Transforming Collaborative Work: The Future of Adaptive Models in Human-Artificial Intelligence Interaction

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Abstract: *This nonexperimental survey-based online quantitative study was conducted to explore how an independent variable, human tasks, affects the dependent variable, AL Models percentage of tasks within the job role influenced by artificial intelligence (AI). The Technology Acceptance Model (TAM) theoretical framework is used to understand and predict dependent variable Al Models, which refers to the degree to which Artificial Intelligence AI will transform daily tasks. The study addresses the existing research gap by exploring areas that have not been sufficiently investigated and understood to improve human tasks and effectively fill a knowledge gap regarding the dynamics of human tasks that AI influences. AI Models in this study are impacted by how human tasks are integrated, representing AI's influence on the job. Different AI Models that include machine learning algorithms, deep learning, or rule-based systems may vary and be influenced by Human Tasks. In the online survey, participants were chosen from nearly every industry that has used AI systems to help with task automation and workload distribution, which makes them perfect subjects for assessing how beneficial and effective people think of Artificial Intelligence in practical situations.*

INTRODUCTION

This study explores within the Technology Acceptance Model (TAM) framework the relationship between human tasks and the workload utilized by Al Models that aims to be completed by artificial intelligence. The critical review has revealed that different concepts of responsibility are interconnected, highlighting the need to address the research gap by examining the differences between AI and humans (Gou et al., 2024). The rapidly evolving world of artificial intelligence

(AI) requires efficiency as a key to success that continues to transform tasks, where the critical factor lies not in replacing humans but in fostering collaboration between AI and the workforce. A potent synergy that boosts productivity and innovation is produced when AI's capacity to process enormous volumes of data and automate repetitive tasks is paired with humans and AI in evolving creativity, critical thinking, and emotional intelligence (Pelău, 2024). More complicated tasks are assigned to AI Models to assist and automate, which requires complex workloads to balance and challenges uneven task distribution that may have led to inefficiencies, delays, and even system failures. To ensure AI systems operate at their best, an analysis of AI Models can provide insights that lead to more intelligent task distribution. AI and workers can boost output by improving accuracy and speeding up decision-making. Routine tasks can be finished more rapidly and precisely with AI model processing capabilities, freeing staff members to concentrate on more intricate creative or strategic tasks. Companies gain from this partnership collaboration, which speeds up production or service delivery, reduces human error, and facilitates resource allocation and productivity through streamlined procedures (Popescu et al., 2024). AI can help employees make data-driven decisions by providing valuable recommendations and perceptive analysis. AI can also offer insightful analysis and helpful suggestions, assisting workers in making data-driven decisions. Additionally, AI can provide valuable insights and recommendations, supporting the workforce in making informed, data-driven decisions.

LITERATURE

The task based on AI supports the objectives that facilitate the development of a control system and measure results by gathering information based on knowledge and skills to meet expectations. Exploring the AI Models and Human Tasks related to AI's perceived usefulness reveals how these AI can be transformed by making them efficient and equitable (Năstase et al., 2024). Perceived usefulness is the degree to which an AI effectively accomplishes a task by incorporating appropriate platforms in the learning process to help enhance competence in solving problems. Understanding the tasks and AI Models related to perceived usefulness is crucial for enhancing the intention to engage in AI to achieve equitable outcomes (Shih-Yeh et al., 2024). Understanding the tasks and AI Models related to human tasks is crucial for comprehending how these factors influence employees' willingness to adopt an AI environment by developing a bottom-up vision of how to use and absorb AI technologies that include the use of AI within the workplace (Dabbous et al., 2022). AI will significantly and broadly shape future work environments to increase workplace creativity and productivity, where AI can fundamentally alter how people interact, learn, and work. AI and human intelligence work together to create a future workplace where efficiency,

Publication of the European Centre for Research Training and Development -UK

creativity, and teamwork are essential, allowing for the reevaluation and reinterpretation of traditional job functions and new avenues for creative employer-employee cooperation. AI will have a significant and wide-ranging impact on how workplaces are designed to increase creativity and productivity, where AI has the power to profoundly alter how people work, learn, and interact at work. Al works with human intelligence to create a future workplace where teamwork, creativity, and productivity are essential. Not only does this convergence redefine conventional job functions, but it also opens up new avenues for creative employer-AI cooperation. Significant changes in work arrangements have also been brought about by fast development, enabling teams to focus more on these high-impact, value-added tasks. At the same time, AI takes care of routine tasks. Automation and Al technologies have forced many workers to adapt to new work structures and agreements that differ significantly from previous generations. These changes are reshaping the traditional AI-employee dynamic and require new approaches to work-life balance, job roles, and collaboration. Considering all these aspects, we found it helpful to explore the use of Al and chatbots and their impact on jobs (Petre et al., 2024).

METHOD

The methodology follows a quantitative approach within the Technology Acceptance Model (TAM) framework to measure the effectiveness of AI models distribution and analyze its impact on Human Tasks in the job to uncover insights that can guide more intelligent AI integration (Majrashi, 2024). The surveys were distributed to diverse participants, including the human workforce across nearly every industry. The survey contained a cross-sectional survey aligned with the research question to assess participants' perceptions of how well AI systems were integrated into their daily workflows. The Cronbach alpha test was conducted on the research instrument cross-sectional survey that shows a value of 0.7. The cross-sectional survey for this study was administered to a substantial sample of 2,222 participants using SurveyMonkey, ensuring a robust and representative dataset that spans various industries and job roles.

The research question serves as the compass in the research project with a targeted question that describes the main problem or issue that a study seeks to address and directs the entire research process by identifying the crucial elements to look into and evaluate to draw a conclusion.

How does assigning human tasks consisting of AI Models influence the collaboration between AI and human work environments?

Ho (Null Hypothesis): The assigned human tasks consisting the use of AI models do not significantly influence the collaborative work environments between AI and human workers.

Ha (Alternative Hypothesis): The assigned human tasks consisting the use of AI models significantly influence the collaborative work environments between AI and human workers.

RESULTS

The study measures the relationship between Human Tasks (independent variable) and Al Models (dependent variable) using correlation and linear regression (Frankfort-Nachmias et al., 2020). Both variables were measured on an interval scale and univariate analysis. Figure 1 shows that the data for Human Tasks appears symmetric and light-tailed, with no significant skew or extreme outliers, suggesting that the data is normally distributed.
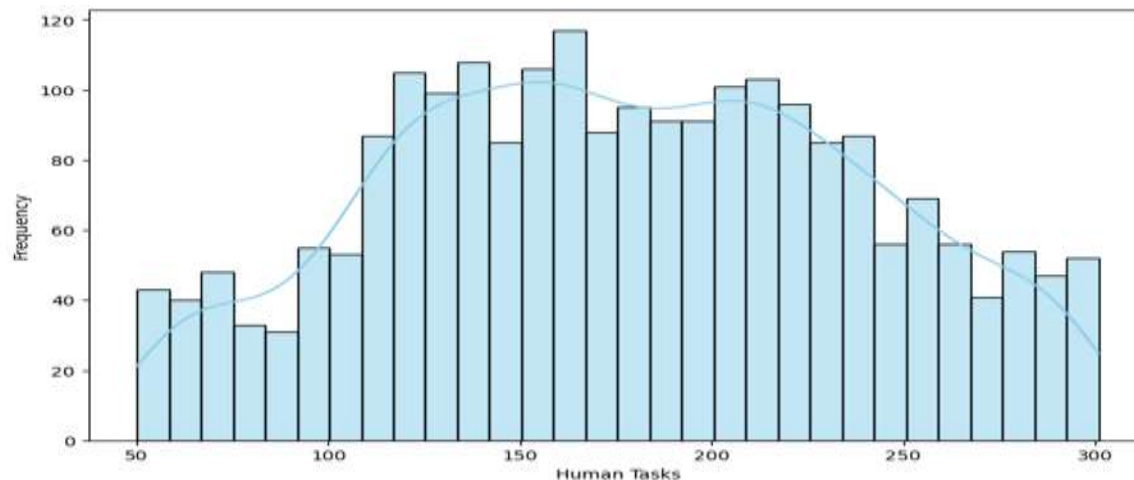

Figure 1: Histogram for distribution of Human Tasks

A further test was conducted to calculate the skewness for Human Tasks, which is 0, which suggests that the distributions for Human Tasks are symmetric and indicates the variable does not show a skewness. The Human Tasks data is relatively symmetrical, as the mean and median are close, with a moderate standard deviation spread = 62. The AI models data shows a higher level of variability, as indicated by the large standard deviation= 437.2. The range of values from min to max is also quite extensive in both, indicating significant diversity in the values.

Table 1: Descriptive Statistics

Summary	mean	median	mode	min	max	std
Human Tasks	177.9	177	206	50	301	62
AI models	1222.7	1187	879	164	2380	437.2
Sample Size	2222	2222	2222	2222	2222	2222

While the moderate to strong correlation of 0.73 between the Human Tasks and AI Models indicates a generally positive relationship, it suggests other factors such as funding, resources, or organizational changes could be affecting both variables simultaneously. The correlation captures only the linear relationship between them but does not account for the potential complexities and variations in the data.

Table 2: Pearson Correlation Between Human Tasks and AI Models

Variables	Human Tasks	AI models
Human Tasks	1	0.73
AI Models	0.73	1

Linear regression is used to understand the relationship between the dependent variable, AI Models, and the independent variable, Human Task. The model equation of a multiple linear regression model is AI Models = $\beta 0 + \beta 1$ (Humans Tasks) + ϵ

Where $\beta 0$ is the intercept of the value of AI Models when Human Tasks are zero, $\beta 1$ is the coefficient for Humans Tasks how much AI Models changes for each unit change in Human Tasks, ϵ is the error term captures other factors affecting AI Models that aren't accounted for in the model (Silviu-Ionui, 2025).
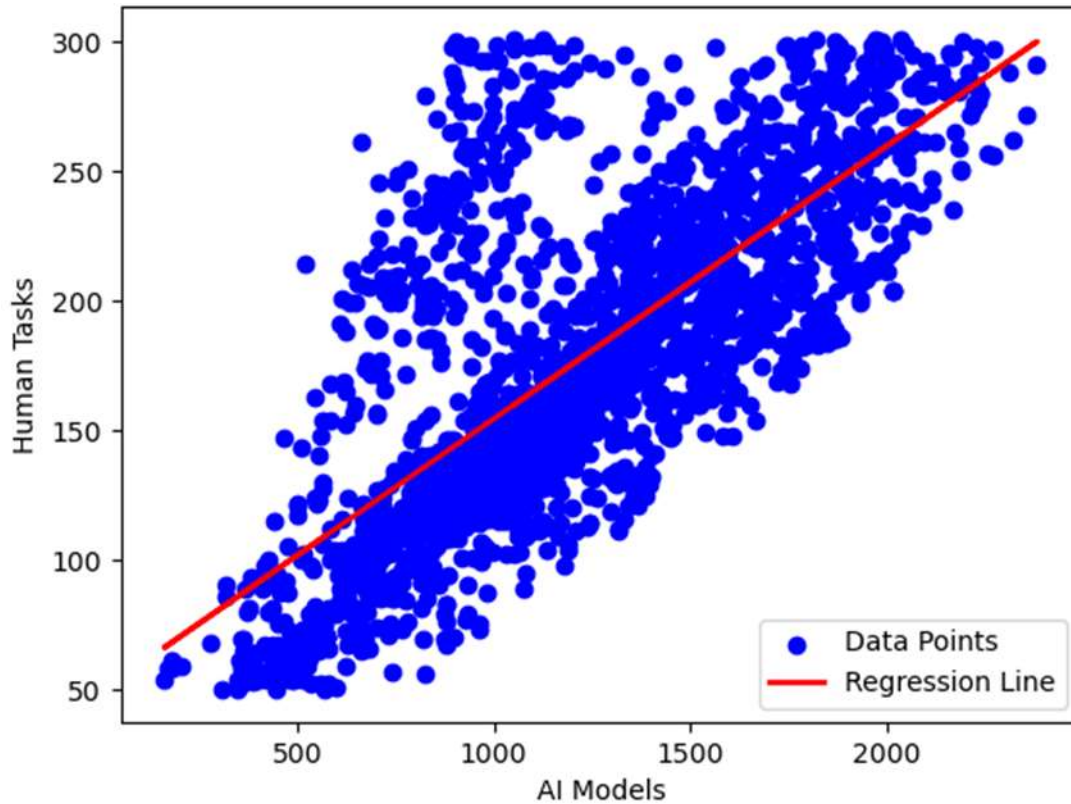
Figure 2: Linear Regression of AI Models and Human Tasks

The regression coefficient 0.11 indicates that the dependent variable, AI models, increases by 0.11 for each unit increase in Human Tasks. The intercept of 48.85 tells us that when Human Tasks is zero, the predicted value of the dependent variable will be 48.85. The T-statistic of 52.48 is extensive, suggesting the regression coefficient is statistically far from zero and Human Tasks influence the dependent variable. The P-value of 0.0 indicates that the result is statistically significant and confident that Human Tasks have a meaningful relationship with the dependent variable. Therefore, the results show that Ha (Alternative Hypothesis) assigns tasks and uses AI Models significantly to influence the collaborative work environments between AI and human workers.

Table 3: Regression Between Human Tasks and AI Models

Metric	Value
Regression Coefficient	0.11
Intercept	48.85
T-statistic	52.48
P-value	0

The results imply that how human tasks are handled and integrated into the workplace determines how AI will affect task automation and workload distribution. Participants from industries currently using AI systems offer insightful opinions on AI's perceived advantages and usefulness in real-world situations. This study contributes to our understanding of AI's evolving role in work environments, emphasizing the importance of fully integrating human tasks to realize AI Models' potential.

Future research

Investigating how funding resource distribution organizational modifications or changes in the overall economy may affect human tasks and AI model development. Examine how correlations occur in particular sectors or industries. For instance, in fields like healthcare, manufacturing, or finance, the relationship between human tasks and AI Models might be influenced by unique industry-specific factors such as regulatory changes or technological innovation. Workforce adaptation and skills development changes in human tasks due to the implementation of the AI Model affect the workforce.

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