Bridging the AI Divide: A Study on Perceptions and Usage of Artificial Intelligence Tools Among Graduate Students in Nepal

Ashok Sharma
PhD Scholar
Computer Science and Engineering
Dr. K.N.Modi University, Rajasthan, India
er.ashoksharma23@gmail.com
https://orcid.org/0009-0004-4942-9032

Diwat Kumar Shrestha, PhD & PDF
Research Export
Nepal Philosophical Research Center, Kathmandu, Nepal
diwatstha3@gmail.com
https://orcid.org/0009-0007-7625-5076

Abstract

Background: The integration of Artificial Intelligence (AI) into higher education presents both opportunities and challenges, potentially exacerbating existing digital divides. In Nepal, disparities in digital access and skills persist, but limited research exists on how these divides manifest in the perceived usage and attitudes toward AI tools among graduate students, a key group for national AI adoption.

Objectives: This study aimed to investigate the dimensions of the digital divide in the use of AI tools among graduate students in Nepal, focusing on their perceptions, confidence, and trust, and to examine potential variations based on demographic factors such as gender and field of study.

Methods: A quantitative, descriptive-explanatory study was conducted with 226 graduate students from various disciplines within Kathmandu Valley, selected via simple random sampling. Data were collected through a structured questionnaire. Reliability was confirmed with a Cronbach's Alpha of .750, and construct validity was established through factor analysis. Data were analyzed using descriptive statistics and an independent samples t-test.

Findings: Results indicated generally positive perceptions of AI's utility, with students acknowledging awareness of beneficial tools. However, a significant confidence and trust gap

was identified, with notable portions expressing neutrality or doubt regarding the correctness of AI information and their own confidence in using AI for academic work. No statistically significant gender difference in perceptions was found. Variation was observed across academic disciplines, suggesting field-specific relevance as a potential factor.

Conclusion: The study concludes that the digital divide in Nepal's AI era is evolving beyond basic access into a second-level divide characterized by disparities in digital competence, critical evaluation skills, and trust in AI systems. Demographic factors like gender appear less influential than discipline-specific exposure and practical, critical literacy.

Implications: The findings underscore the need for educational policies and pedagogical strategies that move beyond providing access to focus on developing AI literacy, critical thinking, and discipline-specific competencies to ensure equitable and effective AI adoption in higher education.

Keywords: Artificial Intelligence, Digital Divide, Graduate Students, Nepal, Higher Education

1. Introduction

The rapid advancement of artificial intelligence (AI) is transforming societies globally, but it is simultaneously amplifying existing digital divides. In the AI era, the digital divide extends beyond mere access to technology, encompassing disparities in skills, usage, and the ability to leverage AI tools effectively. Globally, this divide manifests in unequal opportunities to benefit from AI-driven innovations, influenced by socio-economic factors, education, and geography (Krakowski, 2025). In Nepal, despite growing internet penetration and digital adoption, significant disparities remain in digital access and usage, especially among different socio-economic and geographic groups. Graduate students, as emerging professionals, are pivotal for AI adoption, yet their perceived usage of AI tools varies according to urban-rural, educational, and infrastructural differences, highlighting a critical area for study to understand and bridge the AI digital divide in Nepal (Poudel & Maharjan, 2025).

The global higher education landscape is undergoing a profound transformation driven by the rapid integration of Artificial Intelligence (AI). AI tools, particularly generative AI models like ChatGPT, are reshaping pedagogical methods, research processes, and academic support systems (Teräs, 2022). These technologies promise to enhance personalized learning, automate administrative tasks, and provide students with on-demand academic assistance, potentially leveling the educational playing field. The perception and adoption of these tools by students are critical, as their perceived usefulness and ease of use are foundational to their successful integration, as established by technology acceptance models (Davis, 1989).

In developing nations like Nepal, the potential of AI in education is particularly tantalizing, offering a means to bridge longstanding educational resource gaps. However, the adoption of such technologies does not occur in a vacuum; it is mediated by a complex interplay of access, skills, and socio-cultural factors, a phenomenon broadly conceptualized as the "digital divide" (Dijk, 2019). Initially focused on mere access to hardware and internet connectivity, the digital divide has evolved into a multi-level concept encompassing the gap in digital skills (the second-

level divide) and the disparities in the tangible outcomes derived from technology use (the third-level divide) (Scheerder et al., 2017). The advent of sophisticated AI tools introduces a new, "fourth-level" divide, characterized by disparities in the awareness, access to, and strategic use of advanced computational resources for competitive advantage (Twizeyimana & Andersson, 2019).

While the digital divide in Nepal has been studied with a focus on internet access and digital literacy (Karki et al., 2021), research specifically addressing the nuances of AI tool usage among graduate students remains limited. Recent studies show that although AI awareness is growing, actual usage and skill levels differ significantly across regions and disciplines, with urban students having more exposure than rural counterparts. The social factors also determine the use of modern technology and devices(Shrestha, Karki, et al., 2024). There is a dearth of research exploring the perceived usage, attitudes, and barriers graduate students face regarding AI tools, particularly linking socio-economic, gender, and educational backgrounds in Nepal's unique context. Furthermore, the evolving nature of the AI divide, reflecting disparities in cognitive access and digital skills, calls for updated empirical insights to address gaps in AI literacy and equitable technology adoption among Nepalese students (Chand et al., 2024).

The primary objective of this research is to investigate the dimensions of the digital divide in the use of AI tools among graduate students in Nepal.

2. Materials & Methods

This study employed a quantitative research approach, utilizing a research design that was both descriptive and explanatory (Shrestha et al., 2024). The primary objective was to systematically describe the perceptions of graduate students regarding the use of AI tools and to explain the potential factors contributing to the digital divide in this context. The study was conducted within the Kathmandu Valley, Nepal, a hub for higher education that hosts a significant concentration of the nation's universities and graduate students. The respondents were graduate students enrolled in various disciplines across multiple institutions in the valley. The sample size was determined to be 226, calculated using a standard formula considering a 95% confidence level, a 50% response distribution for maximum variability, and a 7% margin of error to ensure a representative and reliable subset of the population (Karki & D'Mello, 2024). The simple random sampling technique was used to select the respondents from the various disciplines(Karki, 2019). The study has focused on the gender perspective to understand the use of AI in their study and learning (Karki & Khadka, 2019a, 2019b).

Data collection was carried out through a structured questionnaire survey, which was distributed both online and in-person to reach a diverse student body. The survey instrument was designed to capture demographic information and students' perceptions across key constructs related to AI usage. To ensure the internal consistency and reliability of the multi-item scales used to measure these perceptions, a reliability test was conducted. The result was a Cronbach's Alpha value of .750, indicating a good level of reliability for the research instrument. Furthermore, a factor analysis was performed to validate the construct validity of the survey items. The analysis confirmed a strong relationship between each statement and its

intended construct, with all items demonstrating high factor loading values ranging from .815 to .953, thus affirming the robustness of the measurement scale used in the analysis.

3. Results and Discussion

This section has covered the demographic analysis of respondents and statistical analysis of the perception of respondents towards the use of AI for their study and professional learning. It has also included the result of the reliability test. Table 1 to 3 gives the data on gender distribution, age groups, and field of study of respondents.

Table 1: Gender participation

		Frequency	Percent
Gender	Male	94	41.6
	Female	132	58.4
	Total	226	100.0

Source: Field Survey, 2025

Of the 226 participants in the study on the perceived use of AI for learning, the majority were female, representing 132 individuals or 58.4% of the total sample, while male participants numbered 94, constituting the remaining 41.6%. This composition indicates a gender distribution skewed towards female graduate students, who thus provided a predominant perspective in the research findings.

Table 2: Age group of Respondents

		Frequency	Percent
Age (in Years)	Below 18	13	5.8
	18-20	41	18.1
	21-24	148	65.5
	25 & above	24	10.6
	Total	226	100.0

Source: Field Survey, 2025

Of the 226 respondents, the overwhelming majority (148 individuals or 65.5%) were between 21 and 24 years old, establishing this as the dominant age cohort in the study. The 18-20 age group was the second largest, comprising 41 participants (18.1%), while those aged 25 and above and those below 18 represented smaller segments of the sample, at 10.6% (24 individuals) and 5.8% (13 individuals) respectively. This distribution clearly indicates that the study's findings on the perceived use of AI are primarily representative of young graduate students in their early twenties.

Table 3: Field of Study of Respondents

		Frequency	Percent
Field of Study	Business	94	41.6
	Information Technology	28	12.4
	Health & Welfare	48	21.2
	Hospitality	15	6.6
	Others	41	18.1
	Total	226	100.0

Source: Field Survey, 2025

Of the 226 respondents, the field of Business was the most heavily represented, comprising 94 students or 41.6% of the sample. Health & Welfare was the second largest group with 48

participants (21.2%), followed by the "Others" category at 18.1% (41 individuals). Information Technology and Hospitality students represented smaller segments, constituting 12.4% (28 individuals) and 6.6% (15 individuals) of the respondent pool, respectively. This distribution indicates that the study's findings on the perceived use of AI are predominantly informed by the perspectives of graduate students in the Business and Health & Welfare fields.

Table 4: Reliability Statistics

Statements	Mean	Factor Loading Value	Cronbach's Alpha
I have a positive view on using AI in my studies.	5.19	.816	
I trust that the information provided by AI is correct.	4.77	.815	
I know what AI tools I can benefit from the most in my studies.	5.28	.822	**.750**
I feel confident using AI in my assignments, essays, etc.	4.75	.817	
I can study without using AI tools for my assignments, essays, etc.	5.01	.953	

Source: Field Survey, 2025

Table 4 presents the reliability statistics for the scale measuring graduate students' perceptions of AI use. The overall scale demonstrated high internal consistency, as indicated by a Cronbach's Alpha of .750, confirming that the statements reliably measured the same underlying construct. The individual statements all exhibited strong factor loading values, well above the conventional threshold, signifying that each item is a meaningful contributor to the overall scale. The mean scores for the statements were all above the neutral point, ranging from 4.75 to 5.28 on a Likert scale. Notably, students felt most certain about the specific AI tools that benefit them (Mean=5.28) and their ability to study without AI (Mean=5.01), while showing slightly less confidence in their trust in AI's correctness (Mean=4.77) and their own confidence in using AI for assignments (Mean=4.75).

Table 5: Response to the use of AI (Frequency Distribution)

Statements		Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Total
I have a positive view on using AI in my studies	Frequency	7	1	13	42	52	79	32	226
	Percent	3.1	.4	5.8	18.6	23.0	35.0	14.2	100.0
I trust that the information provided by AI is correct	Frequency	7	7	19	61	49	71	12	226
	Percent	3.1	3.1	8.4	27.0	21.7	31.4	5.3	100.0
I know what AI tools I can benefit from the most in my studies	Frequency	1	5	15	30	59	90	26	226
	Percent	.4	2.2	6.6	13.3	26.1	39.8	11.5	100.0
I feel confident using AI in my assignments, essays, etc.	Frequency	3	7	26	54	69	52	15	226
	Percent	1.3	3.1	11.5	23.9	30.5	23.0	6.6	100.0
I am able to study also without using AI tools for my assignments, essays, etc.	Frequency	2	18	14	41	53	62	36	226
	Percent	.9	8.0	6.2	18.1	23.5	27.4	15.9	100.0

Source: Field Survey, 2025

The data in Table 5 reveals a generally favorable disposition among graduate students towards the use of AI in their studies. A strong majority hold a positive view, with over 72% somewhat agreeing to strongly agreeing with the first statement, and a similar majority (72.4%) feel they know which AI tools benefit them most. However, this optimism is tempered by a significant degree of caution and neutrality. For instance, while a combined 58.1% agree that they trust the correctness of AI-generated information, a notable 27% remain neutral on the matter, and another 14.6% express some level of disagreement, indicating that trust is a significant factor. Further nuances in their confidence are apparent in the subsequent statements. When it comes to the practical application of AI, students show more mixed feelings; while 60.1% feel confident using AI in their assignments, a substantial 23.9% are neutral, and 15.9% are not confident. Interestingly, students express a strong sense of self-reliance, with the highest level of strong agreement (15.9%) appearing for the statement about being able to study without AI, and a combined 66.8% agreeing with this sentiment. This suggests that while AI is seen as a beneficial tool, it is not perceived as an indispensable crutch for most graduate students.

Table 6: Gender Differences in Perception of Use of AI

Group Statistics					
	Gender	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Perception of Use of AI	Male	94	5.0106	1.10497	.11397
	Female	132	4.9924	.82385	.07171

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Perception of Use of AI	Equal variances assumed	1.627	.203	.142	224	.887	.01821	.12831	-.23463	.27106
	Equal variances not assumed			.135	163.063	.893	.01821	.13465	-.24767	.28410

Source: Field Survey, 2025

Table 6 presents the results of an independent samples t-test conducted to determine if there is a statistically significant difference in the perception of AI use between male and female graduate students. The group statistics show that the mean perception score for males (N=94, Mean=5.01, SD=1.10) was marginally higher than the mean score for females (N=132, Mean=4.99, SD=0.82). This initial comparison indicates a very slight tendency for male students to report a more positive perception of AI, but the practical difference in the mean scores is negligible.

The independent samples test confirms that this minor difference in means is not statistically significant. Levene's test for equality of variances was not significant (F=1.627, p=.203), indicating that the variances between the two groups can be considered equal. Therefore, the results from the first row, "Equal variances assumed," are used. The t-test reveals a non-significant value (t=.142, df=224, p=.887). The high p-value, far exceeding the common alpha level of .05, means we fail to reject the null hypothesis. In conclusion, there is no statistically significant evidence of a difference in the perception of AI use between male and female students in this sample.

The findings of this study present a paradox that characterizes the AI integration landscape in Nepalese higher education. On one hand, the generally high mean scores and strong factor loadings indicate a robust positive perception and a clear recognition of AI's utility among graduate students. This suggests a successful initial penetration of AI awareness, aligning with global trends of technological acceptance in academia. However, a deeper analysis of the frequency distributions reveals a more complex picture, uncovering a significant confidence and trust gap. While students acknowledge AI's potential, a substantial minority expresses neutrality or disagreement regarding their confidence in using AI for assignments and, more critically, in trusting the correctness of AI-generated information. This indicates that the digital divide in the Nepalese context has evolved beyond mere access; it is now a "second-level" divide centered on digital competence and critical evaluation skills.

A pivotal finding is the absence of a statistically significant gender difference in perceptions. This challenges common assumptions that often guide digital inclusion policies and redirects the focus towards other, more salient axes of inequality. The variation in representation across fields of study suggests that disciplinary exposure and the perceived relevance of AI to specific academic domains may be a more powerful driver of the divide than gender. Therefore, the discussion moves beyond who is using AI to how and why they are using it. The central argument is that the emerging digital divide in Nepal's AI era is not primarily defined by demographic factors like gender, but by a complex interplay of discipline-specific applicability, practical digital literacy, and, crucially, a deficit in critical trust towards AI systems. This underscores the need for pedagogical and institutional strategies that build not just access, but also competence and critical discernment.

4. Conclusion and Recommendation

Based on the findings of this study, it can be concluded that while graduate students in Nepal, particularly those in Kathmandu Valley, generally hold positive perceptions towards the use of AI in their learning, a nuanced digital divide persists. The high mean scores and strong factor loadings confirm that students recognize the utility of AI and feel knowledgeable about beneficial tools. However, the frequency distributions reveal critical fissures in this optimism; a significant portion of students remain neutral or express a lack of confidence and trust in AI, indicating that adoption is not universal. Crucially, the non-significant difference in perceptions based on gender suggests that the traditional axis of the digital divide may be shifting. The

divide appears to be more closely linked to a "second-level" disparity in digital skills and confidence, as evidenced by the gap between positive views and practical application, and potentially to disciplinary backgrounds, given the skewed representation of fields like Business and Health in the sample.

To address this evolving divide, a multi-pronged approach is recommended. Firstly, universities should move beyond providing basic access and develop targeted AI literacy programs. These initiatives should focus on building practical skills and critical evaluation competencies to bridge the confidence gap, teaching students not just how to use AI tools, but how to assess their outputs ethically and effectively. Secondly, academic departments, especially those in Health & Welfare and Hospitality, which showed lower representation, should integrate discipline-specific AI applications into their curricula. This would demonstrate the direct relevance of AI, moving it from a generic tool to a core component of professional training. Finally, university policy bodies must proactively develop clear, equitable guidelines on the ethical use of AI in academia. This will help institutionalize its benefits while mitigating risks, ensuring that the integration of AI in Nepalese higher education reduces, rather than exacerbates, existing educational inequalities.

References

Chand, M. B., K.C., S., & Maharjan, M. (2024). Unveiling Disparities: A Case of Digital Divide in Nepal. *The Journal of Economic Concerns*, *15*(1), 130–142. https://doi.org/10.3126/tjec.v15i1.70246

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, *13*(3), 319–340. https://doi.org/10.2307/249008

Dijk, V. (2019). *What is the Digital Divide ? Introduction : the concept of the digital divide*. Polity Press.

Karki, T. B. (2019). Menstrual effect on education of girl student: Cases from secondary level school of Kathmandu, Nepal. *World Wide Journal of Multidisciplinary Research and Development*, *5*(1), 66–69.

Karki, T. B., & D'Mello, L. (2024). Fear of Death Among the Youth: Gender Perspective in Nepalese Context. *International Journal of Atharva*, *2*(2), 1–9. https://doi.org/10.3126/ija.v2i2.69822

Karki, T. B., & Khadka, K. (2019a). Cultural Barrier at the time of Menstruation: Perspective from Girl Students. *Nepal Journal of Multidisciplinary Research*, *2*(2), 16–20. https://doi.org/10.3126/njmr.v2i2.26281

Karki, T. B., & Khadka, K. (2019b). Social discourses on practices and remedies of the harmful tradition of Chhaupadi in far western region of Nepal. *Nepal Journal of Multidisciplinary Research*, *2*(1), 1–6. https://scholar.google.com/citations?view_op=view_citation&hl=en&user=KBnl-SkAAAAJ&citation_for_view=KBnl-SkAAAAJ:qjMakFHDy7sC

Karki, T. B., Mahat, D., & Kandel, D. R. (2021). Effectiveness of Online Class and Physical Class during Covid-19 Pandemic. *Nepal Journal of Multidisciplinary Research*, *4*(1), 14–30. https://doi.org/10.3126/njmr.v4i1.36615

Krakowski, S. (2025). Human-AI agency in the age of generative AI. *Information and Organization*, *35*(1), 100560. https://doi.org/10.1016/j.infoandorg.2025.100560

Mahat, Dipak and Aithal, P. S., Socio-culture and Women Career Development: References to Government Agencies of Nepal (June 27, 2023). International Journal of Management, Technology, and Social Sciences (IJMTS), Vol. 7, No. 2.

Parajuli, S. K., Mahat, D., & Lingden, B. (2022). Organization learning, dissemination of knowledge and organizational performance in Nepalese banking sectors. *Nepal Journal of Multidisciplinary Research*, *5*(5), 75-85.

Poudel, S., & Maharjan, S. (2025). Artificial Intelligence and Education in Nepal: A Mixed-Methods Study on Student Adoption and Learning Outcomes. *American Journal of Data Science and Artificial Intelligence*, *1*(2), 18–25. https://doi.org/10.54536/ajdsai.v1i2.4763

Scheerder, A., van Deursen, A., & van Dijk, J. (2017). Determinants of Internet skills, uses, and outcomes. A systematic review of the second- and third-level digital divide. *Telematics and Informatics*, *34*(8), 1607–1624. https://doi.org/10.1016/j.tele.2017.07.007

Shrestha, S. K., Karki, T. B., Mahat, D., & Neupane, D. (2024). The role of social influence in mediating the relationship between relative advantage and purchase intentions for smartphones: A study in Kathmandu, Nepal. *International Journal of Management and Sustainability*, *13*(4), 935–948. https://doi.org/10.18488/11.v13i4.3957

Shrestha, S. K., Neupane, D., Karki, T. B., & Mahat, D. (2024). Insights into Paper Souvenir Purchase Intention of Tourists in Nepal. *Nepal Journal of Multidisciplinary Research*, *7*(4), 104–113. https://doi.org/10.3126/njmr.v7i4.73913

Teräs, M. (2022). Education and technology: Key issues and debates. *International Review of Education*, *68*(4), 635–636. https://doi.org/10.1007/s11159-022-09971-9

Twizeyimana, J. D., & Andersson, A. (2019). The public value of E-Government – A literature review. *Government Information Quarterly*, *36*(2), 167–178. https://doi.org/10.1016/j.giq.2019.01.001