional growth due to AI implementation in the region studied. Due to its limitations researchers should conduct future studies which integrate both quantitative and qualitative research approaches to obtain thorough insights from students and instructors.

Conclusion

This research was done with the intention of examining the effect of Artificial Intelligence (AI) on the educational outcomes and learning behaviour of secondary school level students in the Province of Khyber Pakhtunkhwa (KP), Pakistan. This research has provided empirical evidence that accessible and properly used AI technology has the potential to greatly increase secondary education student academic performance and behavioural engagement, using a structured quantitative approach.

The most convincing conclusion derived from the study is that the more often students employ AI tools, the more they receive enhanced academic performance. Students that encountered AI based educational platforms like intelligent tutoring systems, adaptive learning software or automated feedback tools more frequently were scored higher on the test and retained more concepts. Consistent with these global results, the results demonstrate that AI is capable to provide students with personalized learning experiences that cater to individual needs, which can be challenging to achieve in traditional, one-sized fits all classroom environments. The study found strong evidence that AI is also associated with positive learning behaviours, besides cognitive outcomes. As for variables such as student motivation, engagement, time management and self-regulated learning, they all showed improvements within students who frequently used AI tools. This implies that AI can be used for purposes no less than being a content delivery system, rather it may also be utilised as a motivator to push students to take more accountability for their own learning. The secondary school level is significant when it comes to these behavioural shifts as students begin to assimilate into habits that will serve them through college and in their careers.

But the research also found only some regions and schools in KP to be utilizing AI to that extent and reaping its benefits. Those students from Peshawar and the urban students from private schools used AI more frequently than others and benefitted from the presented topics while the students of rural areas and public schools were relatively less frequent in their use of AI and experienced lower outcomes. However, these findings indicate that if not countered by deliberate and inclusive policies, they risk exacerbating existing educational inequalities that already persist in the offline world. The biggest hurdles in integrating AI equitably are: infrastructure, teacher training, and access to reliable internet and digital devices.

There was a glimpse of gender analysis through which it will be seen that there is no difference in the use of AI between male and female students but female students crossed a bit higher on both in academic performance and against behavioural engagement. It is an eye opener to traditional assumptions about gender and technology in KP and implies that in the same technological environment, if the girls are given an equal opportunity, they can learn equally well. These results should be further explored and could serve as a guide for gender sensitive educational interventions.

Moreover, the study verified that the use of AI is a strong predictor of academic performance using the study's regression analysis, controlling for school type, gender, and district. This indicates how AI can be a game changer in education that can actually deliver measurable improvements in learner outcomes if leveraged effectively.

However, these positive findings aren't a convincing case for using AI as the single solution. As a result, AI can be thought of as a complementary tool that augments, but does not replace, the teacher's role. For a well-rounded education, human interaction, pedagogical judgment and socio emotional support matter at least as much as the capacity to act and perceive. Furthermore, AI systems need to be adapted contextually, be culturally relevant, and complement curriculum objectives for it to be effective.

As it turns out, AI has a great potential to enhance academic performance and improve learning behaviours of secondary students in KP, as this research has shown. But AI isn't a magic bullet and, without careful strategic prioritization and access to the benefits born from AI needs to be accessible to everyone. With modernizing education systems in KP and other areas in Pakistan, it is imperative that the incorporation of AI

is inclusive, evidence based, and in accordance with the diverse needs of students. Which would enable AI to really be a catalyst for educational improvement and social equity in the world.

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