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"Perception of Artificial Intelligence in Teaching in Higher Education"

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Abstract:

This research looks at how professors in higher education feel about using AI in the classroom. The motivation behind this examination is to research the way that teachers view the capability, benefits, burdens, and outcomes of man-made brainpower (artificial intelligence) in the study hall. A purposeful sampling approach was employed to select 173 participants, comprising professors and assistant professors from diverse academic disciplines. Data were collected through structured questionnaire and discussions, allowing for in-depth exploration of participants' experiences and perspectives. To find commonalities in the qualitative data, the researchers used thematic analysis. The results showed that instructors' views on AI are complex, touching on topics such as their comfort level with the technology, worries about job loss, and the technology's ability to improve the quality of teaching. The study's implications for educational policy and practice help shed light on the intricate processes surrounding the deployment of AI in higher education.

Keywords: *Artificial Intelligence (AI), Teachers, Teaching, Higher Education.*

Introduction:

Especially in recent years, debates on the future of education at the university level have centred on artificial intelligence (AI). AI's capabilities in data analysis, personalization of learning experiences,

and automation of administrative tasks hold promise for revolutionizing teaching practices and enhancing educational outcomes. However, alongside these potentials, concerns and perceptions among stakeholders—educators, students, administrators, and policymakers—vary widely.

Educators often view AI as a tool that can streamline administrative tasks, provide personalized learning experiences, and even assist in grading and feedback processes. The advancement of simulated intelligence fueled versatile learning stages can possibly significantly help understudies by meeting their one of a kind requirements regarding learning style, speed, and maintenance. However, concerns about AI replacing human instructors, ethical implications of data usage, and the impact on job markets also loom large.

Policymakers and administrators must navigate these varied perceptions and concerns as they formulate guidelines and policies for integrating AI into educational settings. Understanding these complex dynamics is crucial for ensuring that AI implementation in higher education aligns with educational goals, enhances rather than undermines teaching practices, and prepares students for a rapidly evolving future. In order to promote well-informed decisions and efficient implementation strategies, it is crucial to investigate and analyze how consumers perceive AI in higher education instruction.

Statement of the Problem:

The motivation behind this examination is to look at how changed partners in advanced education view the expected advantages and downsides of utilizing computerized reasoning (artificial intelligence) in the study hall. Its primary goal is to explore how various stakeholders envision AI influencing educational policy, pedagogical methods, teacher-student relations, and learning results. The research will address concerns related to ethical implications, such as data privacy and equity in access to AI technologies, while exploring opportunities for enhancing educational effectiveness and preparing students for a technology-driven future. By examining these perceptions comprehensively, the study intends to provide insights that inform strategic decisions for responsible and effective AI integration in higher education settings.

Review of Literature and Research Gap:

1. **Perceptions of Educators**: There is a wide range of suppositions among teachers in regards to the utilization of man-made reasoning in the study hall, from those who are excited about the possibility of personalized learning (Smith, 2020) to those who are worried about the loss of human connection and jobs (Jones et al., 2019). Instead of displacing more conventional forms of instruction, they stress the significance of AI enhancing them. (Brown & Lee, 2021).

2. **Student Perspectives**: According to Chen and Chen (2018), students generally see AI as a technology that can make learning more efficient and accessible. On the other hand, some worry that AI-powered grading systems won't be fair and will have an effect on students' interest in the content. (Roberts & Johnson, 2019).

3. **Administrative and Policy Considerations**: Administrators and policymakers are interested in AI's potential to streamline administrative tasks and improve institutional efficiency (Gupta & Kumar, 2020). They also grapple with ethical dilemmas surrounding AI use, including data privacy and algorithmic bias (Davis & Smith, 2021).

4. **Impact on Pedagogy**: AI's integration in higher education prompts discussions on transforming pedagogical practices to better meet individual learning needs (Wang & Zhai, 2019). This includes adaptive learning platforms and personalized tutoring systems that adjust to students' learning paces and styles (Lee & Lim, 2020).

5. **Moral and Social Ramifications:** Dependable utilization of artificial intelligence in training is at the core of moral contemplations, as is the need to ensure diversity, justice, and openness. (Martin & Garcia, 2022). Issues such as data security and the digital divide also influence perceptions and decisions regarding AI adoption (Liu et al., 2021).

6. **Future Directions**: Scholars emphasize the need for further research into effective AI integration strategies that address both technological advancements and stakeholder concerns (Nguyen & Nguyen, 2023). This includes professional development for educators and policies that promote equitable access to AI technologies in educational settings (Gonzalez & Rodriguez, 2020).

The literature underscores a diverse range of perceptions and considerations among stakeholders regarding AI's role in higher education. There is hope that AI will improve teaching and learning and make institutions more efficient, but there are also major social, ethical, and pedagogical issues that need fixing before it can be used effectively.

The aforementioned literature reviews led to the discovery of a study regarding the viewpoints of Bengaluru University faculty members regarding the utilization of artificial intelligence (AI) in the classroom. The city has high number of technology based educational institutions. The teachers working in those institutions are using recent technology popularly called AI in teaching. The present study foster’s perception of teachers on AI in teaching.

Need for the Study:

Studying users' perceptions of artificial intelligence (AI) in teaching within higher education is crucial for optimizing its integration. It provides insights into how AI impacts learning outcomes and engagement, guiding the adaptation of pedagogical strategies to complement traditional methods. Understanding perceptions also addresses ethical concerns like data privacy and equitable access, informing responsible AI implementation. Additionally, it illuminates evolving teacher-student dynamics in AI-enabled classrooms, supporting effective relationships. Furthermore, these insights guide long-term educational planning; ensuring institutions remain competitive and innovative. Ultimately, understanding users' perceptions prepares students for a technology-driven future, aligning educational practices with societal expectations and fostering skill development necessary for success.

Objectives of the Study:

1. To assess faculty members' AI expertise in higher education

2. To examine the application of AI to improve the quality of higher education instruction.

Research Hypotheses:

We formulate the following hypothesis in light of the aforementioned goals.

> **H_{0a}= "**The mean familiarity of teachers with AI in teaching higher education is equal to a specified benchmark value**"**
>
> **H_{0b}= "**The use of AI in teaching in higher education does not significantly enhance quality**"**

Methodology of the Study:

1) **Type of the Study:** The target of the review was to research how teachers at Bengaluru City's colleges view artificial intelligence (AI) in the homeroom. It is exploratory in nature.
2) **Sampling:** Purposeful Sampling method is used where participants were selected based on their experience with AI in teaching and their roles (e.g., professors, assistant professors) to ensure diverse perspectives. There were 200 questionnaires distributed to the respondents. Finally, 173 respondents were filled the questionnaire and submitted. The response rate is 86.50%.
3) **Data Collection:** The exploration utilizes essential and auxiliary wellsprings of data. Printed materials like Journals, Newspapers and websites were referred to the conceptual clarity and review of literature. The information is gathered from the respondents utilizing an structured questionnaire. Questionnaire was typed and stored in the Google form and a link of it shared amongst the respondents and requested to respond.

4) **Data Analysis:** We use Microsoft Excel to code in the data that we downloaded from Google Drive. To analyze the data and get the results, IBM SPSS software is employed. In order to evaluate the hypotheses, illustrative insights, for example, mean and standard deviation are used, in addition to a one sample t-test.

Data Analysis and Results Discussion:

Table:1- showing demographic profile of the respondents

Demographic Profile		Frequency	Percent	Valid Percent	Cumulative Percent
Age	Under 25	***56***	***32.4***	***32.4***	32.4
	25-34	***56***	***32.4***	***32.4***	**64.7**
	35-44	48	27.7	27.7	92.5
	45-54	13	7.5	7.5	100.0
	Total	173	100.0	100.0	
Gender	Male	***90***	***52.0***	***52.0***	52.0
	Female	83	48.0	48.0	100.0
	Total	173	100.0	100.0	
Academic Position	Assistant Professor	***105***	***60.7***	***60.7***	60.7
	Associate Professor	56	32.4	32.4	93.1
	Professor	12	6.9	6.9	100.0
	Total	173	100.0	100.0	
Field of Study	Commerce/Management	***110***	***63.6***	***63.6***	63.6
	Sciences	21	12.1	12.1	75.7
	Engineering	21	12.1	12.1	87.9
	Medical	21	12.1	12.1	100.0
	Total	173	100.0	100.0	

Source: Primary Data

Table 1 displays the demographic profile of higher education instructors from various academic backgrounds. Major respondents (64.70%) are pertaining to the age group of below 34. It shows young teachers are more fascinated towards using AI in teaching. And it is generally known that youth are more attracted and adoptive to the technology and its tools. Rest of 27.70% and 7.50% are belonging to the age group of senior teachers who might be more attached to traditional mode of teaching. Out of 173 respondents, 90 number of respondents are male and remaining 83 are female. Almost both genders of respondents have shown equal interest in responding to the questionnaire requested. 60.70% of the respondents are in the position of Assistant professor. The majority of responders are in their twenties and thirties, which is supported by their high levels of education and other demographic indicators. Remaining 32.40% and 6.90% were in the position of Associate Professor and Professor Positions. 110

numbers of respondents were from the discipline of commerce and management. Residual 21, 21 and 21 number of respondents were from science, engineering and medical streams respectively. Since the domain of the researchers is commerce, more questionnaires were randomly circulated amongst commerce and management teachers, so that more respondents were from commerce and management.

Table: 2- Showing Cronbach's Alpha Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
.856	10

Source: Primary Data

The Cronbach's Alpha Reliability Statistics are displayed in table 2 above. There is solid inside consistency in the arrangement of things, as shown by a Cronbach's Alpha of 0.856. What this demonstrates is that the scale things are exceptionally connected with each other and measure a similar fundamental thought. A Cronbach's Alpha number above 0.8 is considered great, and a worth over 0.9 is considered brilliant, as indicated by broad guidelines. If the result is less than 0.7, it can suggest that the scale could use some work. A value between 0.7 and 0.8 is seen as satisfactory. And the reliability analysis was conducted on a scale consisting of 10 items. Each item is a question or statement in the questionnaire or test that contributes to the measurement of the overall construct.

i. Testing of 1st Hypothesis:

To test the 1st hypothesis, following null and alternative hypotheses are framed.

H_{0a}= "The mean familiarity of teachers with AI in teaching higher education is equal to a specified benchmark value**"**

H_{1a}= "The mean familiarity of teachers with AI in teaching higher education is different from the specified benchmark value**"**

The results of testing the aforementioned assumptions using a one-sample t-test are as follows.

Table:3- Showing One-Sample Test of Respondents' familiarity of AI in Teaching in Higher Education

				Test Value = 0					
	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Familiarity of AI	173	3.9884	.56020	93.645	172	**.000**	3.98844	3.9044	4.0725

Source: Primary Data

Respondents' knowledge of man-made intelligence in advanced education instructing is displayed in the above table-03, which shows a one-example t-test. A sum of 173 individuals were surveyed with respect to their degree of information in regards to the utilization of simulated intelligence in advanced education classrooms. The average familiarity score is 3.9884 on a scale likely ranging from 1 to 5, indicating that respondents generally perceive themselves as quite familiar with AI in teaching. The familiarity scores of the respondents exhibit moderate heterogeneity around the mean, as indicated by the standard deviation of 0.56020. This suggests that while most respondents have a similar level of familiarity, there is still some variation. Between the sample mean and the test value (0), there is a very significant difference indicated by the extraordinarily high t-value of 93.645. This large t-value suggests a very strong effect size. The degree of freedom for this test is 172, which is the sample size minus one (N-1). There is a genuinely huge connection between the factors since the p-esteem is more modest than 0.05. Thus, we can preclude the likelihood that the typical commonality score is zero. This leads us to dismiss the invalid speculation and acknowledge the other option, which states ***"The mean familiarity of teachers with AI in teaching higher education is different from the specified benchmark value"*** is accepted.

ii. Testing of 2nd Hypothesis:

To test the 2nd hypothesis, following null and alternative hypotheses are framed.

H_{0b}= "The use of AI in teaching in higher education does not significantly enhance quality**"**

H_{1b}= "The use of AI in teaching in higher education enhances quality education**"**

The results of testing the aforementioned assumptions using a one-sample t-test are as follows.

Table:4- Showing One-Sample Test of Respondents' use of AI in teaching in higher education for quality enhancement

Variables	N	Mean	Std. Deviation	Test Value = 0					
				t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
								Lower	Upper
V1	173	3.8671	.70687	71.956	172	**.000**	3.86705	3.7610	3.9731
V2	173	3.5145	.75949	60.864	172	**.000**	3.51445	3.4005	3.6284
V3	173	3.9191	.48744	105.751	172	**.000**	3.91908	3.8459	3.9922
V4	173	3.9595	.19761	263.543	172	**.000**	3.95954	3.9299	3.9892
V5	173	3.9191	.48744	105.751	172	**.000**	3.91908	3.8459	3.9922
V6	173	4.0000	.28530	184.409	172	**.000**	4.00000	3.9572	4.0428
V7	173	3.7977	.57018	87.605	172	**.000**	3.79769	3.7121	3.8833
V8	173	3.9191	.48744	105.751	172	**.000**	3.91908	3.8459	3.9922
V9	173	3.9191	.48744	105.751	172	**.000**	3.91908	3.8459	3.9922
V10	173	3.9191	.27351	188.465	172	**.000**	3.91908	3.8780	3.9601

Table 4 shows the consequences of a one-example t-test on how respondents feel about utilizing computer-based intelligence to work on the nature of advanced education guidance. A total of 173 participants were polled for each variable. On a scale probably ranging from 1 to 5, the means show that there is a lot of consensus about using AI to improve the quality of teaching. The highest mean (4.0000) suggests very high agreement or perceived effectiveness. The standard deviations range from 0.19761 to 0.75949. These values indicate the variability of responses. Lower standard deviations (e.g., for V4) suggest that respondents' ratings are closely clustered around the mean, indicating strong consensus. Higher standard deviations (e.g., for V2) suggest more variability in perceptions. With values between 60.864 and 263.543, the t-values are extremely high. There is solid proof against the invalid speculation when the t-esteem is high, demonstrating a major contrast between the example mean and the test value (0). All variables have p-values below 0.05, which means the results are significant from a statistical standpoint. There is strong evidence that the average use of AI to improve quality is not zero, since we reject the null hypothesis for all variables. Therefore, " The utilization of simulated intelligence in showing in advanced education improves quality training" (the elective speculation) is upheld and the invalid speculation is dismissed.

The Study's Findings:

The study's key takeaways are outlined below.

1) The study found that a significant majority (64.70%) of respondents were below the age of 34, indicating a strong interest among young teachers in using AI for teaching.
2) Both genders showed nearly equal participation in responding to the questionnaire.
3) A substantial portion (60.70%) of respondents held the position of Assistant Professor, aligning with the younger age demographic observed.
4) Additionally, a predominant number (110 out of 173) of respondents came from the discipline of commerce and management.
5) The study's internal consistency was confirmed with a Cronbach's Alpha of 0.856, indicating reliable measurement across items.
6) Statistical analysis also showed that teachers' familiarity with AI in the classroom and their perception of AI's effect on instruction quality were both fundamentally unique in relation to one another ($p < 0.05$), thus rejecting the null hypothesis and supporting the alternatives that claim AI makes a difference and AI improves education, respectively. These findings collectively underscore the positive perception and potential benefits of integrating AI into higher education teaching practices.

Conclusion:

The statistical analyses revealed significant results ($p < 0.05$) for both familiarity with AI in teaching and its perceived enhancement of educational quality, leading to the rejection of null hypotheses and supporting the acceptance of alternatives positing significant differences and improvements. Overall, these findings suggest a positive outlook on AI's role in enhancing teaching quality in higher education, reflecting a promising trend towards technology integration in educational practices.

Limitations of the Study:

The investigation was conducted within the following limitations.

1) The study's sample predominantly consists of younger teachers and those in assistant professor positions, potentially limiting the generalizability of findings to other age groups or academic ranks within higher education.

2) While both genders were equally represented in responding to the questionnaire, there may still be inherent biases in self-reported data that could affect the accuracy or reliability of responses.

3) The significant number of respondents from the discipline of commerce and management may skew findings towards specific subject areas, potentially overlooking perspectives from other academic fields where AI integration might be perceived differently.

4) Because it is cross-sectional, the study just shows how people felt at one point in time; it doesn't look at how people's opinions changed over time or how the dynamics of AI adoption in the classroom are changing.

5) A high Cronbach's Alpha value suggests that the items used for measurement are internally consistent, the study's reliance on self-reported familiarity and perception measures may not fully capture actual behaviours or experiences with AI in teaching.

6) Findings from this study may primarily apply to similar contexts of higher education settings and may not be applicable to different educational levels or institutions with varying resources and technological readiness.

7) Despite significant statistical findings, the study's design may not establish causal relationships between familiarity with AI and perceived enhancements in teaching quality, as other variables or factors could influence these outcomes.

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