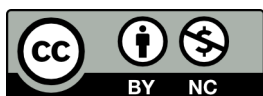


Exploring the Use and Impact of Artificial Intelligence Tools Among Higher-Secondary Students

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Abstracts

Artificial Intelligence (AI) tools are rapidly being integrated into education worldwide, yet research on their use among secondary students of Nepalese origin remains lacking. This study addresses that gap with two objectives: (1) to explore the usage patterns of AI tools by higher secondary students, and (2) to analyze the perceived impact of AI tool usage on students' learning performance and creativity. The present study follows a quantitative research paradigm. Data were collected using a structured questionnaire from a sample of 136 higher secondary students. The target population comprised 1,300 students from four schools (two government and two private) in Lalbandi Municipality, Sarlahi district. A purposive sampling method was employed. The findings of the study reveal that the students' awareness of Artificial Intelligence (AI) is remarkably high with 94.1%, along with the usage of AI tools being equally high. Students mainly make use of AI for understanding complex concepts (75.0%), homework (46.1%), and enhancing essays (33.6%). The main reasons for the adoption of AI technology include quality improvement (51.2%)

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and the opportunity for self-pace learning (22.4%). However, there was also an observed challenge, such as the lack of the right training (mean 2.64), the accuracy of the information (mean 2.63), and the privacy of the data (mean 2.90). The study concludes that there is a gap between the adoption of AI technology by students and the availability of such technology, as students are using the technology, but they need formal training, which is not available. The study recommends the formulation of national AI in education guidelines by policymakers and the implementation of formal AI training programs by school administrators and teachers.

Keywords: artificial intelligence, AI tools, chatgpt, digital literacy, higher secondary students, learning performance, student perceptions

Introduction

The development of Artificial Intelligence (AI) is moving very fast, and has impacted the education system worldwide. In the education field, there has been the use of AI, such as the use of smart tutoring systems, automated grading, and the use of chatbots. AI has the ability to assist students in making learning easy, as well as assist teachers in reducing their work burden, as well as providing immediate feedback to students (Duarte et al., 2023; Hubballi et al., 2025). AI has the ability to assist teachers as well as students in the field of teaching and learning, as the students have the ability to learn at their own pace (Boumediene & Bouakkaz, 2024; Soni, 2025).

At the same time, students also use AI for their studies. Students use AI tools such as ChatGPT, Grammarly, and many AI-based learning platforms as a part of their study activities. These AI tools assist students in checking their grammar, generating ideas for their homework, and completing their homework (Saranya & Praveen, 2025; Pirniyazov, 2025). Research findings show that students consider AI tools as helpful for improving their productivity, time management, and quality of work (Ali et al., 2025; Daife & Elharbaoui, 2024). The benefits of AI tools for students include their accessibility for improving their writing skills and personalization of their learning (Arbab et al., 2024; Ahmed et al., 2025).

There are some challenges and problems that have arisen from using AI in education. There are critical issues of concern regarding data privacy and ethical use of AI in education that may have negative effects on critical thinking and honesty skills of the student (Boumediene & Bouakkaz, 2024; Han, 2025). Moreover, there

are challenges of digital divide, digital literacy, and unpreparedness of educators in teaching how to use AI effectively that are obstacles to using AI in education. (Narayan & Jauhari, 2025; Asperis, 2025). Ethics is a crucial factor because, although students are aware of AI rules, their practice does not seem to match their knowledge (Shrestha, 2025).

While there is growing research on the use and impact of AI in higher education and among University students, there remains a gap in the research pertaining to higher secondary students. (Typically students in the age group of 16-18 years). Students in these age groups are at a critical period in their lives and developing their critical knowledge and thought processes for the future. Their use and impact on core academic skills such as learning performance and creativity also warrant research. To address this gap, this study conducted a survey of 136 students across four schools in Lalbandi Municipality, analyzing their AI usage patterns, perceived benefits, challenges, and impacts on learning and creativity.

Objectives

Therefore, the objective of this study was to explore the use and impact of AI tools among higher secondary students. The research aimed specifically :

1. To identify the patterns and purposes of AI tool usage among higher secondary students in educational settings.
2. To identify the benefits and impact of AI tool usage among higher secondary students.

Literature Review

Artificial Intelligence in Educational Contexts

The contribution of AI in the contemporary educational sector is well documented as a facilitator of personalization and efficiency. Systematic reviews have noted the contribution of AI tools, such as Intelligent Tutoring System(ITS) and Adaptive Learning(AL), in facilitating the personalization of the learning experience through the provision of feedback and the adaptation of the content to the needs of the students (Duarte et al., 2023; Soni, 2025). These tools analyze the interaction and performance of the students to identify their strengths and weaknesses, thereby facilitating the provision of the most appropriate educational experience (Hubballi et al., 2025). In addition, it must be noted that AI technology can be used in the

automation of administrative and grading aspects, thus freeing educators from such tasks and enabling them to concentrate more on teaching and interactions with their pupils (Leong et al., 2025; Alkan, 2024).

Patterns and Purposes of AI Tool Usage by Students

Another set of literature is focused on the adoption of AI among students. Studies using empirical research methods such as surveys and quantitative analysis have found that AI-based applications such as ChatGPT and Grammarly have become an integral part of students' academic lives (Saranya & Praveen, 2025; Pirniyazov, 2025). Studies have found that students use AI-based applications for improving their writing skills, summarizing complex information, generating ideas for their work, and improving their time management skills, which have a positive influence on their academic performance (Arbab et al., 2024; Ali et al., 2025). To cite an example, a study conducted in Uzbekistan found that over 60% of students in universities frequently use AI-based applications for their academic work. Students use AI-based applications as a means for saving time and improving their productivity (Pirniyazov, 2025).

Perceived Benefits and Challenges of AI in Education

AI has been seen to contribute to the improvement of student outcomes through the provision of personalized and adaptive learning, which meets the needs of each student based on their pace and style of learning (Utepbergenova, 2024; Bobro, 2024). It has also improved the efficiency of teaching through the provision of grading and lesson planning, which helps the teacher to make informed decisions based on the results (Ayala-Pazmiño, 2023; Javvaji&Raghavulu, 2024). Moreover, AI technology has been seen to improve student engagement, motivation, and accessibility, making the classroom more student-centered and effective (Ahmed et al., 2025; Alashwal, 2024). On the contrary, considerable challenges to ethical and equitable integration have been a major focus in the literature as well. Challenges identified in the literature include concerns over data privacy and security, the potential to exacerbate algorithmic bias, as well as concerns over equitable access due to infrastructural or economic disparities (Narayan & Jauhari, 2025; Asperis, 2025).

AI in Education: The Nepalese Context and Policy Landscape

The research carried out in the Global South, especially in the context of Nepal, offers an important perspective. Research findings reveal the significant

potential AI can offer to the education sector in Nepal in terms of inclusive education and the achievement of Sustainable Development Goal 4: Quality Education (Dhakal et al., 2025; Upadhayay, 2024). AI has also been found to improve the engagement and autonomy of learners in specific fields like English Language Teaching and management education (Dahal & Paudel, 2025; Lawaju et al., 2024). However, the research findings have also highlighted the significant challenges the country is facing in the context of AI implementation, such as policy gaps, technological infrastructure gaps, and AI literacy among teachers and the level of institutional readiness (Dhakal et al., 2025; Sah, 2025).

Gap in the Literature

Although the existing corpus has proven to be beneficial in the sense that it offers valuable insights into the use of AI in higher education institutions as well as among university students, there still remains a gap in the sense that there has been no focus on the use of AI among higher secondary students, a stage of development that is very critical in the sense that the students, at this stage, have a very different perspective on the use of AI tools, which has a very significant impact on the development of their learning skills as well as creativity, a subject that has remained unexplored in the existing corpus, which is the focus of this study.

Methodology

Research Design

A descriptive and quantitative cross-sectional survey study design was used to collect primary data from the participants at a single point of time. This design was chosen because it is appropriate for describing a population and establishing relationships between two or more variables—namely, AI tools use pattern, benefits, challenges, and impact on learning performance and creativity of higher secondary school-going students of Lalbandi Municipality of Sarlahi district of Nepal (Ali et al., 2025).

Study Area and Population

The population of interest included higher secondary students (Grade 11 and 12) studying in the management stream. The research was conducted in four schools (two government and two private): Janajyoti Higher Secondary School (300 students), Janaki Higher Secondary School (200 students), Ideal Academy (400

students), and Everest Academy (400 students), making a total population of 1,300 students.

Sampling Technique and Sample Size

A non-probability, purposive sampling method was used. Schools were purposively selected based on two criteria: (a) location within Lalbandi Municipality, and (b) offering a management course at higher secondary level. Students were then selected purposively from the management stream of these schools.

The sample size was determined using the standard formula to determine the sample size for a finite population at a 95% confidence level and a margin of error of 5%, which gives a minimum sample size of 297. To cover any possible non-response or non-completion of the questionnaire, a buffer of 10% was added to the total sample size, giving a total sample size of 320 students.

Considering various limitations in practice like restricted number of class meetings for data collection and variable level of participant participation, the sample size eventually reached 136 subjects from all four schools. The sample provides appropriate representation of all four selected schools, including government sector (40.4%) and private sector (59.6%). Other researches conducted to examine usage of AI technologies among students had similar or even lower sample sizes (Pirniyazov, 2025, n=120; Ali et al., 2025, n=150).

Data Collection Instrument and Procedure

Data was collected through the use of a structured and self-administered questionnaire. The data collection tool was created based on the results of the review of relevant literature (Saranya & Praveen, 2025; Pirniyazov, 2025).

Data Analysis

For the purpose of data analysis, the collected data was processed using the Statistical Package for Social Sciences (SPSS) software version 25. Frequencies, percentages, means, and standard deviations were computed to create a demographic profile of the respondents, to understand the pattern of AI tool usage, and to identify the benefits and challenges associated with the tools.

Ethical Considerations

The study was conducted following the ethical norms that must be followed while conducting research. The subjects were given the freedom to drop out of the study at any time without any consequences. The subjects were also kept anonymous

by not collecting any personal information on the questionnaires. The data collected was used only for this purpose of academic research.

Findings

Demographic Profile of Respondents

A total of 136 students were surveyed from government and private schools of Lalbandi Municipality, Sarlahi District, Nepal. Among the respondents, 33.1% were females, and 66.9% were males, showing that the results were almost equally distributed between the two genders.

Gender Distribution

As shown in Figure 1, the gender distribution was nearly equal, with 91 male respondents (66.9%) and 45 female respondents (33.1%).

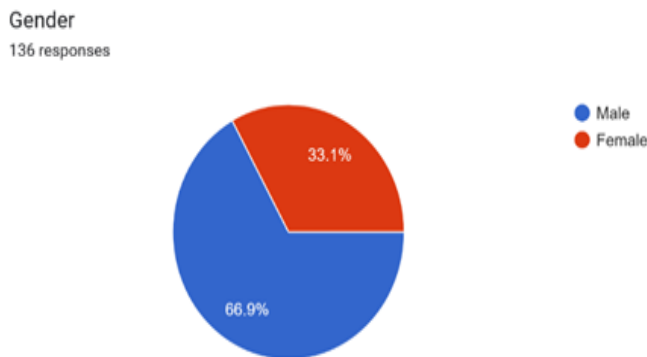


Figure 1: Gender Distribution

Figure 1 presents the gender distribution of the 136 student respondents. Male students constituted the majority, with 91 respondents (66.9%), while female students accounted for 45 respondents (33.1%).

Age Distribution

The respondents varied in age from 16 to 20 years, with the majority falling in the 17-18 age group, which is common among higher secondary students (grades 11 and 12).

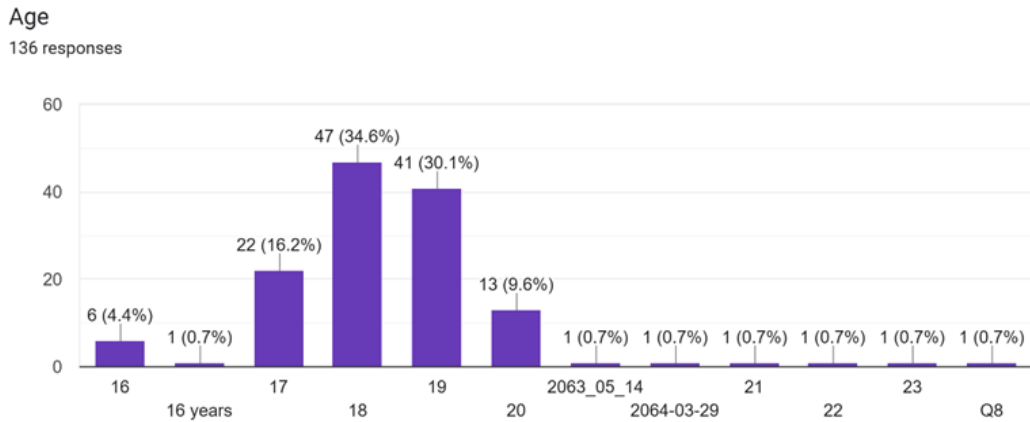


Figure 2: Age Distribution

Figure 2 illustrates the age distribution of the 136 higher secondary students who participated in the study. The respondents ranged in age from 16 to 20 years, with the majority concentrated in the 17–18 age bracket. This age range is typical for students enrolled in Grades 11 and 12, confirming that the sample represents the target higher secondary population.

Grade Level

The sample was composed of a slight majority of Grade 11 students (52.9%) as opposed to Grade 12 students (47.1%), reflecting the two levels of higher secondary education.

Table 1

Distribution by Grade Level

Grade	Frequency	Percentage
Grade 11	72	52.9%
Grade 12	64	47.1%
Total	136	100%

Source: Field Study, 2026.

Table 1 shows the distribution of respondents by grade level. Out of 136 higher secondary students, 72 (52.9%) were enrolled in Grade 11, while 64 (47.1%) were in Grade 12. The nearly even distribution between the two grades suggests that the sample adequately represents both levels of higher secondary education.

School Distribution

The study was successful in achieving the target of equal representation from the chosen schools. The largest number of participants were from Everest Academy, constituting 35.3%, followed by Janajyoti HSS with 25.0%, and Ideal Academy with 24.3%. The remaining 14.7% of the students were from Janki HSS.

Name of School
136 responses

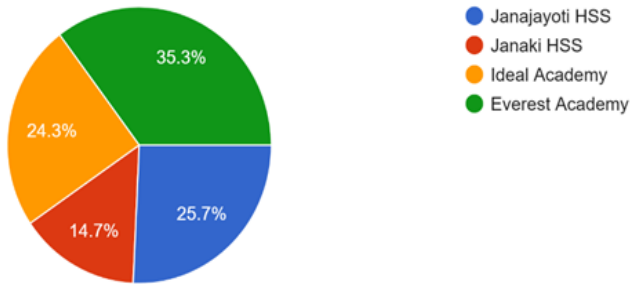


Figure 3: School-wise Distribution

Overall, government schools contributed 55 respondents (40.4%) and private schools contributed 81 respondents (59.6%), as illustrated in Figure 4.

Type of School
136 responses

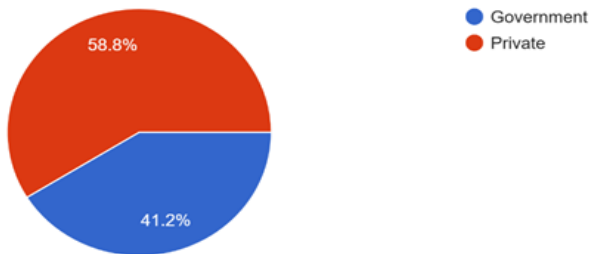


Figure 4: Type of School

Figure 4 illustrates that the sample included a slightly higher proportion of private school students, reflecting the larger enrollment numbers in the private schools selected for the study..

Awareness and Access to AI Tools

Awareness of AI Tools

The fact that 94.1% of the higher secondary students have knowledge of AI tools reveals the exposure to technology that the youth of Lalbandi Municipality enjoy, despite their geographical location away from the major urban centers.

Table 2

Awareness of AI Tools

Response	Frequency	Percentage
Yes	127	94.1%
No	9	5.9%
Total	136	100%

Source: Field Study, 2026.

Table 2 presents that the high percentage suggests that AI tools have achieved near-ubiquitous recognition among higher secondary students in the study area, even in semi-urban Nepal.

Heard of AI Tools

Students were asked to identify which AI tools they had heard of from a list of common applications.

Table 3

AI Tools Heard Of (Multiple Responses)

AI Tool	Frequency	Percentage of Respondents
ChatGPT / Bing Chat / Google Bard (Gemini)	128	94.1%
Grammarly / QuillBot	24	17.6%
AI tools for making presentations/images (Canva AI, DALL-E)	38	27.9%
AI-powered learning apps (Khan Academy, Duolingo)	43	31.6%
None of the above	6	4.4%
Other	20	14.7%

Source: Field Study, 2026.

ChatGPT and similar tools were found to be the most popular tools, with 94.1% of participants reporting their use. AI learning tools such as Khan Academy and Duolingo were used by 31.6%, while AI tools used for creating presentations or images such as Canva AI and DALL-E were used by 27.9% of participants. Grammarly and QuillBot were used by 17.6% of participants.

AI Tools Personally Used for Studies

When participants were asked about their use of AI tools for their studies, it was found that they personally used the following tools:

Table 4

AI Tools Used for Studies (Multiple Responses)

AI Tool	Frequency	Percentage of Respondents
ChatGPT / Bing Chat / Google Bard (Gemini)	129	94.8%
Grammarly / QuillBot	25	14.1%
AI tools for making presentations/images	19	18.5%
AI-powered learning apps	18	13.3%
I have never used any AI tool for my studies	7	5.2%

Source: Field Study, 2026.

This data indicates that there is a strong correlation between awareness and usage. The data also shows that the most aware students, i.e., the students aware of the existence of ChatGPT, etc., also had the highest usage rate, i.e., 94.8% of the students used the tool for their studies. An interesting point is that 5.2% of the students had never used any AI tool for their studies.

Patterns and Purposes of AI Tool Usage

Frequency of AI Tool Usage

Among students who reported using AI tools, the frequency of usage varied considerably:

Table 5

Frequency of AI Tool Usage

Frequency	Frequency	Percentage
Daily	39	28.9%
Several times a week	30	21.9%
Once a week	6	4.7%
A few times a month	11	7.8%
Never	1	0.8%
Rarely	49	35.9%
Total	136	100%

Source: Field Study, 2026.

This table 5 illustrates the percentage of times an activity is done by the respondents. The highest percentage of respondents, at 35.9% or 49 people, does this

“Rarely,” followed by “Daily” at 28.9% or 39 people. “Several times a week” is at 21.9%, or 30 people.

Purposes of AI Tool Usage

Students used AI tools for a variety of academic purposes, as depicted in Table 6:

Table 6

Purposes of AI Tool Usage (Multiple Responses)

Purpose	Frequency	Percentage
To understand difficult concepts or topics	102	75%
To get help with homework or assignments	63	46.1%
To check grammar and spelling	44	32%
To summaries long texts or articles	37	27.3%
To generate ideas for projects or creative work	41	30.5%
To write or improve essays/reports	46	33.6%
To prepare for exams/quizzes	34	25%
To manage my study schedule	32	23.4%
Other	21	15.6%

Source: Field Study, 2026.

Table 6 findings indicate that students primarily rely on AI tools for comprehension and assignment support rather than for administrative tasks like study schedule management (23.4%).

Main Reason for Using AI Tools

When asked about their single most important reason for using AI tools, students responded as follows:

Table 7

Main Reason for Using AI Tools

Main Reason	Frequency	Percentage
To save time	28	20.8%
To improve the quality of my work	70	51.2%
To learn at my own pace	30	22.4%
Because my friends/classmates use them	4	3.2 %
Because teachers encourage it	3	2.4%
Other	1	0%
Total	136	100%

Source: Field Study, 2026.

Time efficiency (20.8%) and quality improvement (51.2%) were found to be the main motivators for the adoption of AI technology. The minimal impact of peer pressure (3.2%) and encouragement by the teacher (2.4%) indicates that the adoption of AI by students is largely intrinsic, i.e., students tend to use AI for its functional benefits.

Gender-Based Differences in AI Usage

Results from chi-square test indicated that there was no statistically significant difference between the number of times AI tools were used by male and female students ($\chi^2 = 4.21$, $df = 5$, $p = 0.52$). There were, however, notable differences in the uses made of AI. Male students used AI to grasp difficult concepts more often (78.0%) compared to their female counterparts (68.9%). Female students, on the other hand, used AI for grammar correction (37.8%) more than male students (29.7%).

Perceived Benefits of AI Tool Usage

Students rated the level of their agreement with different benefit statements using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The mean score for each benefit is as follows:

Table 8

Perceived Benefits of AI Tools

Benefit Statement	Mean Score	Standard Deviation
D1.1 Using AI tools helps me learn faster	3.30	1.43
D1.2 AI tools make studying more interesting and engaging	3.21	1.30
D1.3 I get personalized help that I don't always get in class	2.99	1.33
D1.4 My grades have improved because of using AI tools	2.85	1.28
D1.5 AI tools help me be more creative in my assignments	3.20	1.26
D1.6 I can manage my study time better with AI tools	3.07	1.35

Source: Field Study, 2026.

The highest mean scores were noted in the areas of learning speed (3.30), and engagement (3.21). This implies that the students strongly perceive AI tools to be beneficial to the speed and enjoyment of their study processes. However, the lower grade improvement (2.85) may imply that although the students find AI tools to be beneficial to their studies, they may not find AI tools to be beneficial to their grades.

Perceived Challenges and Concerns

The students also rated their agreement with the statements regarding the challenges and concerns related to the use of AI tools:

Table 9

Perceived Challenges and Concerns

Challenge Statement	Mean Score	Standard Deviation
D2.1 I sometimes rely too much on AI and don't think for myself	2.30	1.29
D2.2 It is difficult to tell if the information from AI is accurate	2.63	1.30
D2.3 Using AI tools for assignments feels like cheating	2.44	1.28
D2.4 I worry about my personal data/privacy when using AI	2.90	1.50
D2.5 My teachers are not comfortable with me using AI tools	2.48	1.31
D2.6 I lack proper training on how to use AI tools effectively	2.64	1.35

Source: Field Study, 2026.

The most pressing concern, with the highest mean score of 2.64, was the lack of proper training in the effective use of AI tools. This shows a strong indication that students recognize the need to be guided and instructed to get the best out of the use of AI tools. Other pressing concerns, such as the accuracy of the information (2.63) and over-reliance (2.30), indicate a deeper understanding of the limitations of using AI tools by the students. The lower score of the cheating concern (2.44) suggests that the students do not see the use of AI tools as unethical in itself, but as a means to an unethical end.

Open-Ended Responses on Benefits and Challenges

Biggest Benefits

Analysis of open-ended questions regarding the “biggest benefit of using the AI tools” revealed the following:

Time Saving: Students emphasized the fact that “AI saves time, which can be utilized to do other activities.”

Conceptual Clarity: Students often mentioned the fact that “AI helps to understand concepts that are difficult to comprehend in class.”

24/7 Availability: Students appreciated the fact that “AI can be accessed anytime, without the need to wait for teachers.”

Language Support: Nepali students, whose medium of instruction was English, appreciated the use of tools such as Grammarly, which helped improve their

writing skills.

Idea Generation: Students appreciated the fact that “AI helps to generate new ideas”.

Biggest Worries or Problems

The open-ended responses to the question of concerns showed the following patterns:

- **Accuracy of the Information:** The students had concerns that they would receive incorrect information through AI tools.
- **Over-dependence:** The students had concerns that the use of AI would lead to the deterioration of their own thought process.
- **Lack of Training:** All the students had concerns that they did not know how to use AI tools.
- **Cost Barriers:** Some students had concerns that the upgraded versions of AI tools were costly.
- **Attitude of the Teacher:** Some students had concerns that the teachers did not approve of the use of AI tools.

Impact on Learning Performance and Creativity

Impact on Academic Performance

Students were asked to rate the overall impact of AI tools on their academic performance:

Table 10

Impact on Academic Performance

Rating	Frequency	Percentage
Very Negative	4	2.9%
Somewhat Negative	8	5.9%
No Impact	24	17.6%
Somewhat Positive	60	44.1%
Very Positive	40	29.4%
Total	136	100%

Source: Field Study, 2026.

A significant majority of students, 73.5%, affirmed that AI tools have a positive impact on their academic performance by selecting “Somewhat Positive” and “Very Positive” combined responses. Only 8.8% of students perceived a negative

impact of AI tools on their academic performance, and 17.6% of students did not perceive any impact of AI tools on their academic performance.

Impact on Creativity and Original Thinking

Students' perceptions of the impact of AI tools on their creativity and original thinking were similar:

Table 11

Impact on Creativity and Original Thinking

Rating	Frequency	Percentage
Very Negative	4	2.9%
Somewhat Negative	12	8.8%
No Impact	28	20.6%
Somewhat Positive	60	44.1%
Very Positive	32	23.5%

Source: Field Study, 2026.

Over two-thirds of the students (67.6%) believed that AI tools have a positive effect on their creativity and original thinking. It is interesting to note that while a lower percentage of students believed that AI tools have a "Very Positive" impact on their creativity and original thinking (23.5%) than on their academic performance (29.4%), a higher percentage of students believed that AI tools have "No Impact" on their creativity and original thinking (20.6%) than on their academic performance (17.6%).

Need for Formal Training

Students were asked whether their school should provide formal training on ethical and effective use of AI tools:

Table 12

Need for Formal AI Training

Response	Frequency	Percentage
Yes, definitely	63	46.4%
Yes, maybe	42	30.8%
No, it's not necessary	12	8.8%
I don't know	19	13.9%
Total	136	100%

Source: Field Study, 2026.

An overwhelming majority (84.4%) expressed their desire to receive formal training in AI. This figure includes the combined total of students responding with “Yes, definitely” and “Yes, maybe.” This again reinforces the concern identified above regarding the lack of formal training (mean 2.64).

Discussion

The fact that 94.1% of the students in the Lalbandi Municipality are aware of AI tools, as depicted in the study, shows that the penetration of technology in the semi-urban areas of Nepal is remarkably high. The fact that the AI tools such as ChatGPT, among others, are widely used and recognized by 94.8% of the students in the study resonates the global trends as depicted in the study carried out by Saranya and Praveen (2025). The fact that a quarter of the students in the study used AI tools at least several times a week shows that AI is no longer a new phenomenon in the lives of the students. The study resonates the study carried out in Uzbekistan by Pirniyazov (2025); however, the study has extended to the higher secondary students, showing that the penetration of AI in the pre-university students is widespread.

The students also showed significant benefits, and the strongest agreement was with the question of whether AI assists them in learning faster (mean 3.30). The second was whether AI makes studying more engaging (mean 3.21), which also corroborates the findings made by Ahmed et al. (2025) on the beneficial impact of AI on the process of learning. The students also showed significant benefits with the question of whether AI provides them with the perception of personalized help (mean 2.99), especially in the context of the Nepalese education system due to the large sizes of the classes. However, the fact that the grades did not improve (mean 2.85) also shows that the benefits to the students’ learning process might not necessarily translate to the grades they receive, thus also corroborating the fact that there is research needed on the impact of AI.

The main issue was the lack of proper training (mean 2.64), accompanied by the fact that 46.4% of the students had the desire to receive formal training. This echoes the findings by Ali et al. (2025) that most students do not have the skills to apply what they know. The issue concerning the accuracy of the information (mean 2.90) shows the complex awareness students have concerning the limitations of AI. This echoes the findings by Lawaju et al. (2024) in the Nepalese context. The issue

concerning the risk of overdependence and the reduction of critical thinking skills echoes the findings by Pirniyazov (2025).

On the whole, the majority of the students, that is, 67.6%, felt that AI had a positive impact on their academic performance, while 23.5% felt that AI had a positive impact on their creativity, which is consistent with the conclusions drawn by Javvaji and Raghavulu (2024) on the efficiency and personalization of AI. The slightly lower percentage of the sample that felt that AI had a positive impact on their creativity reflects the two-edged nature of the relationship between AI and creativity.

These results should be understood with reference to the broader education scenario of Nepal, as identified by Dhakal et al. (2025), which has faced issues with the policy framework and the lack of AI literacy skills for teachers. The students are getting ahead of the schools in terms of adapting to the world of AI, and as a result, they are getting into complicated situations with no one to guide them along the way. The high need for formal learning is both an opportunity and a challenge, thus providing empirical support for the emphasis placed by Dhakal (2025) on the foundations of the policy.

This study, while being aligned with the broader global discourse (Duarte et al., 2023; Utepbergenova, 2024), also brings some fresh perspectives from the underresearched Global South, with an emphasis on high school students as the sample group. The fact that students are already immersing themselves in the world of AI, despite the gaps, shows that the technological revolution is not going to wait for the schools or the policymakers to catch up, thus providing immense challenges for them, as they now need to catch up with the students who got ahead of them.

There were several shortcomings in the study that need to be recognized. Firstly, due to the fact that the study was conducted only in one municipality, there is no possibility of generalizing the results to other areas of Nepal with other economic conditions and infrastructure. Secondly, the lack of a longitudinal research design does not allow us to make conclusions about the possible causality of AI impact on the educational outcomes of children. Thirdly, the use of self-reports leads to the risk of obtaining biased results since respondents may lie out of social pressure. The sample size obtained ($n=136$) was sufficient for basic analysis but did not meet the calculated value ($n=320$). This poses problems in terms of statistical power for identifying effect sizes as well as accuracy of population parameters. Generalization of results would only apply to higher secondary schools within Lalbandi Municipality.

Conclusion

This study aimed to investigate the phenomenon of AI tool utilization and its effects among the student population of the Lalbandi Municipality of Nepal, which showed that the utilization of AI tools among the student population is not only a future phenomenon but also a present reality. The results of the study showed that the student population is actively and extensively using AI tools for their academic purposes, particularly to understand complex concepts and to perform their assignments. The results also showed that the student population is experiencing significant benefits from AI tool utilization, particularly in terms of improved learning speed, interest, and personalized support, with a significant majority of the student population experiencing positive effects on their academic performance and creativity.

However, the encouraging trends of AI tool utilization and their effects on the student population have also given rise to serious concerns, which were reflected through the apprehensions of the student population on the reliability of AI tool-generated information, the potential of AI tool utilization to impede their thinking, and, most seriously, the lack of proper training and support from schools on AI tool utilization.

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