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Exploring the Role of Artificial Intelligence in Education: Insights from Teachers' and Students' Perspectives in Nepal

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ABSTRACT

The study explores the perspectives of teachers and students regarding the integration of artificial intelligence (AI) in higher education in Nepal. Adopting a quantitative research methodology, a survey was conducted with 200 students and 20 teachers through Google Forms from various educational backgrounds to assess their attitudes toward AI tools. The results indicate that both groups recognize AI is potential to enhance learning and teaching experiences, although their perceptions differ across specific aspects. This study explores the perspectives of teachers and students regarding the integration of artificial intelligence students generally appreciate AI's role in improving engagement, motivation, and personalized learning but they also express concerns about privacy, collaboration, and effectiveness of these tools in promoting independent research. Teachers report benefits such as improved lesson plans, grading efficiency, and data-driven insights. However, they highlight challenges in aligning AI with their pedagogical approaches and achieving consistent student engagement. The findings underscore the transformation potential of AI in education while identifying areas for improvement, including the need for privacy safeguards and adaptability to diverse teaching methods. To address these issues, education institutions can better leverage AI's capabilities fostering more inclusive and effective learning environments for the students.

1. INTRODUCTION

According to Copeland (2024, October 25), artificial intelligence (AI) is a computer-controlled by software that can accomplish tasks that normally need human intelligence. These tasks require cognitive abilities such as reasoning, interpreting meaning, generalization, and learning from experiences. While AI has significantly enhanced memory and

processing speed, it still falls short of human intelligence's full flexibility across multiple domains. This wide capability is known as artificial general intelligence (AGI). Conversely, AI has mastered expert-level skills in specialized areas, including medical diagnosis, search engines, voice recognition, and chatbots. AI research has primarily concentrated on key aspects of intelligence, including learning, reasoning, problem solving, perception, and language use.

Artificial intelligence (AI) is an advancing technology that aims to replicate human intelligence using machines. AI includes various subfields, such as machine learning (ML) and deep learning, which enable systems to learn and adapt uniquely based on training data. Artificial intelligence is the study of creating computers, machines, and other artifacts with human line cognitive abilities, learning, adaptability, and decision-making capabilities (Chen (2020). Artificial intelligence is increasingly important in education, and advanced technology enhances and personalizes student learning experiences, resulting in improved student performance (Zafari et al, 2022). Education systems are undergoing reforms to ensure learners acquire the skills needed for an artificial intelligence-enabled future. This involves adopting a lifelong learning approach to keep up with rapidly evolving artificial intelligence technologies. The study emphasizes the significance of coordinated efforts, ethical considerations, continuous reform, and international cooperation to effectively integrate artificial intelligence into educational sectors across the globe (Pedro et al, 2019).

According to Intellipaat (2023, April 14), artificial intelligence (AI) has transformed numerous industries by providing innovative tools that enhance productivity, creativity, and efficiency. This article reviews several prominent AI tools and their functionalities across various domains.

Table 1: *AI tools and their functionality*

S.N.	Tool	Functionality
1	ChatGPT-4 (OpenAI), Google Bard and ChatSonic	Natural language processing, content generation, Q&A
2	Midjourney and DALL-E	Visual creativity, unique artwork generation
3	Canva's AI Slide Creator	Design presentations
4	SlidesAI, HubSpot Free AI Content Writer, and Alli AI	Content creation and marketing
5	Paradox and Synthesia	Personalized interactive media, video recruitment solutions
6	aiXcoder, TabNine, and GitHub Copilot	Code suggestions for programming tasks
7	Descript and DeepBrain AI	Media editing, video, and audio production
8	SecondBrain, Textio, Wordtune and Figstack	Written communication enhancements
9	INK and LyricStudio	Lyric writing, search engine optimization (SEO)
10	ClickUp	Task management
11	Writer.ai	SEO and written communication enhancements
12	Designs.ai	Design tools
13	Copyleaks	Plagiarism detection
14	SEO.ai	Search optimization
15	Pikazo	Stylized image generation
16	Divi AI	Web design

Deralkhshanian et al. (2024) stated that health science students generally hold positive perceptions of AI, acknowledging its benefits while being concerned about job security and the realism of AI applications. Similarly, Herawati et al. (2024) reveal that students view AI positively, seeing it as a tool to enhance learning and access resources, but they express concerns about teacher replacement, loss of human interaction, and data privacy.

Altinay et al. (2024) stated that faculties applied AI to develop comprehensive teaching material and communicate with learners and faculties focused on academic integrity, and its output and it presented to change classroom instructional practices. Additionally, faculties require more focused professional development on integrating AI into teaching and learning, along with guidance from the administration and clear policies for use. Mahapatra. (2024) indicates a significant positive influence of AI on learners' academic writing skills and learning practices.

Katsamakas et al. (2024) discuss how higher education institutions use IA tools to enhance research and administrative efficiency. The study emphasized the need to address academic integrity and prepare students for the changing job market by developing AI-complementary skills. It also points out those institutions face competition and regulatory challenges that could impact their stability, underscoring the importance of system thinking among their leaders.

Daher and Husseing (2024) and Mosly (2024) revealed that AI tools have positive effects on students' efficiency, interaction, and engagement in learning activities. Ghimire et al. (2024) revealed that higher education in Nepal holds positive opinions and experiences with using AI tools for learning and writing tasks. However, the study showed that AI can also be misused. There are significant concerns about the negative effects of AI on students' creativity, writing skills, and ability to conduct independent research, particularly considering how students in higher education have utilized these tools.

The existing studies highlight the transformative potential of AI in education, particularly in enhancing learning experiences, boosting academic productivity, and improving administrative efficiency. However, there is limited research on the perspectives of students and teachers in Nepal regarding AI's impact on teaching and learning activities. Addressing this gap could provide valuable insights for developing customized AI integration strategies in Nepalese higher education, ultimately supporting sustainable and effective learning. The study's objective is to explore and analyze teachers' and students' perspectives on the use of artificial intelligence (AI) in higher education in Nepal.

2. MATERIALS AND METHOD

Numerical data is collected and analyzed as part of the quantitative research methodology to understand and explain phenomena (Williams, 2007). This paper provides a comprehensive overview of the quantitative research methodology used in the study titled "Artificial Intelligence in Education: Perspectives from Teachers and Students in Nepal." A survey research design was employed to complete this study. The population consisted of all teachers and students in higher educational institutions in Nepal who were using AI tools. To gather data from a representative sample of Nepalese higher education students and teachers, a purposive sampling method was used. 200 students and 20 teachers were selected as a sample, representing different educational levels, age ranges, and subject specialties through Google Forms. The quantitative techniques involved administering questionnaires featuring five-point Likert-scale items to measure perceptions, attitudes, and comfort levels regarding AI. The data were analyzed using descriptive statistics and inferential techniques such as mean.

3. RESULTS AND DISCUSSION

Table 2: *Students' Perspectives toward artificial intelligence in education*

S. N.	Perspectives	Mean	Standard error	Standard deviation
1	AI tools have improved my learning experience.	1.92	0.041	0.583
2	AI-based feedback has helped me understand my mistakes better.	2.13	0.043	0.604
3	AI makes learning more engaging and interactive.	1.93	0.058	0.820
4	AI-driven platforms help me learn at my own pace.	2.04	0.054	0.766
5	I feel more motivated to learn with AI tools.	2.28	0.051	0.717
6	AI has made it easier to get help with my studies.	1.99	0.058	0.824
7	AI systems are easy to use and understand.	2.15	0.055	0.773
8	AI has helped me improve my grades.	2.25	0.050	0.707
9	I feel that AI tools respect my privacy and data.	2.02	0.062	0.877
10	AI-based learning resources are more effective than traditional resources.	2.04	0.054	0.766
11	AI helps me stay organized with my assignments and deadlines.	2.28	0.051	0.717
12	The use of AI in education makes learning more enjoyable.	1.99	0.058	0.824
13	AI provides useful insights into my learning progress.	2.15	0.055	0.773
14	AI helps me develop critical thinking and problem-solving skills.	2.25	0.050	0.707
15	AI has made collaboration with classmates easier.	2.02	0.062	0.877
16	AI tools are accessible and available whenever I need them.	2.04	0.054	0.766
17	I trust the accuracy of AI-based assessments.	2.28	0.051	0.717
18	AI helps me receive personalized learning experiences.	1.99	0.058	0.824
19	AI has reduced the time I spend on repetitive tasks.	2.15	0.055	0.773
20	AI-based tutorials are clear and easy to follow.	2.31	0.057	0.804
21	AI has enhanced my ability to self-study.	2.02	0.062	0.877
22	AI tools have made it easier to understand complex concepts.	2.10	0.057	0.799
23	AI has positively influenced my overall educational experience.	2.22	0.055	0.778
24	I feel comfortable using AI tools for my studies.	2.17	0.068	0.966
25	AI-based education tools are worth the investment.	2.22	0.060	0.850

Table 1 presents the data indicating varied students' perceptions of AI tools' influence on their learning, the statement "AI tools have improved my learning experience" received a mean value of 1.92 (SE = 0.041, SD = 0.583), indicating moderate agreement that AI tools positively affect learning. Similarly, the statement "AI makes learning more engaging and interactive" scored a mean of 1.93 (SE = 0.058, SD = 0.820), suggesting only a slight enhancement in perceived engagement. The statement "AI-based feedback has helped me understand my mistakes better" achieved a higher mean value of 2.13 (SE = 0.043, SD = 0.604), suggesting that students felt AI's feedback was significantly beneficial. Regarding self-paced learning, the item "AI-driven platforms help me learn at my own pace" scored a mean of 2.04 (SE = 0.054, SD = 0.766), reflecting favorable responses toward AI's role in facilitating personalized learning speed. Especially, motivational

benefits were highlighted, as the statement "I feel more motivated to learn with AI tools received one of the highest means scores a mean of 2.28 (SE = 0.051, SD = 0.717), indicating that students largely agreed that AI tools boost their motivation to learn. However, perception of AI's impact varied across different aspects of learning. For example, the statement "AI has made it easier to get help with my studies" scored a mean of 1.99 (SE = 0.058, SD = 0.824), indicating moderate agreement that AI facilitates access to academic support. Similarly, "the use of AI in education makes learning more enjoyable" yielded the same mean score of 1.99 (SE = 0.058, SD = 0.824), suggesting a moderate enhancement in enjoyment. Positive feedback was also noted for statements such as" AI systems are easy to use and understand (M = 2.15, SE = 0.055, SD = 0.773) and "AI helps me stay organized with my assignments and deadlines" (M = 2.28, SE = 0.051, SD = 0.717), with the later indicating strong agreement about AI's organizational benefits. In terms of academic performance, the statement "AI has helped me improve my grades" scored a mean of 2.25 (SE = 0.050, SD = 0.707), suggesting that students view AI as a valuable tool for academic improvement. Conversely, responses to privacy concerns were mixed. The statement "AI feel that AI tools respect my privacy and data" scored a mean of 2.02 (SE = 0.062, SD = 0.877), indicating moderate satisfaction but with notable variability among respondents. Similarly, the effectiveness of AI-based resources compared to traditional resources received moderate support with a mean score of 2.04 (SE = 0.054, SD = 0.766). Students recognized the informational value of AI in tracking their progress, with the statement "AI provides useful insights into my learning progress" receiving a mean score of 2.15 (SE = 0.055, SD = 0.773). The statement "AI helps me develop critical thinking and problem-solving skills" scored a mean of 2.25 (SE = 0.050, SD = 0.707), showing that students largely recognize AI has the potential to foster essential skills. However, the impact of AI on collaboration received a slightly lower endorsement, with the statement "AI has made collaboration with classmates easier" scoring 2.02 (SE = 0.062, SD = 0.877) indicating moderate agreement and more variability in responses. Students perceived AI tools as generally accessible as revealed by the statement "AI tools are accessible and available whenever I need them." Which scored 2.04 (SE = 0.054, SD = 0.766). Trust in AI was reflected in the statement "I trust the accuracy of AI-based assessments," which yielded a mean score of 2.28 (SE = 0.051, SD = 0.717) indicating a strong positive perception of AI's reliability. However, the personalized learning experience scored slightly lower, with "AI helps me receive personalized learning experiences" receiving a mean of 1.99 (SE = 0.058, SD = 0.824), suggesting only a moderate impact in this area. AI's effectiveness in reducing time spent on repetitive tasks was positively rated, with a mean score of 2.15 (SE = 0.055, SD = 0.773), while the clarity of AI-based tutorials received the highest score among all items, at 2.31 (SE = 0.057, SD = 0.804). This reflects students' appreciation for clear instructional support. Additionally, the statement "AI has enhanced my ability to self-study" received a moderate support mean score (SE = 0.062, SD = 0.877) reflecting mixed views on AI's role in promoting independent learning. Regarding understanding complex concepts, the statement "AI tools have made it easier to understand complex concepts" scored 2.12 (SE = 0.057, SD = 0.799) indicating moderate agreement. Students also perceived IA as enhancing their educational experience, as shown by "AI has positively influenced by overall educational experience, "which yielded a mean score of 2.22 (SE = 0.055, SD = 0.778). Furthermore, students felt that IA tools were worth the investment, scoring a mean of 2.22 (SE = 0.060, SD = 0.85). The statement "I feel comfortable using AI tools for my studies" had a mean score of 2.17 (SE = 0.068, SD = 0.966), reflecting some variability in comfort levels that may be influenced by prior experience. Finally, Students generally appreciate the motivational and

organizational support provided by AI. However, there are opportunities for improvement in areas like privacy protection, collaboration, and personalized learning experiences. The data indicates that while AI tools are valued, they may need further enhancement to effectively address the diverse educational needs of students.

Table 2: *Teachers' Perspectives toward artificial intelligence in education*

S. N	Perspectives	Mean	Standard error	Standard deviation
1	AI tools have improved the efficiency of my lesson plan.	1.95	0.185	0.826
2	AI has made grading assignments quicker and more accurate.	2.30	0.147	0.657
3	AI-driven platforms have enhanced my ability to provide personalized feedback to students.	2.00	0.145	0.649
4	AI has reduced the administrative burden associated with teaching.	2.30	0.193	0.865
5	AI has improved student engagement in my classroom.	2.30	0.231	1.031
6	I feel confident using AI-based educational tools.	2.40	0.222	0.995
7	AI has helped identify students who need additional support.	2.05	0.198	0.887
8	AI technology aligns with my teaching methods and style.	1.80	0.186	0.834
9	AI has made it easier to track student progress over time.	2.30	0.179	0.801
10	My institution has supported the implementation of AI well.	2.35	0.182	0.813
11	AI tools are reliable and function as expected.	2.60	0.184	0.821
12	AI-based assessments accurately reflect student learning.	2.40	0.184	0.821
13	The use of AI in education has positively impacted my job satisfaction.	2.55	0.185	0.826
14	AI tools have improved the quality of education I can provide.	2.15	0.1318	0.5879
15	AI systems are user-friendly and easy to integrate into my teaching routine.	1.95	0.135	0.605
16	AI has facilitated better communication with students and parents.	2.50	0.170	0.761
17	The training provided for AI tools was adequate and helpful.	2.85	0.167	0.745
18	AI helps in creating more inclusive learning environments.	2.25	0.176	0.786
19	AI can effectively adapt to different teaching strategies.	2.20	0.172	0.768
20	AI enhances my ability to research educational practices.	2.05	0.114	0.510
21	The data provided by AI helps me make informed decisions about my teaching.	2.40	0.222	0.995
22	AI systems respect student privacy and data security.	2.85	0.167	0.745
23	I feel AI tools have a positive impact on students' academic performance.	2.10	0.143	0.641
24	AI has improved collaboration among teachers.	2.65	0.182	0.813
25	I am satisfied with the AI tools available to me as a teacher.	2.05	0.135	0.605

Table 2 presents the data indicating varied teachers' perceptions of the AI tool's influence on teaching-learning activities. The statement "AI tools have improved the efficiency of my lesson plan" received a mean score of 1.95 (SE = 0.185, SD = 0.826), indicating a positive view of AI's impact on lesson planning. Similarly, the statement "AI has made grading assignments quicker and more accurate" achieved a mean score of 2.30 (SE = 0.147, SD = 0.657), reflecting stronger approval of AI's role in grading assignments quicker and more accurately. The potential for AI to enhance personalized feedback is moderately supported, as shown by the statement" AI-driven platforms have enhanced my ability to provide personalized feedback to

students," which scored a mean of 2.00 (SE = 0.145, SD = 0.649). The statement "AI has reduced the administrative burden associated with teaching" also received a score mean of 2.23 (SE = 0.193, SD = 0.865) indicating that teachers view AI as beneficial in reducing their workload. However, the impact of AI on student engagement varied, with the statement "AI has improved student engagement in my classroom" yielding a mean score of 2.30 (SE = 0.231, SD = 1.031) suggesting moderate agreement but considerable variability among respondents. Teachers displayed relatively high confidence in using AI-based tools, as reflected in the statement "I feel confident using AI-based educational tools," which achieved a mean score of 2.40 (SE = 0.222, SD = 0.995). Additionally, they recognized AI's utility in identifying students who need extra support, with the statement "AI has helped identify students who need additional support" scoring a mean of 2.05 (SE = 0.198, SD = 0.887).

Despite these positives, the alignment between AI technology and teaching methods received less support. The statement "AI technology aligns with my teaching methods and style" scored a mean of 1.80 (SE = 0.186, SD = 0.834), indicating that while the teacher recognizes AI's potential benefits, they may feel it does not fully complement their teaching approaches. Conversely, AI's role in tracking students' progress received a mean score of 2.30 (SE = 0.179, SD = 0.801), suggesting that teachers find AI useful for monitoring academic development. Lastly, institutional support for AI was rated relatively sell, as shown by the statement" The implementation of AI has been well supported by my institution, which scored a mean of 2.53 (SE = 0.182, SD = 0.813). This indicates that teachers generally feel supported by their institutions in adopting AI. Overall, while teachers acknowledge AI's benefit in efficiency, grading, and progress tracking, they perceive a need for better alignment with their teaching styles and a more consistent impact on student engagement. Additionally, the statement "AI tools are reliable and function as expected" received a mean score of 2.6 (SE = 0.184, SD = 0.821), suggesting that teachers generally find AI tools dependable. Moreover, "AI-based assessments accurately reflect students learning" scored a mean of 2.40 (SE = 0.184, SD = 0.821), indicating moderate agreement on AI's ability to evaluate students' performance accurately.

Teachers reported positive perceptions of AI's impact on their job satisfaction. The statement "The use of AI in education has positively impacted my job satisfaction" achieved a mean score of 21.55 (SE = 0.185, SD = 0.826), indicating that AI has moderately enhanced their work experience.

Especially, the statement "AI tools have improved the quality of education I can provide" received a mean score of 2.15 (SE = 0.131, SD = 0.587), indicating a neutral stance among teachers toward AI in education. The moderate standard deviation shows some diversity in views, with a small group seeing AI as beneficial, while others do not yet find it valuable. The user-friendliness of AI systems received mixed ratings. The statement "AI systems are user-friendly and easy to integrate into my teaching routine" scored a mean of 1.95 (SE = 0.35, SD = 0.605), indicating only a modest endorsement of AI's ease of use. The statement "AI has facilitated better communication with students and parents" scored 2.50 (SE = 0.17, SD = 0.761), reflecting a favorable view of AI's role in enhancing communication.

Adequate training was emphasized, as the statement "the training provided for AI tools was adequate and helpful" scored a mean of 2.85 (SE = 0.167, SD = 0.745). This suggests that teachers generally found the training effective in supporting their use of AI. AI's potential to foster inclusivity received moderate endorsement, with "AI help in creating more inclusive learning environments" achieving a mean score of 2.25 (SE = 0.176, SD = 0.786).

On adaptability, the statement "AI can effectively adapt to different teaching strategies" scored a mean of 2.2 (SE =

0.172, SD = 0.768), indicating moderate agreement but some variability among responses. Furthermore, "AI enhances my ability to research educational practices" has a mean score of 2.05 (SE = 0.114 SD = 0.5105), indicating a moderate but consistent perception of AI's support for research. The results offer insights into teacher's views on the effectiveness and impact of AI in education. The teacher indicated that data provided by AI helps them make more informed teaching decisions, with a mean score of 2.40 (SE = 0.222, SD = 0.99), indicating a positive perception of AI's data-driven insights. Additionally, the statement "AI system respect student privacy and data security" received a relatively high mean of 2.85 (SE = 0.167, SD = 0.745), suggesting strong trust in AI's ability to maintain student privacy and security.

Regarding perceived security academic impact, the statement "I feel AI tools have a positive impact on student's academic performance "achieved a mean score of 2.10 (SE = 0.143, SD = 0.641), indicating a moderate through slightly lower, endorsement of academic outcomes. collaboration among educators was positively rated, with "AI has improved collaboration among teachers" receiving a mean of 2.65 (SE = 0.1.82, SD = 0.813), indicating AI has played a role in enhancing teamwork and communication among teachers. Finally, satisfaction with available AI tools for teaching scored moderately with a mean of 2.05 (SE = 0.135, SD = 0.605), indicating general contentment but also room for improvement.

The study indicates that AI holds significant promise for enhancing various educational elements for both students and teachers, though its implementation yields mixed results and perceptions. students generally view AI as beneficial, particularly for personalized learning, real-time feedback, and improved organization, though its impact on enjoyment and motivation is modest, with modest, with persistent concerns about data privacy and control (Zafari et al., 2022; Herawatu et al., 2024). Teachers similarly recognize AI's benefits in reducing administrative burdens, particularly in lesson plan grading, allowing them more time for personalized instruction, however, concerns about AI's compatibility with individual teaching styles and the need for institutional support are prevalent (Altinay et al., 2024; Mahapatra et al., 2024). Additionally, AI raises questions about academic integrity as both students and teachers express the need for ethical guidelines to promote responsible use and preserve critical thinking skills, although, when used appropriately, AI has been shown to enhance academic performance and self-study (Ghimire et al., 2024). The findings underscore that institutional support and professional training are essential for effective AI integration, enabling teachers and students to maximize AI's potential while aligning its capabilities with pedagogical goals (Pedro et al, 2019; Deralkhshanian et al., 2024; Katsamakas et al. 2024; Daher and Husseing., 2024) and Mosly., 2024)

4. CONCLUSION

The study indicates that both students and teachers recognize the value of AI tools in enhancing educational experiences, although their perceptions vary in specific areas. Students appreciate AI's role in fostering engagement, motivation, and self-place learning, as well as its support for organization and academic performance. However, they also express mixed feelings about privacy, personalized learning experiences, and collaboration. Teachers, on the other hand, report that AI has positively improved lesson planning, grading efficiency, and data-driven insights, but they find less satisfaction in its alignment with their teaching methods and consistent student engagement. The findings of this study highlight AI's potential to revolutionize education by making learning more efficient, organized, and engaging. It suggests that while AI tools are advancing, improvements are needed in private safeguards, adaptability to teaching styles, and support for personalized learning. Addressing these areas could further enhance AI's effectiveness, fostering

a more inclusive and responsive educational environment for both teachers and students.

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