Artificial Intelligence: Exploring The Attitudes Of Undergraduate Students

[1]Dr. Dipankar Das, [2]Dr. Jayatri Chakraborty

[1]State Aided College Teacher, [2]Assistant Professor,

[1]Department of Education,

[1]Serampore College, Serampore, West Bengal, India

Abstract: Artificial Intelligence refers to the capability of machines to perform tasks that typically need human intelligence such as learning, problem solving, and decision making. It incorporates a wide range of technologies and techniques that enable computers to mimic cognitive functions and exhibit human like capabilities. Attitude is a mental tendency that how someone thinks, feels, or behaves towards something's or someone in a positive or negative way. Attitudes towards AI are influenced by perceived usefulness, ease of use, and the risks associated with AI. These attitudes, in turn, influence an individual's intentions to use AI or not. Undergraduate students play a vital and growing role in the field of artificial intelligence contributing across academics, research, skill development and real world innovation. Therefore, their attitudes are very important in this perspective. The objective of this article is to examine college students' attitudes toward artificial intelligence. Stratified random sampling was used for selecting the sample comprising of 203 (Male=58 and female=145) undergraduate students from Serampore College, affiliated to University of Calcutta, West Bengal, India. Descriptive survey research design was used. The General Attitudes towards Artificial Intelligence Scale (GAAIS) was used to collect data. Data were analysed by using Mean, SD, t-test, ANOVA. The result indicated that undergraduate students display positive attitudes towards AI. The finding discovered that no significant difference in regard to attitudes towards artificial intelligence between male and female students. The result also displayed that there was a significant difference in regard to residence of student's attitudes towards artificial intelligence in positive subscale but no significant difference in regard to residence of student's attitudes in negative subscale.

Key words: Artificial Intelligence, attitudes, undergraduate students, GAAIS.

I. INTRODUCTION

Since the invention of computers and machines, their ability to perform various tasks has increased dramatically. People have caught up with the power of computer systems in terms of diversifying work areas, increasing speed and decreasing size relative to time. The branch of computer science known as artificial intelligence is concerned with creating machines or computers that are as intelligent as human.

The term artificial intelligence was first used John McCarthy in 1956. Artificial intelligence is a technology that enables systems to replicate human behavior and thoughts. It is a collection of many diverse technologies working together to support machines to sense, comprehend, act, and learn with human like levels of intelligence. It is a field that associations several scientific and technological disciplines which include computer science, Biology, Psychology, Linguistics, Mathematics, and Engineering. It can perform tasks with reasoning, learning, and solving problems similar to human intelligence.
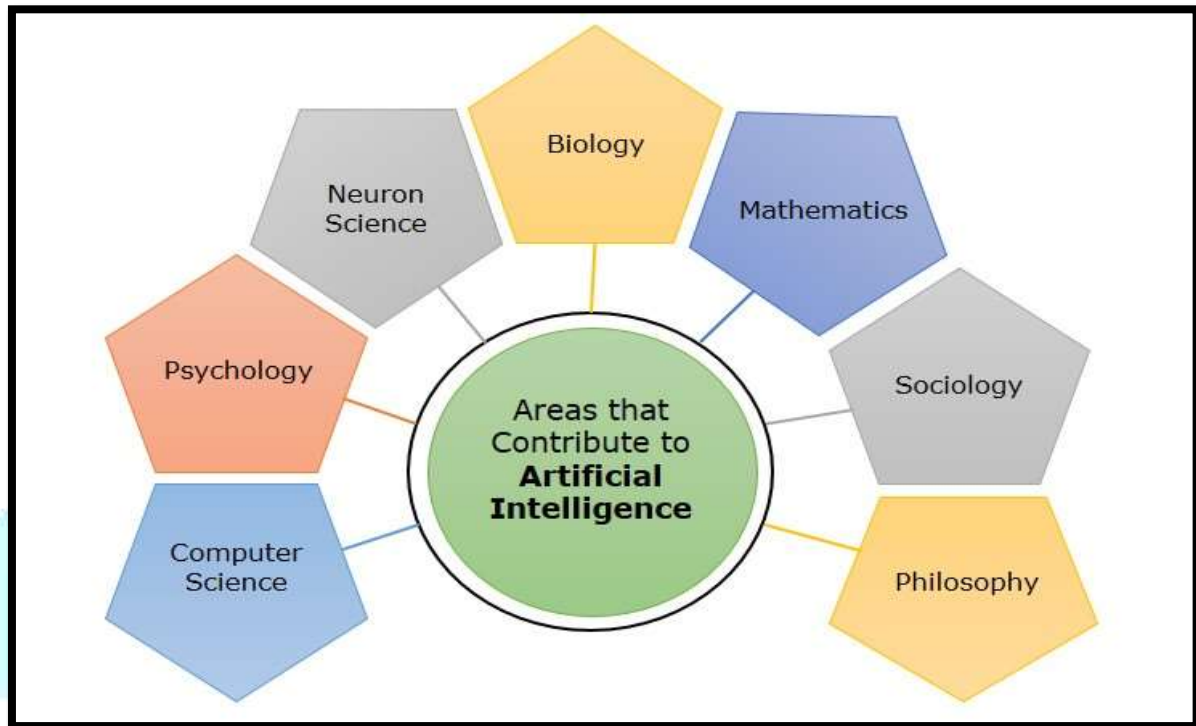
Source:https://www.tutorialspoint.com/artificial_intelligence/artificial_intelligence_overview.htm

Today AI is universal and offers innovatory potential for education. With AI, educators can adapt learning experiences to individual student needs, making education more effective and attractive. AI-enabled technologies also support in administrative tasks, restructuring operations and freeing up educators to focus on teaching. Educators observe opportunities to use AI-powered competences like speech recognition to enhance the support obtainable to students with disabilities, multilingual learners, and others who could assistance from greater adaptively and personalization in digital tools for learning. As AI tools become more integrated into university environments, understanding how undergraduate students perceive and interact with these technologies becomes critical. Attitudes towards AI can significantly shape how students engage with educational tools, adopt new technologies, and develop skills needed for future careers in a digital driven world. Insight into student attitudes can help educators and institutions make informed decisions about implementing AI tools in ways that support student engagement, learning and well-being. Therefore, students' attitude towards AI is important and essential part of educational system as well as their personal life.

Tien, L. M. (2024) found that Vietnamese undergraduate students expressed moderately positive attitudes towards artificial intelligence and also revealed that no significant difference in attitudes based on gender of students but there was a prominent difference found on the student's year of study at university. Katsantonis, A. & Katsantonis, I. G. (2024) showed that university students feel positive attitudes towards artificial intelligence and also found that strongest relationship among cognitive, behavioural and emotional

components of attitudes towards artificial intelligence. On the other hand, Hajam, B. K. &Gahir, S. (2024) in their study examined that no difference in attitudes toward artificial intelligence between male and female university students but also found that significant difference attitudes toward artificial intelligence among the stream such as arts, science and commerce students. They also revealed that no significant difference in attitudes across different educational levels among university students. Maier, R. & et.al. (2025) showed that significant relationship between the socio demographic data like age, year of study and social group attitude and the attitude towards artificial intelligence. Acosta-Enriquez, G. B., & et al. (2024) found that college students were strongest attitudes towards ChatGPT. Fosner, A. (2024) indicated that university students were engaging with AI dependent on their field of study and academic level.

While reviewing the related research it was found that some studies have been conducted in abroad, hardly few studies has been conducted in the area of undergraduate students attitudes and AI particularly in India as well as West Bengal. Present study is quite relevant and significant in the present day context.

OBJECTIVE OF THE STUDY:

The primary objectives were taken for the study

- To explore the gender-wise undergraduate college students attitudes toward artificial intelligence.
- To investigate the residence-wise undergraduate college students attitudes toward artificial intelligence.

HYPOTHESIS OF THE STUDY:

According to objective of the study, the following hypotheses are framed by the researchers. These are-

- **H01:** There is no significant difference in regard to attitudes towards artificial intelligence between male and female students.
- **H02:** There is no significant difference in regard to attitudes towards artificial intelligence among rural, urban and semi-urban students.

METHODOLOGY OF THE STUDY:

POPULATION:

The target population of the present study is the undergraduate college students, affiliated with University of Calcutta, West Bengal, India.

SAMPLE AND SAMPLING TECHNIQUE:

Stratified random sampling technique was used for selecting the sample comprising of 203 undergraduate college students from Serampore College, affiliated to the University of Calcutta. This study descriptive survey research design has been used.

Table-1: Sample profile of the Undergraduate students

Gender	Residence			
	Rural	Urban	Semi-Urban	Total
Male	8	30	20	58
Female	31	78	36	145
Total	39	108	56	203

TOOLS OF THE STUDY:

The General Attitudes towards Artificial Intelligence Scale (GAAIS) developed and validated by Schepman, A. and Rodway, P. (2020). The scale consisted of 20 items. It has two subscales: positive attitudes towards AI (12 items) and negative attitudes towards AI (8 items). The items were scored using five-point Likert type scale ranging from 1(strongly disagree) to 5 (strongly agree). Negative items were reverse scored in this scale. The scale demonstrated high internal consistency reliability with Cronbach's Alpha coefficient of 0.88 for positive attitudes towards AI and 0.83 for negative attitudes towards AI (Schepman, A & Rodway, P., 2020). On the other hand, the general information questionnaire for undergraduate college students made by the researcher. This questionnaire was consisted name, gender, residence of students.

In this study, the reliability of the scores was computed by using Cronbach's Alpha and the value was found to be 0.759 for positive subscale and 0.626 for negative subscale.

Table-2: Result of Cronbach's Alpha of Attitudes towards artificial intelligence scale

Scale	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	NO of Items
Overall	0.699	0.704	20
Positive	0.759	0.763	12
Negative	0.626	0.619	8

PROCEDURE:

The data were collected through an online digital survey. A summary of instruction about nature and objective of the study had given to the college students to develop the rapport. The researchers were assured that all data were taken from the college students will be kept confidential. After establishing the relation, the researchers shared the questionnaire link to college student's WhatsApp group to explore their attitudes towards Artificial Intelligence.

STATISTICAL TECHNIQUE:

Descriptive statistics like Mean, SD, percentage as well as inferential statistics like t-test and ANOVA were used for analysis the data.

RESULT AND DISCUSSION:

The result of the descriptive statistics of the scale are showing that positive GAAIS of the students. Negative items were reverse scored in this analysis. Higher scores on each subscale represent more positive attitudes.

Table-3: Descriptive statistics of the GAAIS

Subscale	Item	Mean ± SD	Skewness	Kurtosis
Positive		3.5398±0.45306	-0.163	0.450
	1. For routine transactions, I would rather interact with an artificially intelligent system than with a human.	3.0345±0.96667	-0.269	-0.368
	2. Artificial Intelligence can provide new economic opportunities for this country.	3.6305±0.91004	-0.951	0.958
	3. Artificially intelligent systems can help people feel happier.	3.4236±0.93228	-0.756	0.493
	4. I am impressed by what Artificial Intelligence can do.	3.9113±0.80347	-0.937	2.038
	5. I am interested in using artificially intelligent systems in my daily life.	3.5320±0.90800	-0.497	-0.170
	6. Artificial Intelligence can have positive impacts on people's wellbeing.	3.6995±0.70595	-0.948	1.772
	7. Artificial Intelligence is exciting.	3.9064±0.74203	-0.950	2.140
	8. An artificially intelligent agent would be better than an employee in many routine jobs.	3.0542±0.97087	-0.175	-0.551
	9. There are many beneficial applications of Artificial Intelligence.	4.0493±0.61944	-0.662	2.742
	10. Artificially intelligent systems can perform better than humans.	3.2906±1.00949	-0.231	-0.490
	11. Much of society will benefit from a future full of Artificial Intelligence	3.4532±0.89084	-0.473	-0.251
	12. I would like to use Artificial Intelligence in my own job.	3.4926±0.84648	-0.644	0.584
Negative		2.6767±0.50118	0.301	-0.001

	13. Organisations use Artificial Intelligence unethically.	2.7537±0.90018	0.343	0.100
	14. I think artificially intelligent systems make many errors.	2.6650±0.95757	0.204	-0.591
	15. I find Artificial Intelligence sinister.	3.1675±0.82745	-0.004	0.097
	16. Artificial Intelligence might take control of people.	2.4729±0.99653	0.485	-0.246
	17. I think Artificial Intelligence is dangerous.	2.5862±1.05126	0.299	-0.516
	18. I shiver with discomfort when I think about future uses of Artificial Intelligence.	2.7192±0.94134	0.301	-0.411
	19. People like me will suffer if Artificial Intelligence is used more and more.	2.5271±0.92437	0.357	-0.036
	20. Artificial Intelligence is used to spy on people	2.5222±1.01145	0.345	-0.181
Over all		**3.1946±0.34790**	**0.065**	**0.467**

In this study, all the analysis was done according to the objectives of the study.

Objective-1: To explore the gender-wise undergraduate college students attitudes toward artificial intelligence. To achieve this objective following null hypothesis (H01) was framed and tested. The null hypothesis was given below.

H01: There is no significant difference in regard to attitudes towards artificial intelligence between male and female students.

In this study to test the H01, the group statistics and t-test were used. The result is given below.

Table 4: Independent t-test result by Gender

Subscales	Gender	N	Mean	SD	t-value	p-value	Remarks
Positive	Male	58	3.5517	0.45852	0.236	0.813	Not significant at 0.05 level
	Female	145	3.5351	0.45237			
Negative	Male	58	2.5862	0.57697	-1.634	0.104	Not significant at 0.05 level
	Female	145	2.7129	0.46471			

The data presented in the above table-4, it was found that positive subscale t-value 0.813 and negative scale t-value 0.104 is lower than the critical value (1.97) at 201 degree of freedom at the 0.05 level of significance. Hence, H01 is accepted. Therefore, it can be concluded that there is no significant difference in regard to attitudes towards artificial intelligence between male and female of undergraduate students.

Objective-2: To investigate the residence-wise undergraduate college students attitudes toward artificial intelligence. To achieve this objective following null hypothesis (H02) was framed and tested. The null hypothesis was given below.

H02: There is no significant difference in regard to attitudes towards artificial intelligence among rural, urban and semi-urban students.

In this study to test the H02, the group statistics and ANOVA were used. The result is presented below.

Table-5: ANOVA result according to Residence of students

Subscales	Residence	N	Mean	SD	F-value	p-value	Remarks
Positive	Rural	39	3.5598	0.42533	3.919	0.021	significant at 0.05 level
	Urban	108	3.6049	0.44072			
	Semi urban	56	3.4003	0.47178			
Negative	Rural	39	2.7244	0.46256	0.584	0.559	Not significant at 0.05 level
	Urban	108	2.6412	0.46240			
	Semi urban	56	2.7121	0.59444			

For the result of testing H02, Table-5 showed that there is no significant difference in regard to attitudes towards artificial intelligence among rural, urban and semi-urban students is rejected at 0.05 level of significance in positive subscale. The calculated value positive subscale (3.919) is greater than the critical

value (3.89) at the 0.05 level. On the other hand, there is no significant difference in regard to attitudes towards artificial intelligence among rural, urban and semi-urban students is accepted at 0.05 level of significance at negative subscale. The calculated value negative subscale (0.584) is lower than the critical value (3.89) at the 0.05 level. Therefore, it can be said that there is a significant difference in regard to attitudes towards artificial intelligence among rural, urban and semi-urban undergraduate students in positive subscale and there is no significant difference in regard to attitudes towards artificial intelligence among rural, urban and semi-urban students in negative subscale.

CONCLUSION:

Undergraduate students demonstrated moderately positive attitudes towards AI. The study observed that gender didn't impact their views but residence of students did the impact in positive subscale and didn't impact negative subscale. This study was conducted only Serampore college students whereas similar study will need for broader perspective, cross cultural comparisons and educational interventions to support AI attitudes of students.

REFERENCES:

1. Acosta Enriquez, G. B., Ballesteros, A. A. M., Jordan, H. O., Roca, L. C. & Tirado, S. K. (2024). Analysis of College Students' attitudes toward the use of ChatGPT in their academic activities: Effect of intent to use, verification of information and responsible use. BMC Psychology. Vol.12. PP. 1-18.

2. Artificial Intelligence and the future of Teaching and Learning (2023). Retrieved from https://www.ed.gov/sites/ed/files/documents/ai-report/ai-report.pdf on 26.7.25.

3. Dobrovska, D., Vanecek, D. &Yorulmaz, I. Y. (2024). Students' Attitudes towards AI in Teaching Learning. International Journal of Engineering Pedagogy. Vol. 14(8). Pp.88-106

4. Fosner, A. (2024). University students' attitudes and Perception towards AI tools: Implications for Sustainable Educational Practices. Sustainability. Vol.16. Pp. 1-15.

5. Hajam, B. K. &Gahir, S. (2024). Unveiling the attitudes of University Students toward Artificial Intelligence. Journal of Educational Technology Systems. Vol 52(3). PP. 335-345.

6. Katsantonis, A. &Katsantonis, I. G. (2024). University students Attitudes toward Artificial Intelligence: An Exploratory Study of Cognitive, Emotional, and Behavioural Dimensions of AI Attitudes. Education Science. Vol.14.Pp.1-14.

7. Maier, R., Ghiocanu, C. S., Costin, A. &Simion, I. (2025). Students' Attitudes towards Artificial Intelligence and Its Predictive Factors. Broad Research in Artificial Intelligence and Neuroscience. Vol. 16. Pp. 264-275.

8. Pande, K. ,Sonawane, S., Jadhav, V, & Mali, M. (2023). Artificial Intelligence: exploring the attitude of secondary students. Journal of E-Learning and Knowledge society. Vol.19 (3). Pp. 43-48.

9. Sahin, M. G. &Yildirim, Y. (2024). The General attitudes towards artificial intelligence (GAAIS). A Meta analytic reliability generalization study. International Journal of Assessment Tools in Education. Vol. 11(2). Pp. 303-319.

10. Schepman, A, & Rodway, P. (2020). General attitudes towards Artificial Intelligence Scale.

11. Tien, L. M. (2024). Exploring undergraduate students' general attitudes towards Artificial Intelligence: A Perspective from Vietnam. Journal of Language and Cultural Education. Vol. 12(3). Pp.16-22.