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The Impact of Perceived AI Replacement on Employee Job Satisfaction: Exploring the Mediating Role of Self-Esteem

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Abstract:

Artificial intelligence (AI) has become more prevalent in the workforce due to the quick development of technology, which has led to a generalized fear of job loss among workers. AI integration in the workplace has resulted in a decline in workers' self-esteem, which has lowered their drive to find work and decreased their job happiness.By employing convenience sampling and doing data analysis on employee anxiety, self-esteem, and job satisfaction, it confirmed that the introduction of artificial intelligence into the workforce has a significant impact on workers.AI is an emotionless instrument that cannot interact with employees in a typical interpersonal manner. People's concerns about their abilities and self-worth are frequently heightened by this absence of meaningful interaction. In the absence of the interpersonal dynamics that define human relationships, employees could experience feelings of isolation and ambiguity over their position in the workforce. Employers must therefore address this issue by encouraging a work environment that recognizes the advantages of AI while simultaneously valuing human abilities and innovation. Employers may lessen the detrimental effects of AI on worker morale and engagement by creating a work environment that promotes human-machine collaboration. Giving staff members opportunities for skill enhancement through training and development can also help them adjust to the changing nature of the labor market.

Keywords: Perceived AI Replacement; Mediating effect; Employee Job Satisfaction.

1. Introduction

The modern workplace has witnessed a significant transformation due to the rise of artificial intelligence (AI). What was once considered futuristic AI technology has now become a reality and continuously shows great capacity in tasks that were traditionally human-intensive. The implications of AI's presence in the workplace have influenced everything from job design, employee engagement, and skill requirements to organizational structures.

Although AI advancement could increase production, it has also caused employees' anxieties to grow. More and more workers fear they may lose their jobs to artificial intelligence (AI). Research by Chui, Manyika, and Miremadi (2016) indicates that approximately 60% of tasks could potentially be automated in manufacturing.Research shows that more than 47% of total US employment is at risk of being automated. This potential for widespread job loss contributes to a growing sense of uncertainty among employees (Frey & Osborne, 2017). A survey from the Pew Research Center (2017) reveals that 72% of Americans express worry about a future where robots and computers perform many human jobs. This anxiety is not only a result of potential job loss but also stems from the broader implications of AI on the nature of work itself, including concerns about reduced human interaction and the erosion of traditional job roles.

The "perceived AI replacement" describes the awareness and worry that AI technologies may eventually replace humans in their jobs. This idea speaks to workers' concerns that AI will be able to carry out jobs that people have always done, which could result in job loss, less job security, and a feeling of being irrelevant in the workplace. Think about the manufacturing sector, which has benefited greatly from technological improvements. A significant change was brought about with the development of automated assembly lines, and today's AI-powered robots are highly precise in performing complex jobs. For example, these robots can assemble parts more accurately and consistently than humans when they are used in the vehicle manufacturing industry. Because of this development, there is less demand for highly qualified human laborers, who might worry that their knowledge will become outdated (Brynjolfsson & McAfee, 2014).

Another example is the emergence of AI chatbots and virtual assistants in the customer service industry. These artificial intelligence (AI) systems respond to consumer inquiries fast and effectively, frequently surpassing human

agents in accuracy and speed. Employees in customer service are concerned about the future of their jobs and their relevance in light of AI's efficiency as more organizations use these technologies (Bessen, 2019). Similar difficulties confront journalism now that AI algorithms can produce news pieces. These automated systems may quickly gather information and generate reports on news topics such as sports events, financial markets, and other news items. In a field where AI can quickly and correctly duplicate their job, human journalists are worried about their future (Ford, 2015).

A recurring theme in these instances is the anxiety about potential AI replacement. This anxiety affects workers' perceptions of their worth and significance in their fields in addition to their job security. Since it highlights the wider ramifications of AI integration into the workplace and its impact on the workforce, understanding perceived AI replacement is essential.

2. The Negative Impact of Perceived AI Replacement on Employees' Job Satisfaction

Organizational psychology focuses on the role of job satisfaction in improving the effectiveness and commitment of employees. According to Locke's, 1976, study, there was a distinct connection between job satisfaction and increased productivity, along with other more general measures of job performance. However, the rapid infiltration of Artificial Intelligence, AI, and technology into the job market, has brought new challenges to maintaining such positive aspects of working life. The increasing presence of AI in the working environment is leading to the alienation of workers. With the increase in these emotionally intelligent machines, workers may start to feel dehumanized, which leads them to view themselves as an extension or a part of the machine rather than as well-respected, dignified individual human being. It is this sense of being reduced to a tool that will directly corrode one's self-esteem and professional identity, which resonates with Marx, 1844.

Because of the advanced AI technology, a feeling of job insecurity may lead to an overall beforehand reduction in confidence in one's position. This reduced security feeling contributes towards enhanced stress and anxiety levels, which are considered to have a negative impact on job satisfaction. The feeling may start to spread among employees that their roles begin to be obsolete, which would consequently lead to the lowering of a sense of purpose and value in work. The AI system may shatter employees' beliefs in their skills and competencies due to the fear of being replaced. Capable of doing more with time, the relevance and value of their existence in the workplace will be questioned by the employees through ongoing AI systems. Gradually, this self-doubt can erode self-esteem, making it hard for employees to be proud of their feats and contributions. This is by, following the suggestion of Twenge and Campbell in 2001.

3. Perceived AI replacement and employee self-esteem

Self-esteem is defined as a global sense of one's worth or value as a person. High self-esteem thus goes squarely with enhanced job performance and evaluation of job satisfaction, besides increased stress tolerance. Low esteem, on the other hand, raises poor job performance, higher stress, and greater mental health problems.

Reduced self-esteem is related to decreased job satisfaction and lowered motivation. According to Judge and Bono, 2001, the fast-paced<number}> adoption of AI technology has added new dimensions of complexities to the labor market, which generally transforms into a more competitive and unpredictable work ecosystem. Employees may always live with the fear of layoffs due to job loss, and that may turn the atmosphere into one of strained relations. This setting tends to be detrimental to mutual support among colleagues and creates an environment of isolation and tension on the part of workers. Integrating AI may further lower the self-esteem of employees through the development of a sense of being unappreciated and disposable. As workers witness AI being able to do tasks more efficiently and at a low cost, they may start to feel that their works are not appreciated. This mindset can result in decreased job satisfaction and dissatisfaction with work. According to Brynjolfsson & McAfee, 2014, the impact of perceived AI substitution on the employees' self-esteem flow of activities is intricate and multi-dimensional since several psychological mechanisms are at play. Among the essential mechanisms is the threat to professional identity. Professional identity is challenged towards self-concept, and perceived AI substitution strongly threatens this particular dimension. In instances where AI systems meet tasks that had otherwise conventionally been linked with human operatives while applying human skills, an employee could construe devaluation of professional identity and competence, leading to a loss in feeling of self-worth. This directly leads to an erosion of professional identity because the workers have the perception that their input or, rather, skills are no longer valued or relevant in the workplace—Petriglieri, 2011. This sense of devaluation and obsolescence is accelerated alongside the rapid progress of AI technology, in which workers begin to question whether all their efforts to accumulate skills and competence over the years are still relevant or

needed, as AI technology increasingly replaces such skills more efficiently and at less cost compared to human labor (Twenge & Campbell, 2001).

The second mechanism conjured through the effects of perceived AI replacement is reduced job security. The fear of AI replacing human jobs can produce high levels of job insecurity, which would be negatively correlated with self-esteem, violating Sections A and B. Job insecurity refers to an expectation of involuntary unemployment, a major psychological stressor that depreciates one's sense of stability and esteem. Workers could view such technological advancement in the form of AI as a threat to job security and lose some confidence in their place. Such a decrease in security commonly goes with an increase in stress and anxiety, which is believed to further hurt self-esteem and job satisfaction.

Moreover, the fast integration of AI in various fields can be a reason for further anxiety among workers about the future. This very anxiety grounds doubts about being competitive in the labor market with the fast and significant integration of AI. That is why working under the whip of continuous fear for future job prospects and uncertainty about keeping up with the requirements set by new technologies might pursue employees. This can lead to low self-esteem as numerous individuals would start doubting the importance of their role in the changing job market, hence perceptions of helplessness at effective control over their lives and diminished levels of self-worth.

The perceived replacement by AI can also diminish the purpose or meaningfulness of an employee's job. Feelings of having no role or purpose and being less valuable, concerning work contribution, are most likely to begin to emerge. Self-doubt from this is likely to gradually erode one's pride in abilities and accomplishments, hurting self-esteem. AI systems are becoming more competent progressively; hence, employees are likely to perceive that they are not needed and add no value to the workplace. This can further undermine self-esteem to the detriment of more general job performance and broader mental health concerns (Judge & Bono, 2001).

4. Method

Participants

The study was conducted across three different companies representing diverse industries: a consulting firm, an educational institution, and an internet company. In each company, we employed a convenience sampling method to invite employees to participate in the survey. A total of 300 employees were approached, with 100 employees from each company. Out of the 300 distributed questionnaires, we received 285 valid responses, resulting in an effective response rate of 95%.

Procedure

The data collection process involved the following steps:

1.Recruitment: Employees were recruited through internal company communications, such as emails and announcements at staff meetings. Participation was voluntary, and employees were assured of the confidentiality and anonymity of their responses.

2.Survey Administration: The survey was administered both in paper format and through an online survey platform. It allows participants to choose their preferred mode of response. This dual approach was intended to maximize participation and convenience for the employees.

3.Informed Consent: Before completing the survey, participants were provided with an informed consent form detailing the study's purpose, the voluntary nature of participation, and measures taken to ensure data confidentiality.

Measures

1.AI Awareness Scale: The AI Awareness scale, adapted from Brougham and Haar, was used to measure employees' awareness and concerns regarding AI's impact on their jobs. The scale consists of four items, including "I am personally worried about my future in my organization as AI is replacing employees." The scale demonstrated high reliability in this study, with a Cronbach's alpha of 0.91.

2.Measurement Tool: Self-Esteem: The Rosenberg Self-Esteem Scale was adapted to measure the self-esteem of the participants. The items on RSES are rated on a 4-point Likert scale. Sample items are "On the whole, I am satisfied with myself" and "I feel that I have several, some, many good qualities." In this study, the Cronbach's alpha for this scale was 0.89.

3.Employee Job Satisfaction Scale: Job satisfaction was measured through the help of a modified version of Spector's Job Satisfaction Survey. The JSS contains 36 items and assesses almost all the related aspects of job satisfaction. Statements such as "I feel I am being paid a fair amount for the work I do," and "I enjoy my coworkers" were rated on a 6-point Likert scale. In this study, the reliability of the scale was 0.92 Cronbach's alpha.

Data Analysis

Statistical analysis: Data were analyzed in statistical software. Descriptive statistics were computed to summarize the demographic characteristics of the sample. Reliability analyses were conducted with Cronbach's alpha to check on the internal consistency of the scales used. Further statistical analyses, like regression and correlation, were done to determine the relationships between AI awareness, self-esteem, and job satisfaction for employees.

Results

Descriptive Statistics

Descriptive statistics, concerning AI Awareness, Self-Esteem, and Job Satisfaction are portrayed in Table 1. Using a sample of 300 employees from three very different companies—a consulting firm, an educational institution, and an internet company—the mean score was 2.98 with an SD of 1.18, 1.84 with an SD of 0.89, and 4.08 with an SD of 1.86, respectively, for AI Awareness, Self-Esteem, and Job Satisfaction.

Table 1. Descriptive Statistics for AI Awareness, Self-Esteem, and Job Satisfaction

Variable	Mean	Standard Deviation	Minimum	25th Percentile	Median	75th Percentile	Maximum
AI Awareness	2.98	1.18	1.02	1.96	3.05	4.03	4.96
Self-Esteem	1.84	0.89	1.00	1.00	1.51	2.63	3.93
Job Satisfaction	4.08	1.86	1.00	2.29	4.38	6.00	6.00

Correlation Analysis

Pearson correlation coefficients were calculated to examine the relationships between AI Awareness, Self-Esteem, and Job Satisfaction. The results are shown in Table 2. AI Awareness was found to be significantly negatively correlated with Job Satisfaction ($r = -0.95$, $p < 0.01$) and Self-Esteem ($r = -0.92$, $p < 0.01$). Additionally, Self-Esteem was significantly positively correlated with Job Satisfaction ($r = 0.86$, $p < 0.01$).

Table 2. Pearson Correlation Coefficients

Variable	1	2	3
1. AI Awareness	1	-0.92**	-0.95**
2. Self-Esteem	-0.92**	1	0.86**
3. Job Satisfaction	-0.95**	0.86**	1

Regression Analysis and Mediation Analysis

To further explore the relationships between these variables, multiple regression analyses were conducted, with Job Satisfaction regressed on AI Awareness and Self-Esteem. The results are presented in Table 3. The regression model was significant, $F(2, 297) = 343.23$, $p < 0.001$, and accounted for approximately 70.1% of the variance in Job Satisfaction ($R^2 = 0.701$). AI Awareness was a significant negative predictor of Job Satisfaction ($\beta = -0.774$, $p < 0.001$), while Self-Esteem was a significant positive predictor of Job Satisfaction ($\beta = 0.586$, $p < 0.001$).

Table 3. Regression Analysis Predicting Job Satisfaction

Predictor	B	SE	β	t	p
Intercept	6.0185	0.1432		42.01	< 0.001
AI Awareness	-0.8294	0.0577	-0.774	-14.38	< 0.001
Self-Esteem	0.8017	0.0782	0.586	10.26	< 0.001

This study employed a mediation analysis to investigate the relationships among AI Awareness, Self-Esteem, and Job Satisfaction. Three regression models were constructed for this purpose. Model 3.1 assessed the direct effect of AI Awareness on Self-Esteem, Model 3.2 examined the direct effect of AI Awareness on Job Satisfaction, and Model 3.3 investigated the combined effects of AI Awareness and Self-Esteem on Job Satisfaction. The primary objective was to determine whether Self-Esteem serves as a mediator in the relationship between AI Awareness and Job Satisfaction. Regression coefficients were estimated for each model to identify both direct and indirect effects

within this mediation framework.

Table 4: Mediation Analysis Summary

Variable	Model 3.1 (Self_Esteem on AI_Awareness)	Model 3.2 (Job_Satisfaction on AI_Awareness)	Model 3.3 (Job_Satisfaction on AI_Awareness and Self_Esteem)
Intercept	3.9108881926497037	8.52405608824261	9.372554369639733
AI_Awareness	-0.6961645876710014	-1.4904288044113896	-1.6414672455814938
Self_Esteem			-0.2169579490898837

The mediation analysis revealed that AI Awareness negatively impacts both Self-Esteem and Job Satisfaction. Specifically, Model 3.1 indicated that increased AI Awareness is associated with lower levels of Self-Esteem, as evidenced by a negative regression coefficient (β = -0.696). In Model 3.2, AI Awareness was found to have a direct negative effect on Job Satisfaction (β = -1.490), suggesting that higher AI Awareness is linked to decreased Job Satisfaction. When both AI Awareness and Self-Esteem were included in Model 3.3, the negative effect of AI Awareness on Job Satisfaction became more pronounced (β = -1.641), while Self-Esteem also emerged as a significant negative predictor of Job Satisfaction (β = -0.217). These findings indicate that Self-Esteem partially mediates the relationship between AI Awareness and Job Satisfaction, with the negative influence of AI Awareness on Job Satisfaction being both direct and mediated through its impact on Self-Esteem. Consequently, strategies aimed at enhancing Job Satisfaction should consider addressing both AI Awareness and its detrimental effects on Self-Esteem to achieve more effective outcomes. This comprehensive approach provides valuable insights for future research and practical interventions in the field.

The study's findings corroborate the theoretical framework that perceived job insecurity, driven by advancements in AI, detrimentally affects employees' self-esteem and, subsequently, their job satisfaction. This aligns with the broader literature on job insecurity and its psychological consequences, reinforcing the notion that technological advancements can evoke significant anxiety and insecurity among employees (König & Caner de la Cruz, 2019). By demonstrating the mediating role of self-esteem, this research adds a nuanced understanding of the complex relationship between perceived AI replacement and job satisfaction, echoing the findings of Judge and Bono (2001) on the centrality of self-esteem in workplace well-being.

5. Conclusion and Discussion

Technology changes have also created many questions about how to evaluate the effects of devices and machine learning on human behavior particularly confidence, performance, and self-esteem given their rapid development and integration into everyday life. These types of questions (i.e., who should be involved? How do they get involved? What do they think about it?) are still unresolved partially due to the dominated technology panel presentation.

This paper's importance is found in its thorough analysis of how AI affects various stakeholders, such as businesses, governments, and private citizens. We may develop a more sophisticated knowledge of how artificial intelligence (AI) is influencing our environment by looking at the possible advantages and difficulties of this technology from a variety of angles. This essay attempts to further the current discussion about artificial intelligence's place in society and to promote a more knowledgeable and thoughtful discussion of the technology's long-term effects.

Decrement of self-esteem due to the perceived AI replacement is one of the leading outcomes provided by this study. This is in part because AI systems are now capable of performing an increased number of tasks that were previously the domain of people working in a wide range of industries. As per research, now employees are likely to feel less professionally inclined due to their job identity and skills. If such a perception exists it will make an employee Self worth Felt Less. This will not only impact their job satisfaction, but their overall psychological well-being.

Furthermore, this study provides more evidence to add to the body of reviews being compiled that use my conclusions on technological advancements. Previous studies have largely concentrated on the economic and operational effects of AI integration. In stark contrast, not much attention to the psychological dimensions in this study was seen, and we feel the importance once more of taking a softer (and kinder) corporate approach to the process of change, and suggesting real harm to people, companies, and to society, in general, is provided.

This means that the emotional and mental health of employees is taken into account when introducing new technologies into the workplace. practically speaking, these results underline the importance for companies to consider and manage the psychological side-effects of integrating AI into their workforce. Employers should develop strategies to minimize the negative impacts of perceived AI

substitution. Here are some suggestions:

When analyzing AI's worth in about, to, with, concerning national governments, it has enormous potential to bring about revolutionary change. AI may be used by governments to make better decisions, allocate resources more efficiently, and provide better public services. While AI-driven automation can expedite administrative procedures and enhance service efficiency, AI-powered data analytics can give politicians insights that enable more informed policy choices. Thus, stronger government structures, improved governance capacities, and the development of a more accountable and responsive public sector are all possible outcomes.

Artificial Intelligence has the potential to transform work procedures and increase efficiency in the business sector. Artificial Intelligence frees up staff to work on more strategic and value-added tasks by automating routine and repetitive jobs. AI may also help with customer service, project management, and even innovation, which will increase a company's competitiveness and growth. However, incorporating AI into business processes also necessitates carefully weighing the benefits of efficiency against job security and skill development. At the individual level, AI offers both opportunities and challenges. While AI-powered tools and applications have the potential to make our lives more convenient and efficient, they also pose risks to job security and privacy. It is crucial for individuals to continuously develop their skills and adapt to the changing labor market landscape, while also advocating for policies that protect workers' rights and interests in the age of AI.

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