

Quantifying the Frequency of Use of Artificial Intelligence-Powered Tools in Research among PhD Scholars

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Abstract

The beginning of artificial intelligence serves as a bridge between past and future technological advancements. The purpose of this study is to determine how frequently researchers apply artificial intelligence in their research. The researchers have evaluated through graphical, descriptive and inferential analysis with the use of SPSS software. Data was collected from 148 research scholars at Indira Gandhi National Tribal University, Amarkantak, using the Artificial Intelligence Frequency and Interest Assessment (FAS-AI) scale. The study finds no substantial variations in demographic characteristics. The study concluded that AI has applications in research, however several of the tools identified for specific purposes, such as Mendeley, Quill Bot, Grammarly, and ChatGPT, have a wide range of functions. It is also advised that policymakers and institutions conduct a seminar/workshop to raise knowledge and practice, as well as the incorporation of artificial intelligence within the PhD Coursework program.

Keywords: Artificial Intelligence, Academic Research, Frequency, Integration, Relation & Impact

Conceptual framework

According to Valavanlidis (2023), artificial intelligence (AI) is a cutting-edge and inventive form of technology that makes things easier, faster, and more seamless every day than anybody could have imagined. John McCarthy first used the phrase "artificial intelligence" in 1956 while teaching math at Dartmouth. After the 1950s, AI had to deal with some harsh winters for years (Smith, 2006). Artificial intelligence developed and peaked around the 1980s, and its applications became more and more solution-focused (Barbul & Bojescu, 2023). By providing students with a more precise and effective information base, artificial

intelligence (AI) is an extra instrument that enhances the educational experience (Fitria, 2021).

Artificial Intelligence

The artificial intelligence system symbolizes a revolutionary advance, and the research community must accept and prepare to participate in this revolutionary AI period (Eke, 2023). Furthermore, the adoption of AI-powered tools improves research productivity by making it faster, more accurate, and collaborative from start to finish (Taherdoost & Madanchian, 2024).

Artificial intelligence-powered tools are intended to produce text, images, music, video, code, and so

on in response to input data or a prompt (Al-Zahrani, 2024). Artificial intelligence serves as a stimulant for intellectual engagement and deeper learning (Almassaad et al., 2024; Granjeiro et al., 2025, referenced by Shimray & Subaveerapandiyan, 2025).

Implications of AI-Powered Tools in Research

Artificial intelligence has brought about substantial changes in research and innovation, from automatic literature review to citation management and paper preparation, and AI-powered technologies play an important role. In this era of artificial intelligence, the world is witnessing technological innovation and rapid expansion that outpaces expectations.

The AI-powered tool can improve research productivity, find new insights from data, and even lead to new insights and approaches (Perkins & Roe, 2024). The capabilities of artificial intelligence technologies employed in research, such as GenAI, provide students and researchers with fantastic ideas for learning, research, and innovation. Undoubtedly, artificial intelligence cannot be employed without obstacles; nonetheless, there is a way to apply AI responsibly without plagiarism in accordance with research ethics.

Theories on Educational Technology

There are several theories that propose incorporating theory into practical and technological approaches. Based on these assertions, this study adopts Davis' (1989) Technology Acceptance Model (TAM) and Venkatesh et al.'s (2003) Unified Theory of Acceptance and Use of Technology (UTAUT). This study used principles from these theories to strengthen the outcomes of artificial intelligence research.

The frequency of AI usage and its impact

It is vital to distinguish between skills and frequency, with skills denoting learned abilities to apply knowledge or represent inherent characteristics. In contrast, frequency quantifies how many times a person can complete an activity. The frequency with which a researcher works is a complicated notion that encompasses and leads to

many skills, abilities, and competences required for successful research.

The importance of research competence is emphasized in the tertiary education, emphasizing the development of AI skills such as information retrieval, critical analysis, and statistical technique ability (Wongvorachan et al., 2024), where frequency is critical for multi-time use and proficiency in the use of AI. Furthermore, incorporating cognitive processes and utilizing Education 4.0 technologies has the potential to significantly improve research proficiency among research scholars. (George-Reyes et al., 2023).

Research proficiency refers to a researcher's ability to conduct research-related tasks at a Ph.D. level, including reading papers, producing papers, and analysing data. The widespread usage of artificial intelligence has aided education and research by making it more efficient and convenient for stakeholders like teachers, students, and researchers in the educational sector. In higher education, AI aids in the efficient production of work within a limited timeframe. It has supplied a variety of applications, including AI research tools for academic writing, paraphrasing, plagiarism detection, database searches, and analysis (UpSall, 2019).

This study looks into the beneficial effects of AI research tools for researchers and how frequently they utilize it at various stages of their research. The primary goal is to categorize AI research tools according to their capabilities and the effectiveness in analyzing various research-related tasks (Danler et al., 2024). The technique involves conducting extensive Google searches utilizing certain keywords to find appropriate AI tools for academic study (Khalifa & Albadawy, 2024). To categorize tools, a systematic table was developed that focused on publicly available options while eliminating commercial ones, and evaluated them based on accessibility, functionality, and application (Danler et al., 2024).

This study examined how frequently scholars used specific AI research tools for research objectives. If the scholar uses a certain tool more frequently, it is likely that it is more effective for his or her

research. This research will only contain AI tools that are openly available, either fully or partially.

Literatures Reviewed

AI research education witnessed a generational and revolutionary transformation (Abgaryan et al., 2023) throughout the last half-century. Textual data suggests that it was consistent before 2000, but then increased (Bozkurt et al., 2021). The education sector has already included artificial intelligence into teaching and learning, as well as research. Still, a gap exists between the theory and application of artificial intelligence in the context of deep learning technology, which should be bridged (Chen et al., 2020).

AI has the ability to improve personalised learning through deep learning in combination with AI advanced technology (Wang et al., 2023). AI tailored learning tools improve students' academic experiences by increasing comprehension, creativity, and production while also benefiting institutions (Grajeda et al., 2024). Furthermore, when gaining experience with AI technologies, frequency of use has a good impact on performance and overall sense of fulfilment.

As artificial intelligence advances, the need to improve our understanding of its applications and impacts in academic research becomes increasingly important. AI-generated summarizes, provides consistency and conciseness (Cooperman et al., 2024), assisting the researcher in finding useful information from the data mining.

Such an AI research tool should be included into academic integrity and research (Ganguly & Pandey, 2024). Additionally, the evaluation of the efficiency and usefulness of AI tools in helping academic research, particularly in literature review and analysis, yielded a positive result (Danler et al., 2024). Furthermore, several applications, training, and practice using AI research tools boosts students' research skill growth and competency, allowing them to become proficient in research abilities. Improving research skills is also one of the Education 4.0 pillars (George-Reyes et al., 2023).

Research Objectives

Based on the extensive reviews connected to the study, the following objectives have been outlined to attain the intended conclusion.

1. To determine the frequency of AI use among PhD researchers based on demographic characteristics.
2. To measure the correlation between the use of AI and the computer courses studied and the AI workshops attended in research among PhD scholars.
3. To evaluate the impact of the frequency of use of AI on the computer course studied and the AI workshop attended in research among PhD scholars

Hypotheses

To fulfil the outcome for the above-defined purpose, the following hypotheses have been framed.

1. PhD scholars utilize AI at regular frequencies regardless of demographics.
2. There is no substantial correlation between the use of AI based on computer courses studied and the AI workshops attended in research among PhD scholars.
3. Frequency of AI use does not significantly impact research based on computer courses studied and the AI workshops attended in research among PhD scholars.

The research used descriptive survey research, which is mostly quantitative (Creswell, 2014). The study's population was sampled to include 148 research Scholars from Indira Gandhi National Tribal University in Amarkantak. The researchers chose the scholars by a simple random sampling procedure.

The data was obtained offline from the university's many faculties, including Education, Science, Social Science, Art and Humanities, Journalism and Mass Communication, Mathematics, Physics, and Commerce & Management. Furthermore, it is divided into three streams: science, social science,

and commerce and management. This strategy was performed to guarantee that participants were aware of artificial intelligence and its use in the research process (Hajam & Gahir, 2024).

The researcher employed a research tool that was self-constructed and was named the Frequency Assessment Scale - Artificial Intelligence (FAS-AI). In this tool, the researcher has specified selection criteria to assure the relevance and usability of the AI tool for research. The scholars were requested to point out in the respective columns of the tool which denoted the use of AI tools for their research goals. In prior to collecting the data, the researchers requested all the deans of the departments in the university to grant the permission to conduct this study.

Tool Description

Accessibility

Only tools that are publicly available without demanding a financial investment are chosen. As a result, it guaranteed that no researcher or student, regardless of financial means, would be convenience.

Use for research purposes

The AI tool's features must justify the objective of the research process, such as writing up helpers, searching articles, and so on.

Statistical Methods and Data Analysis

Tabulation and graphical representation were employed to determine how frequently the Research Scholar used AI in their research. A descriptive study was also conducted to demonstrate how often AI is used and how it affects Ph.D. academics' interest. The "independent sample t-test" was employed to investigate if research academics' use of AI research tools is influenced by their gender and location. To determine differences between and within the groups according to their streams, a "One Way Analysis of Variance" (ANOVA) was employed. Additionally, correlation and regression analyses were performed to determine the association between research scholars' competency with AI research tools and computer courses and AI training.

TABLE NO. 1 RELIABILITY STATISTICS

Cronbach's Alpha	N of Items
.913	33

The Artificial Intelligence Frequency and Interest Assessment (FAS-AI) scale, which comprises 33 items and a 0.913 Cronbach's Alpha value, was tested for reliability. The results indicate that 91 percent of the sample accepted the tool as reliable for the study.

Table No. 2 Uses of AI tools in Research (Percentage of used and unused AI tools)

Dimension s	Tools	Unknown	Known Unuse d	Total Unuse d	Yearl y	Monthl y	Weekly	Daily	Total Used
Review of literature and reference management	Research. Rabbit	54%, (80)	27%, (40)	81% (120)	9% (13)	5% (8)	4% (6)	1% (1)	19% (28)
	Elicit	67% (99)	21% (31)	88% (130)	6% (9)	5% (7)	1% (2)	0% (0)	12% (18)
	Scite.ai	75% (110)	12% (18)	87% (128)	7% (11)	4% (6)	1% (2)	1% (1)	13% (20)
	Mendeley	17% (24)	23% (34)	39% (58)	20% (30)	13% (20)	14% (21)	13% (19)	61% (90)
	Consensus	77% (114)	16% (25)	94% (139)	3% (5)	2% (3)	1% (1)	0% (0)	6% (9)

Document reading tools	Scisummer y	70% (104)	19% (29)	90% (133)	7% (10)	2% (3)	1% (2)	0% (0)	10% (15)
	Semantic. Scholar	56% (83)	23% (34)	79% (117)	10% (15)	6% (9)	4% (6)	1% (1)	21% (31)
	Connected paper	60% (89)	18% (26)	78% (115)	12% (18)	6% (9)	2% (3)	2% (3)	22% (33)
	PubMed	46.5% (69)	21.5% (32)	68% (101)	12% (16)	5% (7)	6% (10)	9% (14)	32% (47)
	ArXvi	78% (116)	11% (16)	89% (132)	5% (7)	2.7% (4)	0.6% (1)	2.7% (4)	11% (16)
				79% (117)					21% (31)
	Chat.pdf	41% (61)	28% (41)	69% (102)	11% (16)	7% (11)	9% (13)	4% (6)	31% (46)
	Explain.pdf	58% (85)	26% (39)	84% (124)	5% (7)	5% (8)	3% (5)	3% (4)	16% (24)
	Copilot	52% (77)	30% (45)	82% (122)	9.5% (14)	4.1% (6)	3% (4)	1.4% (2)	18% (26)
	Wordtune	70% (103)	19% (28)	89% (131)	6% (9)	1% (2)	3% (5)	1% (1)	11% (17)
Paraphrasing & AI Detection tools	Scholarly	46% (68)	23% (34)	69% (102)	10.1% (15)	9.4% (14)	6.1% (9)	5.4% (8)	31% (46)
	Lens.org	82% (121)	15% (22)	97% (143)	2% (3)	1% (2)	0% (0)	0% (0)	3% (5)
				81.5% (121)					18.5% (27)
	QuillBot	23% (34)	13% (20)	36% (54)	16% (24)	14% (20)	14% (21)	20% (29)	64% (94)
	Scibber	46% (68)	26% (38)	72% (106)	9% (14)	7% (10)	9% (13)	3% (5)	28% (42)
	Paperpal	62.8% (93)	21.2% (32)	84% (125)	7% (11)	5% (7)	3% (4)	1% (1)	16% (23)
	Grammarly	8% (12)	11% (16)	19% (28)	13% (20)	15% (22)	19% (28)	34% (50)	81% (120)
	Trinka	81% (120)	15% (21)	95% (141)	2% (3)	1.5% (2)	1.5% (2)	0% (0)	5% (7)
				61% (91)					39% (57)
	ChatGPT	7% (10)	19% (28)	26% (38)	15.5% (23)	17.5% (26)	14% (21)	27% (40)	74% (110)
Idea generation	Poe.com	79% (117)	19% (28)	98% (145)	1% (1)	0.73% (1)	0.27% (1)	0% (0)	2% (3)
	Sdk.vercel.ai	83% (123)	16% (23)	99% (146)	0.5% (1)	0.5% (1)	0% (0)	0% (0)	1% (2)
	Gemini	48% (71)	18% (26)	66% (97)	11% (16)	8% (12)	6% (10)	9% (13)	34% (51)

	Phind	84% (124)	13% (19)	97% (143)	1.4% (2)	0.6% (1)	0.5% (1)	0.5% (1)	3% (5)
				77% (114)					23% (34)
Writing Assistant	Jenni.ai	72% (107)	18% (26)	90% (133)	5% (7)	2% (3)	3% (5)	0% (0)	10% (15)
	Smodin	78% (115)	15% (22)	93% (137)	2.5% (4)	2.5% (4)	2% (3)	0% (0)	7% (11)
	Paperpal	69% (102)	20% (30)	89% (132)	6% (9)	2.7% (4)	1% (1)	1.3% (2)	11% (16)
				91% (134)					9% (14)
DC	Survey.	68% (101)	19% (28)	87% (129)	7% (10)	2.7% (4)	2% (3)	1.3% (2)	13% (19)
	Monkey								
	Pop.ai	85% (126)	9% (14)	94% (140)	2.7% (4)	2.3% (3)	1% (1)	0% (0)	6% (8)
DI				91% (134)					9% (14)
Multi-functional tools	Sider.ai	84% (124)	12% (18)	96% (142)	1% (1)	2% (3)	1% (2)	0% (0)	4% (6)
	Scispace	64% (95)	15% (22)	79% (117)	7% (10)	9% (13)	2% (3)	3% (5)	21% (31)
				87.5% (130)					12.5% (18)

DC* Data Collection DI** Data Interpretation

Table 2 displayed the percentage of each scale point, including the overall percentage of AI tools that are used and those that are not. The table's predominant frequency of unused percentages indicates that the majority of scholars are not using AI tools for their study.

It is also clear from the above chart that the majority of scholars who do not utilize AI technologies lack understanding about the tools for specific research purposes. The scholars who commented about using AI tools are more likely to employ some well-known AI tools for specific purposes in their research. According to the researchers' responses, Figure 1 displays the fraction of AI tools that are used and those that are not.

In figure no. 1 the overall average frequency (in percentages and numbers) of scholars' responses (N=148), dimension-wise, according to study stages, is clearly seen in Figure 1. Ten items for searching papers, summaries, and citations were

included in the first-dimension review of literature and reference management; just 21% of researchers used these resources for their research, while 79% did not.

In the next dimension document reading tools only 18.5% scholar utilize the AI tools for their purpose whether 81.5% responded to not used. the AI tools and as per the table no 1 most of the scholar don't know the particular tools regarding particular purpose of features. Moreover, the third-dimension paraphrasing Grammar and AI detection tools which contained five tools as the item responded 39% scholar frequently use the AI tools whether 61% responded to not use to perform particular task under the dimension.

In the dimension idea creation, which included five Gen-AI tools as an item utilized by 23% of the sample, 77% of researchers stated that they do not use the tools in their study. Furthermore, the fifth dimension of research tool is writing assistance, and the research paper writing tool included three

AI tools, which were used by just 9% of the sample, while 91% of scholars did not use the tools for writing purposes. Furthermore, in the second level, data gathering and interpretation, only 9% of scholars employ AI tools, while 91% do not.

Moreover, in the dimension of data gathering and interpretation, only 9% of scholars employ AI tools, while 91% do not. However, in the last dimension, just 12.5% of scholars employ multi-functional AI tools with numerous characteristics for research purposes, while 87.5% do not.

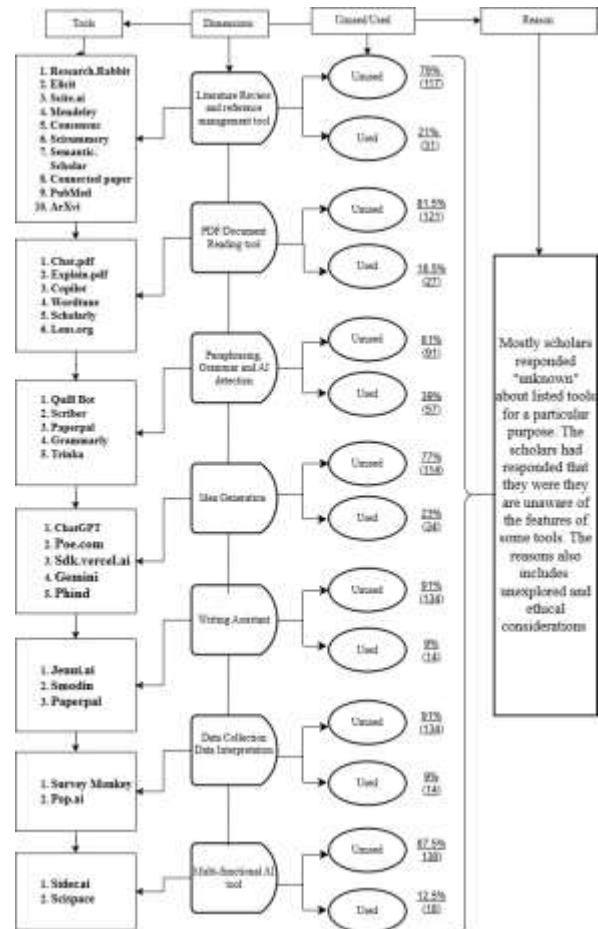


Figure 1 Frequency of total used and unused AI tools in Research

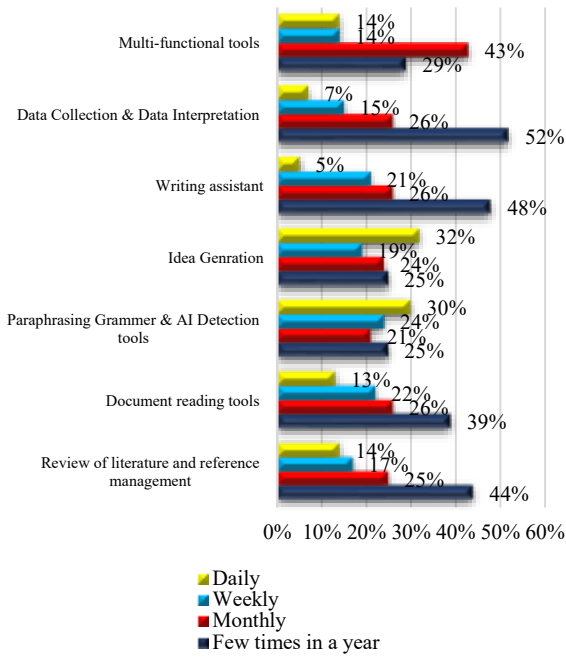


Figure 2 Dimensions-wise frequency of uses of AI in Research

Figure 3 presents the study's findings, indicating that AI tools are more frequently used for literature review, document reading, paraphrasing, and content generation compared to writing assistance, data collection and interpretation, and multifunctional tools.

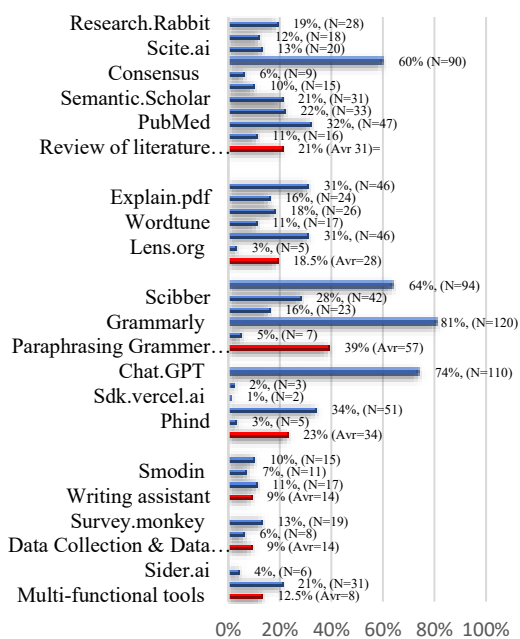


Figure 3 Showing the Use of Artificial Intelligence tools in research

Figure 2 depicts the dimension-wise average frequency percentages of the use of AI tools in research. The frequency was measured using a four-point scale with two points in the unused region, as indicated in Table 2. The four measuring criteria were in chronological order, which occurred a few times each year; monthly, weekly, and daily.

Dimensions	Fe w tim es in a yea r (%)	Month ly (%)	Week ly (%)	Dail y (%)
➤ Review of literature and reference management	44	25	17	14
➤ Document reading tools	39	26	22	13
➤ Paraphrasing Grammar & AI Detection tools	25	21	24	30
➤ Idea generation	25	24	19	32
➤ Writing assistant	48	26	21	5
➤ DC & DI	52	26	15	7
➤ Multi-functional tools	29	43	14	14

Hypothesis 01 There is no significant difference in the frequency of use of AI among PhD scholars based on their demographic variables.

Table No. 3 Independent sample t-test based on Gender

Group Statistics							
Gender	N	Mean	Std. Deviation	Std. Error Mean	t-value	Sig.	Remark
FA Male	94	59.766	19.9723	2.0600	0.034	.770	P > 0.05
S-AI Female	54	65.685	19.0152	2.5876			

To ascertain if gender and location had a significant impact on the frequency of using AI research tools, an independent sample t-test was used, as shown in Table 3. The distribution of both does not imply equal variance, as demonstrated by the fact that Levene's Test for Equality of Variances was found to be negligible ($P=.770$, $P > 0.05$). The mean difference between the two groups was 5.919, with the male student's mean (59.766) being marginally lower than the female student's mean (65.685).

Yet, there is no discernible difference in the frequency of use of AI research tools between male and female scholars, and the test is statistically insignificant ($p = .770$, $df = 146$, $p > .05$). The null hypothesis, "There is no significant difference in the frequency of usage of AI among PhD scholars depending on gender," is therefore accepted at the significance level of 0.05.

Table No. 4 Independent sample t-test of Locality

Group Statistics							
Locality	N	Mean	Std. Deviation	Std. Error Mean	t-value	Sig.	Remark
FA Rural	84	59.810	18.3726	2.0046	0.03	.620	P > 0.05
S-AI Urban	64	64.703	21.2974	2.6622			

Additionally, Table No. 4 demonstrates that the distribution of both does not presume equal variance, as Levene's Test for Equality of Variances found no significant difference of.620 ($P>0.05$). The mean difference between the two groups was

6.093, and the mean score of urban scholars is 59.810, which is marginally lower than the mean of the urban scholars (64.703).

However, it is found that the test is statistically insignificant ($p = .620$, $df = 146$, $P > .05$), and there is no significant difference between rural and urban PhD scholar's frequency of uses of AI research tools. Therefore, the null hypothesis, "There is no significant difference in the frequency of use of AI among PhD scholars based on the locality," is accepted at 0.05 level of significance.

Table No. 5 Descriptive Study for Stream

Stream	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean
					Lower Bound Upper Bound
Science	64	62.156	18.6464	2.3308	57.499
Social Science	76	61.355	20.9365	2.4016	56.571
Commerce & Management	88	65.500	19.0938	6.7507	49.537
Total	148	61.926	19.7712	1.6252	58.714

Table 5 indicates the mean of the research scholars based on the stream of research

Table No. 6 ANOVA Test based on Stream of research

	Sum of Squares	df	Mean Square	F	Sig.	Remark
Between Groups	130.337	2	65.169	.165	.848	P > 0.05
Within Groups	57331.845	145	395.392			
Total	57462.182	147				

Table 6 shows that the p-value (.848) is higher than the intended level of significance (0.05). According to the analysis, the test is statistically unimportant ($p>0.05$) among scholars in each

stream. As a result, the null hypothesis was

Model Summary

Model	R	R Squared	Change Statistics			
			Adjusted R Squared	F Change	df1	Sig. F Change
1	0.232 ^a	0.054	0.04852	8.342	14	0.006

a. Predictors: (Constant), Comp course

b. Dependent Variable: PAT

accepted at a significance level of 0.05, showing that "there is no significant difference in the frequency of usage of AI among PhD scholars based on the stream."

Hypothesis 02 There is no significant relation in the frequency of use of AI and Computer course and AI training among PhD scholars

Table No. 7 Correlation between Computer Course and AI Training with PAT

Control Variables	Comp course	AI training
FAS Comput	Correlation 1.000	0.249
-AI er course studied	Significance .	0.002
	df 0	145
AI training attenden	Correlation 0.249	1.000
d	Significance 0.002	.
	df 145	0

Table 7 shows that the p-value (.002) for the partial correlation analysis is less than 0.05 ($P < 0.05$), leading to the hypothesis being rejected. A process-less association ($r = 0.249$) exists between the computer course studied and AI training attended by research scholars in terms of the frequency of use of AI research tools. It became clear that practically all scholars lacked the expected level of AI proficiency. Since $r = 0.249$, there is a modest link between PAT score and computer-studied and AI training attended.

Table No-8: showing Regression value based on computer course studied

(Regression equation: $-Y = a + bx$)

In this simple liner regression, R is equal to the Pearson correlation value between computer course studied and Proficiency in AI Research Tools. Furthermore, R is 0.054, and when multiplied by 100%, it shows that Scholars who study computer courses accounted for 5.4% ($.054 \times 100\%$) of the variance in PAT score. Table 7 highlights the usefulness of the liner regression model with a P-value of less than 0.05. Overall, the data shows that the computer course has a considerable effect on PAT, which implies that if the scholars complete the computer course (degree or diploma), their PAT score will improve.

Table No. 9 Regression value based on the AI training attended

Model Summary^b

Model	R	R Squared	Adjusted R Squared	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	Sig. F Change
1	0.208 ^a	0.043	0.0375	19.4065	0.04377	6.577	1	0.011

a. Predictors: (Constant), AI training

b. Dependent Variable: PAT

(Regression formula: $-Y = a + bx$)

In this simple liner regression, R is equal to the Pearson correlation coefficient between AI training and the frequency with which AI Research Tools are used. Furthermore, the R is 0.043, and when multiplied by 100%, it reveals that Scholars who received AI training accounted for 4.3% ($0.043 \times 100\%$) of the variance in PAT score. The ANOVA table demonstrates the linear regression model's efficacy ($P < 0.05$). Overall, the data reveals that AI Training has a considerable impact on PAT, implying that if scholars participate in AI Training (Workshop/Conference), their PAT score will improve.

Path analysis for computer courses taken and AI training attended

The path analysis analyzes the goodness of fit between variables and data from Wrights (1930), Wuensch (2015).

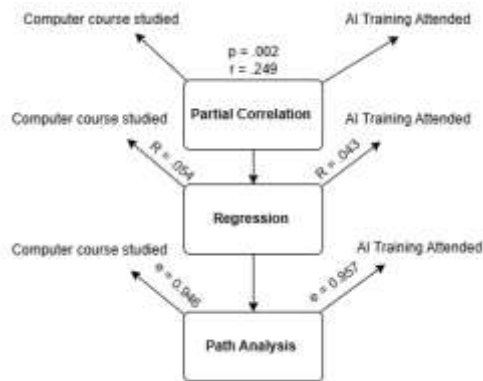


Fig. No. 4: Representation of Correlation, Regression and Path analysis

The regression coefficients (R) for the Computer Course and AI training on PAT scores of Ph.D. scholars are 0.054 and 0.043, respectively. Which predicts how the factors will affect the data. The path coefficient value of 0.946 demonstrated a high influence and association between the computer course taken and Ph.D. Scholars' PAT scores, confirming data fitness. Furthermore, the path coefficient value ($e = 0.957$) demonstrated the relative intensity of influence and applicability of AI training based on Ph.D. scholars' PAT scores.

Discussions

This finding agrees with Hajam and Gahir (2024) and Andersen et al. (2025). Furthermore, to evaluate the difference in the frequency of use of AI tools among PhD academics on research with respect to Stream, an analysis of variance was performed, and the test result was negligible at the 0.05 significance level. The results show that researchers from various streams (Science/Social Science/Commerce & Management) employ AI research tools with the same frequency; there is no substantial variation between streams (Andersen et al., 2025). The use differences within Gender, discipline and locality have shown insignificant (Stohr et al., 2024) p-values, which represent that

there is no variation between and within the variables.

Mendeley, PubMed, ChatPDF, Quill Bot, Grammarly, ChatGPT, and Gemini emerged as the most popular tools among researchers since they are necessary for scholarly work the findings aligned with Archana et al. (2025) and Malik et al. (2023). The AI tools are widely used for research, where most people use AI tools such as Grammarly and ChatGPT, but there is a lack of use of AI tools for Data analysis and the results align with the study of Asagar (2025). The remaining tools enumerated in this paper are rarely used by scholars, with many remaining entirely unknown to the scholarly community; also, while some scholars may identify the tools, they have not used them. Using statistical analysis, researchers explored a variety of characteristics that influence the frequency with which Ph.D. scholars apply AI in their research fields.

AI-powered tools for searching, choosing, and summarising papers, as well as drafting and structuring manuscripts using paraphrase and grammatical correction, have increased productivity. These assertions are in line with the researches of Buinytska and Smirnova (2024) and Choudhari et al. (2025). The AI tools for plagiarism, AI detection and grammar checking have incredible uses by the researchers to write, checking, summarizing and re-writing the text. These tools are widely used by the scholars to publish a manuscript and also for their thesis work, the result of the study supported by Archana et al. (2025).

The primary reasons for the non-adoption of artificial intelligence are unawareness, concerns about ethical violations, academic integrity, data privacy, and plagiarism (Tamanna & Sinha, 2025), and, most importantly, fear of the harmful implications of AI on their intellectual abilities. The findings the study reveals that there is a need of institutional support and the institute must take a step to investment in developing the integration of artificial intelligence tool with research platforms to provide resource benefits to the

research scholars as this study is aligned with Al-Zahrani (2024) and Eke (2023).

Recommendations of the study

The following are the Recommendations that can be incorporated so as to enhance the research capabilities

- Policymakers can recognise the importance of incorporating artificial intelligence into research and development, as well as make the decision to alter norms and regulations to embrace artificial intelligence as research tools.
- The institution must take a step to integrate and introduce the artificial intelligence in the Ph. D. coursework along with they must organize the seminars, workshops and training time-to-time to make the scholars aware and utilize the benefits of the AI tools

Suggestions for the further study

The following are the suggestions to conduct the further study

1. To conduct the effectiveness supervised and unsupervised learning through AI platforms

Conflict of Interest

There is no conflict of interest between the authors.

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2. To analyse the metadata of literature works to draw effective conclusions
3. To study effective use of various AI tools in bench marking and in evaluation of research process.
4. To derive the accelerating plans for effective use of AI ethics with sole responsibility
5. To use AI research tools for Algorithmic structures with higher level interpretative data inferences.

Conclusion

The study's findings demonstrate that in each dimension, researchers use around two instruments for their research. For non-uses, most scholars stated that they are unaware of AI technologies designed for specific purposes. As the world moves beyond expectations in terms of technology, scholars must stay connected to its movement. This is the artificial intelligence age, and all development and workflow pass through the artificial intelligence bridge. As a result, the study indicated the amount of utilization of artificial intelligence tools in research among researchers at Indira Gandhi National Tribal University, Amarkantak, which resulted in restricted knowledge and research applications.

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