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Perceptions of Artificial Intelligence Among IT Professionals: Exploring Job Opportunities, Threats, and the Moderating Role of Technology Literacy

Sajita Khadka[1], Sanjeev Kunwar[2], Roshni Gautam[3], Santosh Poudel[4], Sijan Khadka[5], Rashil Manandhar[6], Dipak Mahat[7]

[1,2,3,4,5,6]Shanker Dev Campus, Tribhuvan University, Nepal

[7]Apex Professional University, India

dipakmahatdm2047@gmail.com

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Abstract

Artificial Intelligence (AI) is transforming industries worldwide, creating both opportunities and challenges for IT professionals. This study examines the perceptions of AI among IT professionals in Kathmandu, focusing on job opportunities, threats, and the moderating role of Technology Literacy (TL). The research adopts a descriptive and causal-comparative design within the positivist paradigm, emphasizing measurable and objective data. A structured questionnaire with a 5-point Likert scale was distributed via Google Forms to 128 IT professionals in Kathmandu. Descriptive statistics indicated that IT professionals generally have a moderate level of Technology Literacy (mean scores ranging from 2.39 to 2.78). AI was perceived favorably, with mean scores between 3.02 and 3.39. However, perceived threats from AI were moderate (mean scores from 2.33 to 2.60), suggesting concerns about job security. Perceived opportunities were also moderate (mean scores between 2.38 and 2.81), indicating a balanced view of AI's potential benefits and risks. Correlation and regression analyses revealed that Technology Literacy

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significantly moderates the relationship between AI and job opportunities, as well as AI and threats, suggesting that higher TL mitigates fears and enhances positive perceptions of AI. The study highlights the dual impact of AI on IT professionals, with both opportunities and threats being perceived at moderate levels. Technology Literacy plays a crucial role in shaping these perceptions, underscoring the need for continuous learning and adaptation in the IT sector.

Keywords: Artificial Intelligence; Kathmandu; Literacy; Opportunities; Perception; Threats

INTRODUCTION

Artificial Intelligence (AI) is revolutionizing industries and fundamentally reshaping the nature of work. AI refers to the simulation of human cognitive processes, such as learning, reasoning, and problem-solving. According to Wang, Hu, and Zhu (2020), while AI is not human intelligence, it has the capability to mimic human thought processes and, in some cases, even surpass human intelligence. Robots, a manifestation of AI, are automated machines designed to replicate specific human functions. They are typically capable of performing tasks such as moving and operating tools, making them suitable for environments where human presence is impractical or unsafe (Parajuli et al., 2022). Modern robots are integrated with advanced computer systems and programmed to exhibit a degree of artificial intelligence, enabling them to recognize speech and images, process information, and respond appropriately.

The impact of AI on employment is both a challenge and an opportunity. Routine and repetitive tasks are increasingly being automated, enabling organizations to improve efficiency and reduce costs. However, this shift also raises concerns about job displacement, particularly in sectors that traditionally rely on manual labor or predictable workflows. The research by Salau et al., (2022) AI is fueling the creation of entirely new roles, such as data scientists, machine learning engineers, and AI ethicists, highlighting the demand for skills in emerging technologies. Beyond automation, AI is enhancing human capabilities by enabling the rise of hybrid roles—positions that require a blend of technical expertise and human-centric skills, such as creativity, emotional intelligence, and strategic decision-making (Shrestha et al., 2025; Mishra et al., 2021). As a result, the future workforce is expected to be more adaptive, innovative, and collaborative.

Artificial Intelligence (AI) is no longer a futuristic concept it is a powerful and dynamic force reshaping the global economy and redefining the labor market. From automating mundane tasks to enabling groundbreaking innovations, AI is altering how businesses operate and individuals work. This technological evolution presents a dual narrative: one of optimism about the creation of new opportunities and industries, and another of apprehension regarding job displacement and workforce disruption. Understanding and addressing this duality is essential for societies aiming to harness AI's potential while mitigating its challenges (Mahat, 2023).

The integration of AI into the workplace is characterized by several key trends. Automation is replacing repetitive, routine tasks in industries such as manufacturing, logistics, and customer service, leading to significant gains in efficiency and cost-effectiveness (Acharya et al., 2024). However, this transition has raised concerns about unemployment and job polarization, particularly among workers in roles that rely on predictable workflows. On the other hand, AI is creating entirely new categories of jobs, including those in data science, machine learning, robotics, and AI system design. These emerging roles demand advanced technical skills and offer lucrative career opportunities, signaling the need for a workforce prepared to adapt to technological shifts.

Objectives of the Study

The main aim of this study was to analyze perceptions of artificial intelligence among IT professionals, exploring job opportunities, threats, and the moderating role of technology literacy.

The specific objectives of the study were as follows:

1. To assess the perception of IT personal regarding AI on Job opportunities and Threat.
2. To examine the relationship between AI on job opportunity and threat.
3. To analyze the role of Technology literacy as moderate variable between AI on job opportunity.
4. To identify the role of Technology literacy as moderate variable between AI on job threat.

Conceptual Framework

The conceptual framework demonstrates how Artificial Intelligence (AI) influences perceptions of both opportunities and threats in the job market, with Technology Literacy (TL) acting as a moderating variable. AI serves as the independent variable, impacting whether individuals see it as a driver of innovation and job creation (opportunity) or as a risk leading to job displacement and automation (threat). Technology Literacy moderates this relationship by shaping how individuals interpret AI's effects. Higher TL enhances the ability to recognize AI-driven opportunities, enabling individuals to adapt to technological advancements and leverage AI for career growth. Conversely, higher TL also increases awareness of potential threats, making individuals more conscious of automation risks and the need for skill adaptation. This moderating role of TL suggests that while AI's impact can be both positive and negative, the level of technological literacy determines the extent to which individuals perceive and respond to these changes.

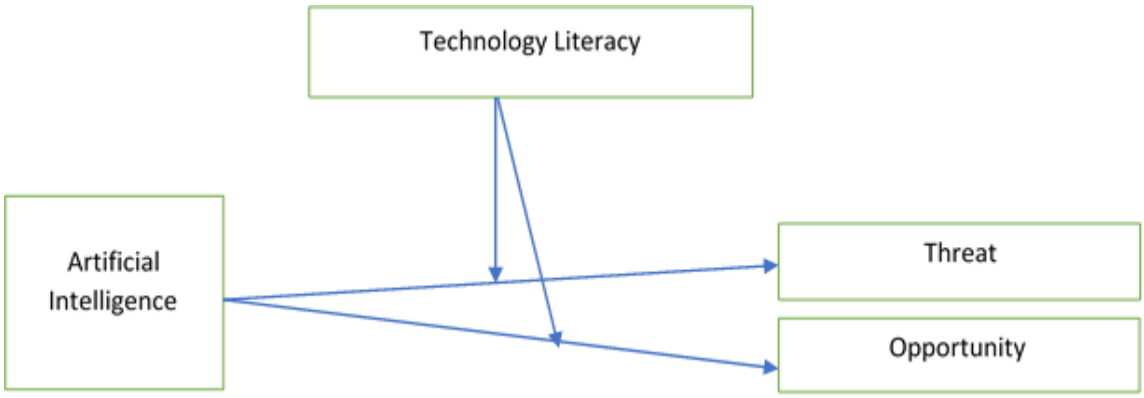


Figure 1: Conceptual Framework

Literature Review

Zirar, Ali, & Islam (2023) explored how workers can coexist with artificial intelligence (AI) in workplaces, presenting a comprehensive research agenda and emerging themes. Using a systematic literature review and thematic analysis framework based on Braun and Clarke's methodology (2006), the researchers analyzed data from Scopus, ProQuest, and Web of Science. NVivo software was employed to organize the findings. The study revealed that workers often distrust AI, primarily due to fears of job displacement and exaggerated perceptions of AI's capabilities.

Wang, Hu, & Zhu (2020) investigated the dual impact of artificial intelligence (AI) on future employment, assessing whether it represents a threat or an opportunity. Employing a mixed-methods approach, the study combined text analysis, questionnaires, and interviews. Data were collected from 800 practitioners in second- and third-tier cities in China, with 721 valid responses, supplemented by in-depth interviews. Statistical analysis was conducted using SPSS, employing descriptive statistics, regression models, and variance analysis. The findings revealed that AI threatens jobs in traditional sectors such as manufacturing, services, and administrative roles, particularly in repetitive and structured tasks.

The study by Chaudhary and Tyagi (2018), "A Study of the Impact of Artificial Intelligence on the Job Market," examines the transformative effects of AI on employment across various industries. The researchers conducted surveys and interviews to analyze how AI adoption influences job creation and displacement. They found that while AI significantly enhances productivity and fosters the emergence of new roles in sectors like technology and innovation, it simultaneously threatens traditional jobs through automation. The study underscores the importance of proactive strategies, such as reskilling and education, to help individuals and organizations adapt to the evolving demands of an AI-driven job market.

In contrast, the research by Salau et al. (2022), "Artificial Intelligence Technologies: Applications, Threats, and Future Opportunities," provides a broader analysis of AI's impact on healthcare, education, and marketing sectors. Through literature reviews and case studies, the authors highlight AI's potential to revolutionize industries by improving efficiency, personalizing services, and fostering innovation. For instance, AI is advancing early disease detection in healthcare and optimizing logistics in marketing. However, the study also points out challenges like ethical concerns, privacy risks, and uneven adoption across sectors. The researchers advocate for a balanced approach that leverages AI's benefits while addressing its societal and ethical implications.

The paper "Artificial Intelligence at Work: An Overview of the Literature," authored by (Didem Özkiziltan, January 2021)as part of the "Governing Work in the Digital Age" project funded by the German Federal Ministry of Labour and Social Affairs. The researchers utilized qualitative methodologies, including an extensive review of existing scholarly literature, policy documents, and empirical studies, to investigate the

transformations brought about by AI technologies in labor markets. Key tools included a detailed analysis of AI applications like machine learning, algorithmic management systems, and predictive analytics.

The research paper "A Study of the Impact of Artificial Intelligence on the Job Market" by (Manish Verma, july-December 2019) Manish Verma and Jaideep Kumar, published in the International Advance Journal of Engineering, Science, and Management in July-December 2019, explores the profound effects of AI on employment. Utilizing both quantitative surveys and qualitative interviews, the study gathers diverse perspectives from various industries to understand how AI technologies are transforming job tasks and creating potential for both job displacement and new opportunities. The findings reveal that while AI can significantly enhance efficiency, productivity, decision-making, and safety, it also raises concerns about job loss, skill obsolescence, privacy, and bias.

Research Gap

Even while the amount of study on how artificial intelligence (AI) is affecting companies and job markets is increasing, there are still a lot of unanswered questions about how to integrate AI in a way that minimizes risks while optimizing opportunities. Although studies like the ones mentioned above highlight the necessity of technical, human, and conceptual skills for worker-AI coexistence, they do not investigate scalable frameworks for upskilling varied, sizable workforces. Likewise, there are no practical solutions for closing the skills and education gaps in developing nations, despite the twin effects of AI on employment and the urgent need for AI literacy. Industry-specific insights are also provided by research, but it mostly concentrates on the macro-level effects of AI, leaving a gap in knowledge regarding the micro-level difficulties that individual employees and companies encounter while using AI.

METHODS

The study adopts a descriptive and causal-comparative research design, grounded in the positivism philosophy, which emphasizes objective, measurable, and observable data to understand phenomena (Mahat & Aithal, 2022). The research is descriptive in nature, aiming to explore and analyze the relationships between Artificial Intelligence (AI), Technology Literacy (TL), Threat, and Opportunities among IT professionals in Kathmandu. Primary data was collected from 128 IT professionals working in Kathmandu

using a structured questionnaire designed with a 5-point Likert scale (Mahat & Mathema, 2018). The data collection process was conducted through Google Forms, ensuring ease of access and participation. Before filling out the questionnaire, respondents were provided with a consent form that explained the study's objectives, ensuring voluntary and informed participation. After obtaining consent, respondents were directed to the demographic and Likert-scale questions. All collected data were stored securely on a laptop, maintaining confidentiality and privacy. The data were analyzed using Statistical Package for the Social Sciences (SPSS), employing various statistical tools, including descriptive statistics (frequency, percentage, and mean) to summarize the demographic and perceptual data, correlation analysis to examine the relationships between variables, and regression analysis to explore the moderating effects of Technology Literacy on the relationships between AI and Opportunities, as well as AI and Threats. To ensure the consistency and reliability of the measurement scales, Cronbach's Alpha was calculated for each construct. The results showed acceptable reliability, with Cronbach's Alpha values of 0.601 for Technology Literacy, 0.625 for Artificial Intelligence, 0.620 for Threat, and 0.651 for Opportunities, all exceeding the threshold of 0.6, indicating reasonable internal consistency for exploratory research. The study adhered to ethical research practices, ensuring respondents were fully informed about the study's purpose and provided voluntary consent before participation. Confidentiality was maintained throughout the data collection and analysis process, and all data were stored securely to protect respondents' privacy.

RESULTS

This section presents the demographic information, the perceptions of IT personnel regarding AI's impact on job opportunities and threats, the relationship between AI and job opportunities versus threats, and the role of technology literacy as a moderating variable between AI's influence on job opportunities and job threats.

Table 1. Demographic

Current work		
	Frequency	Percent
Fully Remote	33	25.8
Hybrid	54	42.2
Fully Onsite	41	32.0

Total	128	100.0

Gender

	Frequency	Percent
Fully Remote	75	58.6
Hybrid	53	41.4
Total	128	100.0

Education

	Frequency	Percent
Secondary	6	4.7
Bachelors	80	62.5
Masters	35	27.3
Doctorate	7	5.5
Total	128	100.0

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
age	128	19.00	47.00	27.2266	7.08577
work experience	128	1.00	20.00	4.5703	4.17658

The table provides a detailed breakdown of various demographic and work-related characteristics of a sample population of 128 individuals. The data shows that the majority of individuals (42.2%) work in a hybrid model, combining remote and onsite work. Fully onsite work is the second most common arrangement, with 32.0% of individuals working entirely in a physical workplace. Fully remote work is the least common, with 25.8% of individuals working entirely from home. In terms of gender, the majority of individuals (58.6%) are fully remote workers, while 41.4% work in a hybrid model. The table does not provide a breakdown of gender distribution for fully onsite work, but it is implied that the total sample size of 128 is consistent across all categories. The education levels of the individuals vary significantly. The majority (62.5%) hold a bachelor's degree, followed by those with a master's degree (27.3%). A smaller percentage have a secondary education (4.7%) or a doctorate (5.5%). This indicates that the sample is highly educated, with most individuals having at least a bachelor's degree. The descriptive statistics provide insights into the age and work experience of the individuals. The age range is from 19 to 47 years, with an average age of 27.23 years and a standard deviation of 7.09, indicating some variability in age. Work experience ranges from 1 to 20 years, with an average of 4.57 years

and a standard deviation of 4.18, suggesting a wide range of experience levels among the individuals. Overall, the table highlights a diverse group of individuals with varying work arrangements, gender distributions, education levels, and ages, providing a comprehensive overview of the sample population.

Perception of IT personal regarding AI on Job opportunities and Threat

Technology Literacy

The table provides descriptive statistics on the perception of IT personnel's technology literacy (TL), based on a sample of 128 individuals. Each item (Tl1 to Tl5) likely represents a specific aspect or question related to technology literacy, rated on a scale from 1.00 to 5.00, where a higher score indicates a higher level of perceived technology literacy.

Table 2: Perception on Technology Literacy

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Tl1	128	1.00	5.00	2.4297	1.04756
Tl2	128	1.00	5.00	2.5156	1.10107
Tl3	128	1.00	5.00	2.7812	1.28552
Tl4	128	1.00	5.00	2.4688	1.05694
Tl5	128	1.00	5.00	2.3906	.93265

Here's an explanation of the data in paragraph form; on average, the perception of IT personnel's technology literacy is moderate across all measured aspects. The mean scores for the five items range from 2.39 to 2.78, suggesting that respondents generally perceive IT personnel as having a moderate level of technology literacy. The highest mean score is for Tl3 (2.78), indicating that this particular aspect of technology literacy is perceived slightly more positively compared to the others. In contrast, Tl5 (2.39) has the lowest mean score, suggesting that this aspect is perceived as the weakest among the five. The standard deviation values, which range from 0.93 to 1.29, indicate some variability in responses. For example, Tl3 has the highest standard deviation (1.29), implying that opinions about this aspect vary more widely among respondents. On the other hand, Tl5 has the lowest standard deviation (0.93), indicating more consistent perceptions about this aspect. Overall, the data suggests that while IT personnel are generally perceived as moderately literate in technology, there is room for improvement, particularly in the areas represented by Tl5 and Tl1, which have the lowest mean scores. The variability in

responses also highlights differences in how IT personnel's technology literacy is perceived across different dimensions or by different respondents.

Artificial Intelligence

The table provides descriptive statistics on the perception of Artificial Intelligence (AI), based on a sample of 128 individuals. Each item (Ai1 to Ai5) likely represents a specific aspect or question related to AI, rated on a scale from 1.00 to 5.00, where a higher score indicates a more positive or favorable perception.

Table 3: Perception on Artificial Intelligence

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Ai1	128	1.00	5.00	3.0313	.89564
Ai2	128	1.00	5.00	3.1953	.88788
Ai3	128	1.00	5.00	3.2266	.73404
Ai4	128	1.00	5.00	3.0156	.97999
Ai5	128	1.00	5.00	3.3906	1.03661

Here's an explanation of the data in paragraph form; on average, the perception of AI is relatively positive across all measured aspects, with mean scores ranging from 3.02 to 3.39. This suggests that respondents generally view AI favorably, though there is some variation across the different aspects. The highest mean score is for Ai5 (3.39), indicating that this particular aspect of AI is perceived most positively. This could reflect strong agreement or confidence in the specific concept or application represented by Ai5. On the other hand, Ai1 (3.03) and Ai4 (3.02) have the lowest mean scores, suggesting that these aspects are perceived slightly less favorably compared to the others. The standard deviation values, which range from 0.73 to 1.04, indicate the level of variability in responses. For example, Ai3 has the lowest standard deviation (0.73), implying that respondents' perceptions of this aspect are relatively consistent. In contrast, Ai5 has the highest standard deviation (1.04), indicating greater variability in how respondents perceive this aspect of AI. Overall, the data suggests that AI is generally viewed positively, with respondents showing the most favorable perception toward the aspect represented by Ai5. However, the slightly lower scores for Ai1 and Ai4 suggest that there may be areas where perceptions are less strong or where further understanding or improvement is needed. The variability in responses also highlights differences in how AI is perceived across different dimensions or by different individuals.

Opportunity

Table 4: Perception on Opportunity

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Op1	128	1.00	5.00	2.7344	1.03090
Op2	128	1.00	5.00	2.3828	1.01268
Op3	127	1.00	5.00	2.7874	1.21909
Op4	128	1.00	5.00	2.6563	1.10430
Op5	127	1.00	5.00	2.7480	1.06881

The table provides descriptive statistics on the perception of Opportunities (Op), based on a sample of 128 individuals (with two items, Op3 and Op5, having 127 responses). Each item (Op1 to Op5) likely represents a specific aspect or question related to opportunities, rated on a scale from 1.00 to 5.00, where a higher score may indicate a more positive or favorable perception of opportunities. Here's an explanation of the data in paragraph form; on average, the perception of opportunities is moderately positive across all measured aspects, with mean scores ranging from 2.38 to 2.79. This suggests that respondents generally view opportunities favorably, though there is some variation across the different aspects. The highest mean score is for Op3 (2.79), indicating that this particular aspect of opportunities is perceived most positively. This could reflect strong agreement or optimism about the specific concept or application represented by Op3. On the other hand, Op2 (2.38) has the lowest mean score, suggesting that this aspect is perceived as less favorable compared to the others. The standard deviation values, which range from 1.01 to 1.22, indicate the level of variability in responses. For example, Op2 has the lowest standard deviation (1.01), implying that respondents' perceptions of this aspect are relatively consistent. In contrast, Op3 has the highest standard deviation (1.22), indicating greater variability in how respondents perceive this aspect of opportunities. Overall, the data suggests that opportunities are generally viewed positively, with respondents showing the most favorable perception toward the aspect represented by Op3. However, the slightly lower score for Op2 suggests that there may be areas where perceptions are less strong or where further understanding or improvement is needed. The variability in responses also highlights differences in how opportunities are perceived across different dimensions or by different individuals. This could reflect varying levels of optimism, awareness, or experience with specific types of opportunities.

Threat

The table provides descriptive statistics on the perception of Threats (Th), based on a sample of 128 individuals. Each item (Th1 to Th5) likely represents a specific aspect or question related to threats, rated on a scale from 1.00 to 5.00, where a higher score may indicate a greater perceived level of threat or concern.

Table 5: Perception on Threat

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Th1	128	1.00	5.00	2.5000	1.05741
Th2	128	1.00	5.00	2.3672	1.09308
Th3	128	1.00	5.00	2.4531	1.11440
Th4	128	1.00	5.00	2.3281	1.13018
Th5	128	1.00	5.00	2.6016	1.01438

Here's an explanation of the data in paragraph form; on average, the perception of threats is moderate across all measured aspects, with mean scores ranging from 2.33 to 2.60. This suggests that respondents generally perceive threats at a moderate level, with no single aspect standing out as significantly more or less concerning. The highest mean score is for Th5 (2.60), indicating that this particular aspect of threats is perceived as slightly more concerning compared to the others. On the other hand, Th4 (2.33) has the lowest mean score, suggesting that this aspect is perceived as the least concerning among the five. The standard deviation values, which range from 1.01 to 1.13, indicate some variability in responses. For example, Th5 has the lowest standard deviation (1.01), implying that respondents' perceptions of this aspect are relatively consistent. In contrast, Th4 has the highest standard deviation (1.13), indicating greater variability in how respondents perceive this aspect of threats. Overall, the data suggests that threats are generally perceived at a moderate level, with Th5 being viewed as slightly more concerning and Th4 as slightly less concerning. The variability in responses highlights differences in how threats are perceived across different dimensions or by different individuals. This could reflect varying levels of awareness, experience, or sensitivity to specific types of threats.

Relationship between Artificial Intelligence, Technology Literacy, job opportunity and threat

The correlation matrix reveals significant relationships between Artificial Intelligence (AI), Threat, and Opportunity, providing insights into how AI is perceived in relation to job opportunities and threats.

Table 6: Correlations

	Technology Literacy	Artificial Intelligence	Threat	Opportunity
Technology Literacy	1	.367**	.497**	.374**
		.000	.000	.000
	128	128	128	128
Artificial Intelligence	.367**	1	.272**	.388**
	.000		.002	.000
	128	128	128	128
Threat	.497**	.272**	1	.421**
	.000	.002		.000
	128	128	128	128
Opportunity	.374**	.388**	.421**	1
	.000	.000	.000	
	128	128	128	128

****. Correlation is significant at the 0.01 level (2-tailed).**

There is a positive and significant correlation between AI and Opportunity ($r = 0.388$, $p < 0.01$), indicating that individuals who view AI more favorably are also more likely to perceive it as a source of job opportunities. This suggests that positive perceptions of AI are associated with optimism about its potential to create new roles, enhance career growth, or drive innovation in the workplace. On the other hand, AI also shows a positive but weaker correlation with Threat ($r = 0.272$, $p < 0.01$), meaning that while some individuals see AI as a source of opportunities, others perceive it as a potential threat, possibly due to concerns about job displacement, automation, or changes in work dynamics. Interestingly, Threat and Opportunity are also positively correlated ($r = 0.421$, $p < 0.01$), suggesting that individuals who perceive threats related to AI may simultaneously recognize opportunities, reflecting a nuanced understanding of AI's dual impact. Additionally, Technology Literacy (TL) is positively correlated with both AI ($r = 0.367$, $p < 0.01$) and Opportunity ($r = 0.374$, $p < 0.01$), indicating that individuals with higher

technology literacy are more likely to view AI positively and see it as a source of opportunities. Overall, the findings highlight the complex interplay between AI, threats, and opportunities. While AI is generally associated with job opportunities, it also evokes concerns about potential threats, and individuals with higher technology literacy tend to have a more balanced and optimistic perspective on its impact.

Role of Technology Literacy between Artificial Intelligence and Opportunities

The analysis examines the moderating role of Technology Literacy (TL) in the relationship between Artificial Intelligence (AI) and Opportunities. The results indicate that Technology Literacy plays a significant role in shaping how AI influences perceptions of opportunities.

Table 7: Technology Literacy (Moderating) between Artificial Intelligence and Opportunities

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.467[a]	.218	.205	.62316

a. Predictors: (Constant), Moderating(AI*TL), Artificial Intelligence

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.507	2	6.754	17.391	.000[b]
	Residual	48.542	125	.388		
	Total	62.049	127			

a. Dependent Variable: Opportunity

b. Predictors: (Constant), Moderating(AI*TL), Artificial Intelligence

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.486	.323		4.596	.000
	Artificial Intelligence	.162	.134	.134	1.208	.230
	Moderating(AI*TL),	.081	.025	.363	3.277	.001

a. Dependent Variable: OPPORTUNITIES

The Model Summary shows that the regression model, which includes both AI and the moderating effect of Technology Literacy, explains 21.8% of the variance ($R^2 = 0.218$) in Opportunities. This suggests that the combination of AI and Technology Literacy has a meaningful impact on how individuals perceive opportunities. The ANOVA table confirms that the model is statistically significant ($F = 17.391$, $p < 0.001$), indicating that the predictors (AI and Technology Literacy) collectively contribute to explaining the variance in Opportunities. The Coefficients table provides further insights into the moderating effect of Technology Literacy. While the direct effect of AI on Opportunities is not statistically significant ($B = 0.162$, $p = 0.230$), the moderating effect of Technology Literacy is significant ($B = 0.081$, $p = 0.001$). This means that Technology Literacy enhances the relationship between AI and Opportunities. Specifically, individuals with higher levels of Technology Literacy are more likely to perceive AI as a source of opportunities, even if AI alone does not have a strong direct effect. The standardized coefficient (Beta = 0.363) for Technology Literacy indicates that it has a moderate and positive influence on the relationship. In summary, Technology Literacy acts as a significant moderator, strengthening the connection between AI and Opportunities. Individuals with greater technology literacy are better equipped to recognize and leverage the opportunities presented by AI, highlighting the importance of enhancing technological skills to maximize the positive impact of AI on job opportunities.

Role of Technology Literacy between Artificial Intelligence and Threat

The analysis explores the moderating role of Technology Literacy (TL) in the relationship between Artificial Intelligence (AI) and Threat. The results reveal that Technology Literacy significantly influences how AI is perceived in terms of threats, though the direct effect of AI on Threat is not significant.

Table 8: Technology Literacy (Moderating) between Artificial Intelligence and Threat

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.511[a]	.261	.250	.59105
a. Predictors: (Constant), Moderating(AI*TL), Artificial Intelligence				

ANOVA[a]					
Model	Sum of Squares	df	Mean Square	F	Sig.

1	Regression	15.453	2	7.726	22.117	.000[b]
	Residual	43.667	125	.349		
	Total	59.120	127			

a. Dependent Variable: Threat

b. Predictors: (Constant), Moderating(AI*TL), Artificial Intelligence

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.945	.307		6.340	.000
	Artificial Intelligence	-.181	.127	-.153	-1.422	.157
	Moderating(AI*TL)	.133	.024	.607	5.635	.000

a. Dependent Variable: Threat

The Model Summary shows that the regression model, which includes both AI and the moderating effect of Technology Literacy, explains 26.1% of the variance ($R^2 = 0.261$) in Threat. This indicates that the combination of AI and Technology Literacy has a meaningful impact on how individuals perceive threats. The ANOVA table confirms that the model is statistically significant ($F = 22.117$, $p < 0.001$), meaning that the predictors (AI and Technology Literacy) collectively contribute to explaining the variance in Threat. The Coefficients table provides further insights into the moderating effect of Technology Literacy. While the direct effect of AI on Threat is not statistically significant ($B = -0.181$, $p = 0.157$), the moderating effect of Technology Literacy is highly significant ($B = 0.133$, $p < 0.001$). This suggests that Technology Literacy amplifies the relationship between AI and Threat. Specifically, individuals with higher levels of Technology Literacy are more likely to perceive AI as a potential threat. The standardized coefficient (Beta = 0.607) for Technology Literacy indicates that it has a strong and positive influence on the relationship. In summary, Technology Literacy acts as a significant moderator, strengthening the connection between AI and Threat. Individuals with greater technology literacy are more aware of the potential risks and challenges posed by AI, which may lead to heightened perceptions of threat. This highlights the dual role of Technology Literacy: while it can enhance the recognition of opportunities (as seen in the previous analysis), it also increases awareness of potential threats, reflecting a nuanced understanding of AI's impact.

DISCUSSION

This study aimed to assess the perception of IT professionals regarding Artificial Intelligence (AI) on job opportunities and threats, examine the relationship between AI and these factors, and identify the moderating role of Technology Literacy (TL). The findings reveal nuanced insights into how AI is perceived in the context of opportunities and threats, and how Technology Literacy influences these perceptions.

The descriptive statistics indicate that IT professionals generally perceive AI positively, with mean scores for AI-related aspects ranging from 3.02 to 3.39 on a 5-point Likert scale. This aligns with previous studies that highlight the growing optimism about AI's potential to create new job roles and drive innovation (Brynjolfsson & McAfee, 2014). However, the perception of threats is also present, with mean scores ranging from 2.33 to 2.60, suggesting moderate concerns about job displacement or automation. This duality is consistent with the findings of Arntz et al. (2016), who noted that while AI creates opportunities, it also raises concerns about job security and skill mismatches.

The correlation analysis reveals a positive and significant relationship between AI and Opportunities ($r = 0.388$, $p < 0.01$), indicating that individuals who view AI favorably are more likely to perceive it as a source of job opportunities. This finding is supported by previous research, which suggests that AI can enhance productivity and create new roles in emerging fields (Makridakis, 2017). Conversely, AI also shows a positive but weaker correlation with Threats ($r = 0.272$, $p < 0.01$), reflecting concerns about automation and job displacement, as highlighted by Frey and Osborne (2017). Interestingly, the positive correlation between Threats and Opportunities ($r = 0.421$, $p < 0.01$) suggests that individuals recognize the dual nature of AI, acknowledging both its potential benefits and risks.

The regression analysis highlights the significant moderating role of Technology Literacy (TL) in shaping perceptions of AI. For Opportunities, TL enhances the relationship between AI and positive outcomes ($B = 0.081$, $p = 0.001$), indicating that individuals with higher TL are better equipped to recognize and leverage AI-driven opportunities. This aligns with the findings of Autor (2015), who emphasized the importance of technological skills in adapting to automation and digital transformation. Similarly, for Threats, TL amplifies the perception of risks ($B = 0.133$, $p < 0.001$), suggesting that technologically literate individuals are more aware of the potential challenges posed by AI. This dual role

of TL reflects its importance in fostering a balanced understanding of AI's impact, as noted by Bessen (2019).

The findings of this study are consistent with existing literature but also provide new insights. For instance, while Brynjolfsson and McAfee (2014) emphasized the positive impact of AI on job creation, this study highlights the moderating role of TL in enhancing this perception. Similarly, the heightened awareness of threats among technologically literate individuals aligns with Frey and Osborne's (2017) concerns about automation but adds nuance by showing how TL influences this perception. The dual role of TL in both enhancing opportunities and amplifying threats underscores its critical importance in shaping AI's impact on the workforce.

CONCLUSION

This study assessed the perception of IT professionals regarding Artificial Intelligence (AI) in terms of job opportunities and threats, examined their relationship, and identified the moderating role of Technology Literacy (TL). The findings provide insights into how AI is perceived in both positive and negative contexts and how TL influences these perceptions. Descriptive statistics indicate that IT professionals generally perceive AI positively, with scores reflecting optimism about its role in job creation and innovation. However, concerns about job displacement and automation persist. Correlation analysis shows a significant positive relationship between AI and job opportunities, suggesting that favorable AI perceptions align with recognizing its potential in employment growth. At the same time, AI is also correlated with job threats, indicating awareness of automation-related risks. The positive correlation between threats and opportunities highlights the complex perception of AI, acknowledging both its benefits and risks. Regression analysis underscores the moderating role of TL in shaping AI perceptions. Higher TL enhances the recognition of AI-driven advancements while also intensifying awareness of AI-related challenges. The findings emphasize TL's pivotal role in shaping AI's workforce impact. These insights provide valuable implications for policymakers, educators, and industry stakeholders, highlighting the need for targeted technological literacy initiatives to foster a balanced and informed perspective on AI's evolving role in the job market.

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