

Vol. 2, No. 1 (2025) Online ISSN: 3006-693X Print ISSN: 3006-6921

TEACHER'S ATTITUDE TOWARDS ARTIFICIAL INTELLIGENCE AND ITS IMPACT ON OCCUPATIONAL STRESS

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Abstract

The rapid expansion of artificial intelligence (AI) has significantly influenced the educational system across the globe. The current research illuminates the dual dimensions of university teacher's perspectives regarding artificial intelligence and its resultant influence on occupational stress. Through a sample comprising N= 250 educators from a diverse array of public and private institutions within Punjab, the investigation employed established evaluative scales to assess attitudes and stress levels. The General Attitudes towards Artificial Intelligence Scale (Schepman & Rodway, 2020) and Teachers Occupational Stress Questionnaire (Hendres et al., 2014) were used. Data was analyzed using SPSS and the result showed a significant negative correlation between AI positivity and teacher occupation stress and no significant relationship between AI negativity and teacher occupational stress. The findings also revealed that teacher's attitude towards AI significantly impacts their occupational stress. The findings of the study would be helpful for educators, instructors, administrators, and policymakers for a better understanding of teacher's attitudes toward artificial intelligence. Furthermore, it suggests the need for targeted support and professional development programs to address these concerns and enhance teachers' confidence in integrating AI into their teaching practices.

1. Introduction

Artificial intelligence (AI) technology is becoming increasingly significant in our everyday lives, subtly transforming our cognitive processes, behaviors, and social interactions (Sanders & Schneier, 2023). With reference to education, there's been a notable surge in AI usage and revolutionizing classroom dynamics (Zhang & Aslan, 2021). AI technologies offer the potential for personalized student learning experiences and streamlined administrative tasks, holding great promise for the future (Schepman & Rodway, 2020). Indeed, AI plays a significant role in both general education and higher education (Edtech, 2020). For example, it efficiently manages tasks such as filtering emails, targeted advertising, application processes, YouTube recommendations, and the assistance of virtual platforms like Google, digital libraries, Google Scholar, and other research engines across global higher education institutions (Iqbal & Nasir, 2018; Rasheed, 2020; García-Vélez et al., 2021). AI influences the development of our perception.

Consequently, AI is universally shaping our reality, acceptance, and acceptance of new AI-driven solutions (Schepman & Rodway, 2020). AI has the potential to alter education by tailoring teaching methods to individual student needs, for getting immediate feedback, and also automating administrative duties. Furthermore, it can aid in assessment and grading, because it allows educators to concentrate on curriculum development and delivering quality instruction (Riaz & Safdar, 2018; Mahmood & Naz, 2018; Lichtenthaler, 2020; Hassan, 2024). A deeper understanding of various attitudes toward AI can help more effective implementation and utilization of these technologies (Khan, 2018; Iqbal & Nasir, 2018; Kelly et al., 2023; Iqbal & Ali, 2024).



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Pedró et al. (2019) highlight the challenges and importance in educator preparation for AI-driven education. Therefore, there is a clear requirement for research on integrating AI into teacher training and the exploration of the factors at play. Such as occupational stress that influence its acceptance. However, research in this area remains rare. Empirical studies have primarily focused on attitude of teachers towards knowledge, experiences, practices, and acceptance of AI. For instance, Wang et al. (2021) investigated higher education teachers' intentions to use AI tools by considering factors such as anxiety, self-efficacy, attitude toward AI, perceived ease of use, and perceived usefulness, we can predict their intention. Additionally, Choi et al. (2023) explored that ease of using AI tools was a significant determinant of acceptance. Recently, empirical literature on teacher's attitude towards AI and its impact on teacher's autonomy and occupational well-being are limited in Pakistan and there is a lack of research regarding AI on demographical factors such as age, gender, or other related variables.

Expressing a teacher's viewpoint on AI can be challenging. Media portrayal can significantly influence attitudes, especially when offering a narrow perspective on the subject (Schepman & Rodway, 2020). Moreover, understanding all aspects of AI and its applications may be limited, causing users to remain unaware of the AI technology in use, thus affecting the assessment of overall attitudes (Kelly et al., 2023). Previous studies suggest that the factors influencing attitudes toward AI can differ by revolving around on the specific attitude being studied. Therefore, this survey targets to address this exploration gap by analyzing teachers' attitudes toward AI and its impact on their occupational stress. The study examines the influence of quantitative variables, such as gender and experience, on educators' interaction with AI.

Serin, & Bozdağ, F. (2020) examined an approach to technology integration in education and their autonomy behaviors. With 440 teachers, the study explored attitudes and behaviors that may exhibit variances based on factors such as gender, type of school, educational attainment, and professional tenure. Teachers' attitudes toward technology use were not affected by gender and school type, but education level indicated a significant role. Teacher autonomy behaviors were not considerably different by gender or education level, but distinct by school type. Professional seniority had no significant impact on teachers' attitudes and autonomy behaviors. The research found that teaching autonomy and effective professional communication emerged as significant influencers on teachers' attitudes toward incorporating AI in the classroom. These variables elucidated 30% of the variance in teachers' perspectives and also highlighted their crucial aspects in modifying attitudes towards technology integration in the educational settings.

1.1. Rationale of the study

This study aims to investigate teachers' attitudes towards AI and its impact on occupational stress. Teachers' perceptions of AI technologies in education can reveal teacher's perceptions regarding artificial intelligence. Understanding how AI affects teachers' occupational stress is crucial. Teacher attitudes towards AI influence their willingness to embrace new technologies and adapt teaching methods. Studying these attitudes helps researchers understand factors that influence teachers' acceptance of AI, informing efforts to support integration.

1.2. Objectives

- To investigate the relationship between occupational stress of teachers in their occupation and attitude toward artificial intelligence among university teachers.
- To analyze the demographical profile of university teachers regarding artificial intelligence and their occupational stress.

1.3. Hypotheses

- There will be a significant correlation between positive and negative attitude of teachers towards artificial intelligence and occupational stress.
- Teacher's positive and negative attitude towards AI and occupational stress will be significantly different between genders.
- There will be a significant difference in attitude towards artificial intelligence and occupational stress based on teaching experience among university teachers.



• Teacher's attitude towards artificial intelligence and occupational stress among university teachers will impact their occupational stress.

2. Method

The primary objective is to assess the attitudes of teachers towards artificial intelligence and analyze its effects on occupational stress. To investigate this, the following methodology was used.

2.1. Sampling

This study involved university teachers from both private and government institutions. The sample comprised male(n=115) and female (n=135) teachers drawn from various universities of Punjab, including Women University Multan, Bahauddin Zakariya University Multan, Institute of Southern Punjab, NCBA University Multan, NFC Multan, and Emerson University Multan.

3. Instruments

The instruments used for this study were:

3.1. The General Attitudes towards Artificial Intelligence Scale (Schepman and Rodway, 2022)

The General Attitudes towards Artificial Intelligence Scale (GAAIS), developed by Schepman and Rodway (2022) was utilized in its entirety, comprising 20 items. Consisting of 12 affirmative statements, this scale evaluates the opportunities, advantages, and positive sentiments connected to artificial intelligence (AI) and eight negative items, evaluating concerns and negative emotions concerning AI. Scores for both AI positivity and AI negativity were obtained by summing the respective items, and the scale was maintained on a 1 to 7 Likert scale for comparability with previous studies, although a Likert scale from 1 to 5 has been used in prior research.

3.2. Teachers' Occupational Stress Questionnaire (TOSQ)

Teachers' Occupational Stress Questionnaire (TOSQ) developed by Hendres et al. (2014) consists of 20 items designed to evaluate the primary stressors encountered by teachers in the classroom. Participants rate each statement on a six-point scale ranging from 1 (this activity does not stress me at all) to 6 (this activity stresses me very much). The questionnaire covers various stressors related to students, classroom environments, pre-planning, inspections, and other aspects of teaching.

4. Procedure

The data for this quantitative research study was taken from a sample of N=250 university teachers from many universities. Participants were requested to complete an online survey consisting of many components that's including a consent form and a demographic variable sheet. The survey included three scales: the General Attitudes towards Artificial Intelligence Scale which comprises of 20 items, and the Occupational Stress Scale that have 20 items. Following the establishment criteria of inclusion and exclusion, the composed data was analyzed using the SPSS program. This analysis provided the necessary results to explore the relationship between teachers' attitudes towards artificial intelligence and its impact on their occupational stress.

5. Results

Table 1:	Correlation among	Attitude towards	Artificial	Intelligence a	and Teacher	Occupational	Stress N=
(250)							

Variables	М	SD	1	2	3	
1 AI positivity	3.51	.644	-	-0.503**	.309**	
2 AI negativity	4.37	.582		-	.035	
3 TOSQ	55.9	18.65			-	

Note.AI positivity = Attitude towards Artificial Intelligence positivity, AI negativity = Attitude towards Artificial Intelligence negativity, TOSQ= Teacher Occupational Stress. *p < .05; **p < .001

The correlation matrix presented in Table 01 demonstrates that there is significant negative correlation between AI positivity and teacher occupational stress (r=-0.503) and result also indicated that there is no significant relationship between AI negativity and teacher occupational stress (r=0.035).



Table 2: Independent Samples T-Test showing Gender Differences of Teachers Attitude towards Artificial Intelligence (N=250

 	Females (<i>n</i> =135)			Males $(n=115)$	t(248)	р	Cohen's d
Variable	M	SD	M	SD			
AI positivity	3.59	.54	3.42	0.73	-2.04	.00	0.1
AI negativity	4.43	.57	4.30	0.59	-2.04	.73	0.2
TOSQ	56.09	18.86	55.8	18.48	-1.82	.78	0.0

Note.****p*<.001.

The table 2 shows elucidated that there exist notable disparities among the groups concerning gender and stress levels. Additionally, the findings indicated that female educators exhibit significantly elevated scores in both AI positivity and AI negativity, as well as in their occupational stress, when compared to their male counterparts. Moreover, the effect size was calculated using Cohen's d (Cohen, 1988), which indicated a minimal effect size.

Table 3: Independent Samples T-Test for showing	difference of Teaching	Experience in Attitude towards
Artificial Intelligence between Teachers (N=250)		

	1 to 10 years of experience $(n=186)$	of 		11 to 20 years of experience (n=64)	<i>t</i> (248)	p Co	hen's d
Variable	М	SD	М	SD		-	
AI positivity	3.59	.539	3.28	.84	3.39	.00	0.4
AI negativity	4.38	.550	4.35	.67	.35	.03	0.0
TOSQ	58.0	17.9	49.8	19.56	3.08*	.41	0.4

p<.05***p*<.001***

An independent t-test was also performed to examine the difference of experiences on the attitudes of university teachers towards artificial intelligence and their occupational stress. The results presented in Table 3 demonstrated a significant difference in attitudes towards artificial intelligence between teachers with more experience and those with less. Specifically, less experienced teachers have higher mean scores compared to their more experienced peers. The results also indicated that occupational stress was greater among less experienced teachers than among those with more experience. The independent t-test confirmed the significance of these results. The effect size was again estimated using Cohen's d (Cohen, 1988), yielding a minimum effect size.

Table 4: Multiple Regression Analysis for Teachers Autonomy and their occupational wellbeing on Attitu	ıde
towards Artificial Intelligence ($N = 250$)	

with as the internation server (1) - 200)								
Variables	В	SE	t	р	95% Cl			
Constant	38.89	8.73	4.45	.00	[50.66, 63.0]			
AI positivity	11.28	2.00	5.62	.00	[13,.17]			
AI negativity	-5.1	2.21	-2.3	.02	[.05,.21]			

Note. R²= .115; F (2,248) =16.0, p<.01

Table 4 shows the impact of AI positivity and AI negativity on occupational stress in university teachers. The R² value of .10 revealed that predictor explained 10% variance in the outcome variable with F(2, 248) = 16.0, p < .001. The finding revealed that AI positivity have significant impact on occupational stress ($\beta = .39$, p<.002) and AI negativity also positively predicted occupational stress ($\beta = 2.21, p < .02$).



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5.1. Discussion

The present study aimed to investigate attitudes towards artificial intelligence and its impact on their occupational stress. It was hypothesized that as AI equipment continues to proceed and become more established in educational settings, it would negatively influence teachers' attitudes and their stress level. Teacher's relationship with AI equipment has been complex and it is more complex with relation to teacher's occupational stress, which shows that there is a negative correlation between them. AI can reduce their workloads and their burdens such as helping teachers with their administrative duties, for example ChatGPT and other AI tools can help in their grading task etc. (Gupta et al.,2024) Furthermore, this highlights the importance of fostering a supportive environment where teachers can embrace AI as a beneficial tool rather than a source of anxiety.

Differences in gender of attitudes towards AI have been a topic of debate in presented literature, and the conclusion of the current research line up with previous studies indicating significant gender disparities among teachers regarding artificial intelligence. Female teachers reported significantly high score than their male counterparts and this finding is in line with findings of previous research (Cavas et al., 2009; Cavas & Kesercioglu, 2003; Petroovicova & Vladimir, 2021; Jackson, 2023). Another research also shows that female teachers show more occupational stress than male teachers due to vast reason, which can be linked to their responsibilities in their occupation. (kalita,2015).

Consequently, significant differences were found between less experienced and more experienced teachers, the role of teaching experience is important in shaping attitudes towards AI was analyzed. However, occupational stress was greater among less experienced teachers than among those with more experience which may be due to attributed to their awareness with excitement to utilize new technologies. Research also indicated that less experienced teachers have more stress than more experienced teachers which may due to lack of knowledge, or difficulty in managing their workload in their occupation, as compared to more experienced teachers are better in managing their task and to handle their level of stress. (Jayalath,2024).

However, teaching experience and attitudes towards AI is intricate and can vary based on individual contexts and perceptions. However, the study investigated the impact of teachers' occupational stress on their attitudes towards AI, finding a noteworthy AI positivity, AI negativity and occupational stress towards technology use in teaching. Past evidence also showed that the attitudes of university teachers towards (AI) will impact their occupational stress, which means positive attitude towards AI can decrease their stress level and enhance their performance. (Simut et al., 2024).

6. Conclusion

Conclusively, the study provides precious insights into the multifaceted relationship between demographic variables and attitudes towards AI among university teachers. This indicates that while positive attitudes towards AI can reduce stress, high levels of occupational stress may lead to increased negativity towards technology, ultimately affecting the integration of AI in educational settings. Further, policymakers and educators can better support teachers in adopting and integrating AI technologies into teaching practices, ultimately enhancing or increasing student learning outcomes and fostering educational innovation.

6.1. Implications

By addressing the role of demographic variables in determining teachers' attitudes towards AI, this research can contribute to the establishment of inclusive and reasonable AI integration initiatives that address the diverse needs and preference of educators. Eventually, promoting a positive attitude towards AI among teachers can lead to more efficient implementation strategies, increased teamwork between educators and technology developers, and the promotion of a supportive and friendly environment helpful to lifelong learning and professional growth.

6.2. Recommendation

Findings can provide baseline data for future research. Further, future research can focus on discovering other demographic factors such as teaching in education. These suggestions play a significant role in advancing



evidence-informed policies and strategies aimed at facilitating the successful incorporation of artificial intelligence in the field of education.

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