Age, Gender, and Education: How Demographics Shape Attitudes toward Artificial Intelligence in Sikkim's Academic Community

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Abstract:*This study examines how academics and learners in Sikkim, India's higher education institutions view the impact of artificial intelligence (AI) in connection to demographic variables. In order to promote inclusive adoption of AI as technology becomes more and more incorporated into education, it is essential to comprehend how socioeconomic position, age, gender, educational background, and vocation affect views toward AI Structured questionnaires were used to gather data from 100 teachers and 100 University and college students using convenience sampling as part of a mixed-methods strategy. The chi-square tests are used to assess the association between demographic profiles and AI perceptions. The Key findings imply clear demographic imbalance: older versus younger and less versus more educated people report different perceived AI, Gender distinctness was also evident. The research emphasizes the importance of both targeted AI literacy education programs and policy measures to deal with population-specific issues, providing young people with equally fair accesses to AI integrated education. This understanding adds to the worldwide discussion on AI acceptance and provides country-specific advice to educators and policy-makers in India.*

Keywords: Artificial Intelligence, Demographic Factors, AI perception, Education, India, Technology acceptance

I. INTRODUCTION

The history and context of artificial intelligence (AI) demonstrate how it may be both a cause of societal concern and a transformational force. AI's integration into various sectors, such as healthcare, radiology, and everyday applications, underscores its potential to enhance efficiency and innovation (*Catalina et al., 2023; Beets et al., 2023*). However, AI's perceptions are marked by variability and significance, impacted by elements like perceived risks, advantages, and trust. For instance, while many view AI as a tool for simplifying life and increasing efficiency, concerns about unemployment and social inequalities persist (*Bozkurt & Gürsoy, 2023)*. There are differences in how AI is seen; it varies across different roles, such as tools, servants, assistants, and mediators, with each role eliciting different levels of favourability basedinvolvement of human and AI autonomy *(Kim et al., 2023*). Demographic characteristics significantly impact on how AI is perceived, with age, gender, education, and technological skill being crucial variables. AI is generally more well-known and seen favourably by younger people and those with higher degrees of education (*Moravec et al., 2024; Brauner et al., 2024)*. Furthermore, different fields have different levels of trust in AI systems, with perceptions being improved by technological proficiency and knowledge of AI of its capabilities and benevolence *(Novozhilova et al., n.d.*). The societal acceptance of AI is further shaped by the perceived trade-offs between its risks and benefits, with public opinion often divided along lines of trust and perceived vulnerabilities (*Gerlich, 2023*). In healthcare, while AI is seen as beneficial, Data privacy and decision-making autonomy continue to be major concerns (*Beets et al., 2023)*. In general, the way AI is seen involves a complicated interaction between opportunities and risks, shaped by demographic factors and societal narratives, highlighting the need for tailored communication strategies to enhance AI literacy and acceptance (*Budeanu et al., 2023; Ding et al., 2024).*

II REVIEW OF LITERATURE

Social, cultural, and personal aspects all affect how the general public views artificial intelligence (AI). Various studies says that individuals perceive AI as both a potential facilitator and cause for concern too. In fact, the global surveys reports that there are significant demands for regulation due to ethical and employment loss reasons while

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there is general perception that AI can benefit society, (*Seth, 2024; Kelley et al., 2021*). In Germany, there was a study that brought out the fact that cyber security threats are a key issue, with individuals showing admiration for how AI can do things while fearing that AI is not transparent (*Brauner et al., 2023).*In the US, the media narratives are also key to influencing public opinion, balancing between emphasizing the virtues of AI while bringing up ethical concerns like privacy and surveillance *(Celik, 2024)*. Public trust in AI varies in Australia according to its application, with people being more skeptical of AI used by governments or businesses and more trusting of urban services *(Yigitcanlar et al., 2022)*. In addition, age, gender, and experience with AI have important bearing on perceptions, with youth and technologically experienced individuals tending to be more positive overall *(Yigitcanlar et al., 2022; Liehner et al., 2023*). Despite such apprehensions, there is a predisposition to accept AI, as long as ethical issues are catered to and education is increased to de-mystify AI technologies *(Flores, 2024; Liehner et al., 2023).*In order to connect AI development with societal values and requirements, it is crucial to raise AI literacy and build policies (Brauner et al., 2023; Brauner et al., 2024). By and large, though AI is regarded as an innovation and problem-solving tool, its uptake depends on solving public issues as well as promoting responsible development and regulation *(Seth, 2024; Brauner et al., 2024*).

The development of attitudes toward artificial intelligence (AI) is heavily influenced by demographicsand whether AI will be viewed as a threat or an opportunity. Education, age, and income play a critical role in grasping AI's discriminatory consequences, with older people and those with lower income being more likely to demonstrate cognitive deficits in understanding such consequences, calling for higher digital literacy and self-efficacy to earn trust in AI *(Kim, 2024)*. Similarly, whether AI is perceived as a threat or an opportunity depends on the age, gender, profession, and religious involvement among younger people while higher religious involvement among the individuals are more likely to view AI as a threat *(Bozkurt & Gürsoy, 2023)*. AI anxiety and agreeableness are two personality traits that are important in regard to opinions about AI where higher levels of AI anxiety are linked to unfavorable feelings *(Kaya et al., 2022)*. Cultural context also influences AI perceptions, as witnessed in the UK and USA, where age, gender, and cultural differences influence whether AI is perceived as threat or good *(Grassini & Ree, 2023*). In Germany, despite AI being widely accepted, demographic differences in AI experience are narrow, indicating widespread acceptance across multiple domains irrespective of limited first-hand experience *(Gnambs et al., 2025*). In Saudi Arabia, gender, marital status, and education level of the population have significant impacts on the intention to use AI financial services, with unmarried, less formally educated, and younger individuals demonstrating higher interest *(Alkadi, 2025)*. Additionally, age and gender are demographic factors impacting knowledge and attitudes about AI among university students in Malaysia, affecting their performance at university and their choice of career in the future (*Tin, 2024)*. Finally, regulation support for AI is linked to demographic characteristics like age, gender, and wealth, albeit with relatively limited effects, suggesting other determinants are involved in the construction of support for regulation (*Bartneck et al., 2023)*. In total, these studies highlight the multifaceted interaction among demographic factors and AI perceptions, calling for targeted strategies in AI education and policy-making in order to respond to different public concerns and boost societal acceptance of AI technologies.

III RESEARCH DESIGN

III.1. Objective of the Study

The study aims to examine the association between demographic variables and perceived influence of AI. Different impacts of AI technology Considering that AI-related technologies are more and more influencing different aspects education both students and teacher. Their perceptions on its impacts could be different across diversity variables. Therefore, the study used a survey to evaluate the relationship between students' and teachers' understandings, acceptance, benefits, and concerns about artificial intelligence (AI) and demographic parameters such age, gender, education occupation, and other socioeconomic status.

By examining these associations, the study attempts to reveal patterns and variation in perception across varied demographic groups, providing insights that can inform more inclusive and effective AI-related policies, awareness programs, and implementations

III.2. Research Method

Through a structured questionnaire, a standardized technique is used to gather data from both teachers and students. This method enables a thorough examination, where quantitative data gives measurable inputs about AI adoption and performance, while innovative responses grant profound understanding of difficulties and suggestions.

The survey targets acquiring facts directly from educators, grasping their experiences, feelings, and worries about the employment of AI in teaching. A fair knowledge of AI's function in education is ensured by the structured questionnaire, which includes open-ended questions for deeper insights and 5-point Likert-scale questions for measurable answers.

Teachers' responses reveal usability, adoption barriers, and the level of effectiveness, while students' input offers perspectives on engagement and learning experiences.

After the data is collected the responses are recorded in the Excel sheet wherein data coding, cleaning and the filtration is duly taken place. The obtained responses are transformed into an ordered categorical variable with three levels *(low, medium, and high)* using the three equal percentiles method in SPSS. In particular, information is categorized as low if it falls below the 33rd percentile, as medium if it falls between the 33rd and 66th percentiles, and as high if it exceeds the 66th percentile.

After this the SPSS is used to check the association between the demographic variable and the perceived impact of AI.

III.3. Source of Data

This study aims to find out how AI-powered tools

impact teaching and student learning. For this purpose, data was collected from 100 students and 100 teachers from different institutions/Universities of Sikkim. Their availability and willingness to participate in the study were taken into consideration when choosing the participants.

A convenience sampling method was used. This means the researcher collected data from students and teachers who were easily accessible. This helped in collecting data quickly from a wide range of participants.

IV RESULTS & FINDINGS

To ascertain whether there is a relationship between the demographic profile and the students' opinions of AI, the following hypothesis is developed and examined using the chi-square test.

H_1= *There is a significant association between the Demographic variable (*Gender, Age, permanent resident, stream and board***)*** *and Perceived AI impact (students)*

H_0= *There is no significant association between the Demographic variable (*Gender, Age, permanent resident, stream and board***)*** *and Perceived AI impact (students)*

Table No. 1: Demographic Profiles of Students

Demographic	Perceived Impact of AI (Students)			Total	(χ^2)
Gender	**High**	**Moderate**	**Low**		
Male	12	13	10	35	1.508^{NS}
Female	21	18	26	65	(0.47)
Age	**High**	**Moderate**	**Low**	**Total**	**(χ^2)**
Less than 20	17	7	16	40	
20-22	8	16	5	29	13.633^{***}
Above 22	8	8	14	30	(0.00)
Permanent Resident	**High**	**Moderate**	**Low**	**Total**	**(χ^2)**
Gangtok district	3	3	11	17	
Mangan district	3	8	2	13	13.106^{*}
Namchi district	16	12	15	43	(0.04)
Geyzing district	11	8	8	27	
Stream (Class XII)	**High**	**Moderate**	**Low**	**Total**	**(χ^2)**
Arts	5	6	10	21	
Commerce	23	15	24	62	9.819^{*}
Science	5	10	2	17	(0.04)
Board (Class XII)	**High**	**Moderate**	**Low**	**Total**	**(χ^2)**
CBSE	31	15	20	66	4.214^{NS}
ICSE	0	16	15	31	(0.378)
Others	2	0	1	3	

Source: *Computed by Author*

The chi-square (÷²) test is used to determine whether two categorical variables have a significant association. The null hypothesis (H€) maintains that there is no relationship between the variables, whereas the alternative hypothesis (H) argues that there is. The chi-square test assesses the relationship between observed and anticipated frequencies, while the p-value indicates the probability of obtaining a result at least as extreme as the one seen, assuming the null hypothesis is true.

The *Table No. 1* highlights how different groups of students perceive the impact of AI based on their background, like *gender, age, where they live, their stream in Class XII, and the board they studied under.*

The results clearly demonstrate that students' gender and board have a substantial impact on how they perceive the implications of AI. Therefore the P value is higher than 0.05. The null hypothesis cannot be rejected, and it is concluded that the demographic variable (Gender and Board) and the perceived influence of AI do not significantly correlate. Students' opinions on the impact of AI were fairly similar regardless of their gender or the board they attended.

However, there are significant differences in age, permanent residence, and stream. We reject the null hypothesis since the P value is less than 0.05. The demographic variables (age, permanent residence, and stream) and perceived AI influence are found to be significantly correlated. It is evident that they held differing views, with some indicating diverse degrees of impact—high, moderate, or low.

The following hypothesis is developed and tested using the chi-square test in order to see whether the demographic profile and teachers' perceptions of AI are related.

H_1= *There is a significant association between the Demographic variable (*Gender, Age, Nature of Employment, Designation***)*** *and Perceived AI impact (teachers)*

H_0= *There is no significant association between the Demographic variable (*Gender, Age, Nature of Employment, Designation***)*** *and Perceived AI impact (teachers)*

Table No. 2: Demographic Profiles of Teachers

Demographic	Perceived Impact of AI (Teachers)				Test
Gender	**High**	**Moderate**	**Low**	**Total**	**(χ^2)**
Male	22	21	21	64	0.558^{NS}
Female	10	12	14	36	(0.756)
Age	**High**	**Moderate**	**Low**	**Total**	**(χ^2)**
Below 32	19	11	7	37	1.519^{***}
32–42	14	10	7	31	(0.00)
42 and above	8	12	11	31	
Nature of Employment	**High**	**Moderate**	**Low**	**Total**	**(χ^2)**
Regular	12	9	9	30	2.021^{NS}
Ad hoc/Consolidated	10	15	14	39	(0.732)
Others	10	9	12	31	
Designation	**High**	**Moderate**	**Low**	**Total**	**(χ^2)**
Assistant Professor	24	24	27	75	1.667
Associate Professor	1	1	2	4	(0.00)
Professor	1	1	0	2	
Others	6	7	6	19	

Source: *Computed by the Author*

Given that the p-values for gender and type of job are higher than the conventional significance level of 0.05, the observed distributions of High, Moderate, and Low categories across the demographic parameters in table No. 2 above do not deviate significantly from what would be expected by chance. Consequently, we cannot rule out the null hypothesis in the case of gender and demographic variable nature of work, suggesting that gender and perceived AI influence on these demographic variable natures of employment do not statistically correlate. However, for the demographic variables Age and Designation, the P value is smaller than 0.05.

As a result, we reject the null hypothesis, indicating that

the demographic variables of age and designation and the perceived influence of AI are statistically significantly correlated.

The analysis reveals that GenderandNature of Employmentdo not exhibit significant associations with the perceived impact of the AI. This suggests that the distribution of respondents across the High**,** Moderate**,** and Low categories is independent of these demographic factors. However, Ageanddesignation exhibit significant associations with the perceived impact of the AI suggesting that the distribution of respondents across the High**,** Moderate**,** and Low categories is not independent of these demographic factors.

V CONCLUSION

The AI based tools are helping education to enhance its quality. These tools help teachers in some of their work such as grading, lesson planning, giving feedback. It helps teachers to focus more on creative teaching approaches and student engagement. Students benefit from AI tools that provide personal learning, interactivity and instantaneous feedback, meaning that they are more likely to remain engaged and understand the topic better.

The demographic characteristics of both Teachers and students are very important in formation of perception level about artificial intelligence effect on education. As was said in the section above, demographic factors like as age, occupation, place of residence, and stream have a direct influence on how prospective users view, accept, and utilize AI products. It is considered necessary to properly understand these differences in order to put them into an inclusive approach of AI integration, addressing diverse needs and maximizing teaching efficiency and learning results**.**

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