

An Analysis Of User Perception And Acceptance Of Artificial Intelligence Tools: Challenges, Benefits, And Future Directions

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ABSTRACT

The swift progress of artificial intelligence (AI) has profoundly influenced multiple industries like healthcare, finance, and education, presenting chances for enhanced efficiency and creativity. Nonetheless, the effectiveness of AI integration is significantly linked to user perception and acceptance, shaped by elements like training, privacy issues, expenses, and ease of use. This research examines how users perceive AI tools, highlighting the difficulties and advantages related to their usage, as well as looking into the elements that affect acceptance. A quantitative method was used, applying a survey involving 140 participants, with the data examined via Chi-Square tests and Pearson correlation analysis. The results underscore important connections between challenges in using AI tools and views on their future impact in technology and society. Challenges like inadequate training, privacy issues, elevated expenses, and inaccuracies were identified as affecting perceptions of AI's capabilities. The research highlights significant differences in user awareness, utilization, and perceived advantages of AI tools, as participants recognize the time-saving and productivity-boosting features of AI, yet voice apprehensions regarding its accessibility and effects on work quality. The study highlights the necessity of tackling these obstacles by enhancing communication, providing training, and implementing transparent policies to promote increased trust and acceptance of AI technologies. Suggestions are offered to improve user interaction and support the upcoming incorporation of AI tools across various industries.

KEYWORDS: AI tool, Challenges, Artificial Intelligence.

INTRODUCTION

The rapid growth of artificial intelligence (AI) is transforming various sectors, including finance, marketing, education, and healthcare, by enhancing efficiency and providing innovative solutions. However, the successful implementation of AI hinges on user perception and acceptance, which significantly shape its effectiveness in everyday usage. User perception encompasses awareness, understanding, and attitudes toward AI, varying among individuals. While some embrace AI for its efficiency and valuable insights, others express concerns about job displacement and data security, leading to skepticism and resistance. Despite these challenges, many users recognize AI's advantages, such as improved decision-making. To foster acceptance, it is essential to address user concerns through clear communication, education, and intuitive design. This study aims to explore user perceptions of AI tools, highlighting challenges and opportunities to enhance acceptance in the future.

STATEMENT OF THE PROBLEM

The advancement of AI is transforming healthcare, finance, and education sectors, providing efficiency and innovative solutions. However, the adoption of AI largely relies on how users perceive it. Factors like the fear of unemployment, concerns regarding privacy, and unfamiliarity with new things can all hinder acceptance. Transparency, effective communication, and safeguarding data are essential for building trust in AI technologies. The perceived intricacy of AI technology might hinder user involvement, leading to hesitation in its adoption. Enhancing AI accessibility can be accomplished by streamlining interfaces, delivering training,

and supplying assistance. Even with challenges, benefits like enhanced efficiency and better decision-making are recognized. Acknowledging user perspectives and highlighting advantages can ease the acceptance and integration of AI.

OBJECTIVES:

- ✓ To identify user perceptions of AI tools across different demographics.
- ✓ To identify the benefits users, associate with AI technologies.
- ✓ To explore the challenges and barriers to acceptance faced by users.

METHODOLOGY

The research utilizes a quantitative methodology to investigate the connection between difficulties in employing AI tools and beliefs about their future effects. A total of 140 individuals were chosen through a convenience sampling approach, which entailed enlisting participants based on their readiness and availability to take part. Although this method is economical and simple, it might restrict the applicability of the results. Statistical analysis was performed utilizing SPSS software, applying Chi-Square tests to analyze response distribution and Pearson correlation analysis to evaluate relationships among variables. All analyses were evaluated at the 0.01 significance threshold. Although the research offers important insights, limitations involve possible selection bias stemming from the sampling technique, dependence on self-reported data, and the inability to draw causal conclusions because of the cross-sectional approach.

RESEARCH GAP

The investigation into AI tools has attracted significant interest, yet numerous gaps persist that this study intends to tackle. Initially, although a significant portion of the current literature emphasizes the technical features and adoption rates of AI tools, there is a scarcity of thorough research examining the connection between the obstacles encountered by users (such as training issues, privacy concerns, cost barriers, and inaccuracies) and their views on the future role of AI. Second, although earlier studies frequently investigate AI adoption within particular sectors, there is a scarcity of research that delves into the wider societal and individual perspectives on AI's future effects across various fields. Moreover, most research depends on extensive sampling or targeted demographics, resulting in a lack of insight into how diverse populations, particularly those with differing degrees of familiarity with AI, view its challenges and future opportunities. Finally, studies employing a 5-point Likert scale to measure the impacts of these challenges and their correlation with the anticipated future of AI tools are limited, underscoring the necessity for more detailed, survey-driven research that can inform future AI tool design and policy execution. This research seeks to connect these gaps by examining the relationships between user difficulties and their views, providing insights into how these elements can influence the acceptance and upcoming use of AI tools.

H0: There is no Significant relationship between Challenges in Using AI Tools and Future of AI Tools

Correlations									
Factors		C1	C2	C3	C4	F1	F2	F3	F4
C1: I feel a lack of adequate training and resources to use AI tools effectively.	Pearson Correlation	-	-	-	-	.246**	.455**	1.000**	.352**
	Sig. (2-tailed)	-	-	-	-	.003	.000	.000	.000
	N	-	-	-	-	140	140	140	140
C2: Privacy and security concerns discourage me from fully embracing AI tools.	Pearson Correlation	-	-	-	-	.433**	.247**	.352**	1.000**
	Sig. (2-tailed)	-	-	-	-	.000	.003	.000	.000
	N	-	-	-	-	140	140	140	140

C3: The cost of AI tools is a significant barrier to their adoption.	Pearson Correlation	-	-	-	-	.388**	.234**	.414**	.288**
	Sig. (2-tailed)	-	-	-	-	.000	.005	.000	.001
	N	-	-	-	-	140	140	140	140
C4: AI tools sometimes provide inaccurate or biased outputs.	Pearson Correlation	-	-	-	-	.391**	.238**	.380**	.231**
	Sig. (2-tailed)	-	-	-	-	.000	.005	.000	.006
	N	-	-	-	-	140	140	140	140
F1: AI tools will play a crucial role in shaping the future of technology and society.	Pearson Correlation	.246**	.433**	.388**	.391**	-	-	-	-
	Sig. (2-tailed)	.003	.000	.000	.000	-	-	-	-
	N	140	140	140	140	-	-	-	-
F2: Increased investment and development in AI tools are necessary.	Pearson Correlation	.455**	.247**	.234**	.238**	-	-	-	-
	Sig. (2-tailed)	.000	.003	.005	.005	-	-	-	-
	N	140	140	140	140	-	-	-	-
F3: AI tools will significantly enhance various sectors (e.g., education, healthcare, business).	Pearson Correlation	1.000**	.352**	.414**	.380**	-	-	-	-
	Sig. (2-tailed)	.000	.000	.000	.000	-	-	-	-
	N	140	140	140	140	-	-	-	-
F4: AI tools will improve their accessibility and user-friendliness in the coming years.	Pearson Correlation	.352**	1.000**	.288**	.231**	-	-	-	-
	Sig. (2-tailed)	.000	.000	.001	.006	-	-	-	-
	N	140	140	140	140	-	-	-	-
**. Correlation is significant at the 0.01 level (2-tailed).									

Interpretation:

The correlation analysis shows meaningful connections between difficulties in utilizing AI tools (C1 to C4) and views regarding the future of AI tools (F1 to F4). A deficiency in training and resources (C1) demonstrates moderate positive associations with the perception that AI tools will influence the future of technology (F1, $r=0.246, p=0.003$ $r=0.246, p=0.003$ $r=0.246, p=0.003$) and that there is a necessity for increased investment (F2, $r=0.455, p<0.001$ $r=0.455, p<0.001$ $r=0.455, p<0.001$), along with a strong association with the advancement of various sectors (F3, $r=1.000, p<0.001$ $r=1.000, p<0.001$ $r=1.000, p<0.001$). Concerns about privacy (C2) show important moderate correlations with future-focused aspects such as technological development (F1, $r=0.433, p<0.001$ $r=0.433, p<0.001$ $r=0.433, p<0.001$) and enhancements in accessibility (F4, $r=1.000, p<0.001$ $r=1.000, p<0.001$ $r=1.000, p<0.001$). Cost obstacles (C3) and worries regarding inaccuracy (C4) also show moderate correlations with the future influence and usability of AI tools, suggesting that these issues greatly affect perceptions of AI's capabilities. In general, tackling these obstacles could boost trust in AI's influence on shaping the future.

H0: There is no significant relation in Awareness and Usage of AI Tools

Chi-Square Test

Factors	I am familiar with the concept of AI tools and their applications.	I use AI tools regularly in my personal or professional life.	AI tools are accessible and easy to use for me.	The integration of AI tools has improved my productivity or efficiency.
Chi-Square	73.200 ^a	67.029 ^a	111.786 ^b	86.143 ^b
df	3	3	4	4
Asymp. Sig.	.000	.000	.000	.000

The Chi-Square test results demonstrate significant variation in responses across all analyzed factors, with p-values below 0.001. For the factor “I am knowledgeable about AI tools and their uses” ($\chi^2=73.200$, $df=3$), the outcome reveals disparities in participants' awareness of AI tools. Similarly, for “I regularly utilize AI tools” ($\chi^2=67.029$, $df=3$), differences in consistent usage are highlighted. Factors like “AI tools are easy for me to access” ($\chi^2=111.786$, $df=4$) and “Utilizing AI tools has boosted my productivity” ($\chi^2=86.143$, $df=4$) also show significant variances, illustrating diverse views on accessibility and productivity benefits of AI tools.

H0: There is no significant relation in Perceived Benefits of AI Tools

Chi-Square Test				
	AI tools simplify complex tasks in my daily activities.	The use of AI tools has enhanced the quality of my work/output.	AI tools save time and effort in completing repetitive tasks.	AI tools provide valuable insights that aid in decision-making.
Chi-Square	120.500 ^a	93.771 ^b	79.857 ^a	71.929 ^a
df	4	3	4	4
Asymp. Sig.	.000	.000	.000	.000

The Chi-Square test results reveal significant variability in responses regarding the benefits of AI tools, with p-values below 0.001. Responses about "AI tools make intricate tasks in my everyday activities easier" ($\chi^2=120.500$, $df=4$) and "AI tools reduce time and labor in performing repetitive tasks" ($\chi^2=79.857$, $df=4$) show differing opinions on their time-saving and simplification benefits. Similarly, "The application of AI tools has improved the standard of my work/output" ($\chi^2=93.771$, $df=3$) and "AI tools offer important insights that assist in decision-making" ($\chi^2=71.929$, $df=4$) reflect varied perspectives on AI's impact on work quality and decision-making.

CONCLUSION:

This research investigates the views and application of AI tools, highlighting the difficulties and advantages that users link to their usage. The analysis of correlation shows important connections between different difficulties encountered by users (including insufficient training, privacy issues, expenses, and errors) and their perceptions of AI's future. For example, problems such as insufficient training and privacy issues are closely linked to perceptions regarding AI's impact on technological progress, industry improvements, and greater investment demands. This indicates that addressing these obstacles might enhance user trust and views, ultimately supporting AI adoption. Additionally, the results of the Chi-Square test indicate notable differences in user awareness, usage, and perceived advantages of AI tools. Feedback on awareness of AI tools, their availability, and their influence on productivity shows diverse user experiences, suggesting that the use and efficiency of AI tools rely on aspects such as user expertise, usability, and perceived worth. The research further emphasizes that although AI tools provide significant advantages like streamlining tasks and supporting decision-making, perceptions of these benefits differ greatly, showcasing the varied experiences and viewpoints of users. In summary, for AI tools to gain wider acceptance and integration, it is vital to tackle user concerns, enhance accessibility, and highlight the concrete advantages of AI to help cultivate a favorable perception. As AI develops further, comprehending and tackling these elements will be essential for guaranteeing its success in various industries and populations.

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