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The Impact of AI on Employee Skill in the Workplace

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Abstract
This study explores the impact of artificial intelligence (AI) integration on employee skills and workplace awareness in Malegaon City. By automating repetitive tasks and optimizing operational efficiency, AI is reshaping the skill demands within modern organizations. The research adopts a descriptive and explanatory design using a quantitative approach, with data collected through a structured questionnaire distributed to 120 employees across various industries. The primary objectives include assessing employees' awareness of AI technologies and evaluating improvements across five categories of skills—Core, Thinking, Self-management, Social and Communication, and Physical and Manual skills. The findings reveal that 65% of respondents are aware of AI technologies. AI integration shows a positive effect on Core Skills (mean score 3.82) and Self-management Skills (mean 3.31), reflecting enhancements in digital literacy, time management, and adaptability. However, Thinking Skills (mean 1.51) and Physical and Manual Skills (mean 2.16) report limited or negative improvement, while Social and Communication Skills remain neutral (mean 2.69). The study concludes that AI presently serves as a supportive tool enhancing foundational and organizational capabilities but does not significantly foster higher-order cognitive or interpersonal skill development. Continuous upskilling, reskilling, and adaptive learning are recommended to ensure balanced skill growth in AI-driven workplaces.

Keywords: Artificial Intelligence, Workplace Skills, Employee Awareness, Skill Development, Upskilling, Reskilling, Core Skills, Thinking Skills, Self-management, Malegaon City

1. Introduction

By automating repetitive tasks and implementing complex procedures, artificial intelligence is radically altering the modern workplace. The need for abilities like critical thinking, flexibility, domain knowledge, and cooperation with digital systems is growing because of this change. To take advantage of opportunities in roles driven by innovation, both employees and organizations must engage in ongoing learning, upskilling, and reskilling.

AI is quickly changing the skills needed in the workplace by automating repetitive tasks and generating new learning opportunities. AI tools, such as ChatGPT, are being used by staff members for communication, task management, and content production. As a result, companies give preference to applicants who can use these tools efficiently, frequently looking for evidence of AI proficiency when making hiring and promotion decisions.

AI is improving workplace satisfaction and reducing burnout by improving performance management, personalized training, and safety monitoring. While organizations must clearly offer opportunities for reskilling and upskilling, workers must foster strategic problem-solving and collaboration with digital systems. AI drives sustained growth by automating repetitive tasks, freeing up staff members to concentrate on advanced decision-making, creativity, and innovation.

2. Review of Literature

Brynjolfsson and McAfee (2014) researched the "Great Decoupling" where AI contributes to productivity growth but also skill-biased displacement, emphasizing the need for reskilling and adaptive workforce development.

Bessen (2019) highlighted that AI implementation demands both technical proficiencies—like data literacy and AI tool management—and transversal skills such as collaboration and self-directed learning.

Studies by Davenport and Ronanki (2018) emphasized changing organizational culture and structures to foster continuous learning, adaptability, and collaboration alongside AI systems for improved productivity.

A 2020 World Economic Forum report advocated strategic upskilling, identifying that organizations must align workforce training with AI integration to prevent skill gaps and maintain competitiveness.

Research by Huang and Rust (2021) explored how AI augments human capacity in decision-making and innovation while warning of skill erosion in fully automated task areas if reskilling is not pursued.

A 2022 study by Susskind and Susskind underscored ethical considerations in AI-driven workplaces, like fairness and transparency, identifying them as critical in developing training and reskilling policies to sustain employee confidence and motivation.

3. Objectives of the study

1. Assess the level of awareness among employees regarding the presence and use of AI technologies.
2. Evaluate improvements in employee Core skills, Thinking skills, Self-management skills, Social and communication skills & Physical and manual skills due to AI integration in their workspace.

4. Research methodology

4.1. Research Design

The study will adopt a Descriptive and Explanatory Research Design. It is descriptive in assessing the current level of AI awareness and the nature of skill improvements. It is explanatory in seeking to establish a relationship between AI integration (independent variable) and changes in employee skills/time savings (dependent variables).

1. Approach: Quantitative approach, primarily utilizing a structured questionnaire.
2. Method: Cross-sectional survey method, collecting data from the target sample at a single point in time.
3. Study Area: Malegaon City.

4.2.Sampling Design

The target population for this study is employees working in various sectors/organizations within Malegaon City who have potential exposure to AI or digital technologies in their work. This ensures the findings are relevant to the local workforce dynamics. The study will utilize a Non-Probability Convenience Sampling technique, which is practical for primary data collection via a platform like Google Forms in a specific city. The intended sample size is 120 respondents, which is a viable and achievable number for a localized study, aiming for statistical relevance with the chosen data collection methods.

4.3.Data Collection

1. Primary Data Source

The primary data will be collected using a Structured Questionnaire distributed online via Google Forms, social media, and professional networks to reach the target sample in Malegaon. This instrument is designed to cover the three study objectives, including a section for demographic data, questions assessing AI awareness and usage, and a detailed skill assessment section. The skill assessment includes statements related to the five skill categories (Core, Thinking, Self-management, Social & Communication, Physical & Manual), measured using a 5-point Likert Scale (1=Strongly Disagree to 5=Strongly Agree).

Ethical Considerations: Respondents' participation will be voluntary and anonymous. The purpose of the study will be clearly explained, and their consent will be obtained before data collection.

2. Secondary Data Source

The secondary data will be gathered through a comprehensive literature review focusing on academic journals, industry reports, Web sites, etc. This review will serve to establish the theoretical framework, define skill concepts, and provide macro-level context regarding global and Indian AI adoption trends, skill gaps, and reported time efficiencies. These existing findings will be crucial for contextualizing, comparing, and validating the primary data collected from employees in Malegaon City.

4.4.Data Analysis Techniques

The collected data will be analysed using standard quantitative techniques to address the research objectives:

Objective	Analysis Technique	Description & Interpretation
Assess Level of Awareness	Percentage Analysis	Determine the proportion (percentage) of employees who are aware of AI tools

Evaluate Skill Improvements	Likert Scale Analysis	Numerical values are assigned to Likert scale responses (1 to 5). The Mean Score for each skill statement and overall skill category will be calculated.
Sectoral Comparison	Cross-tabulation & ANOVA	Compare mean skill improvement scores across different sectors and organizational types to identify differential impacts
Organizational Support Factors	Correlation Analysis	Examine relationship between organizational training support and skill improvement outcomes

5. Result & Discussion

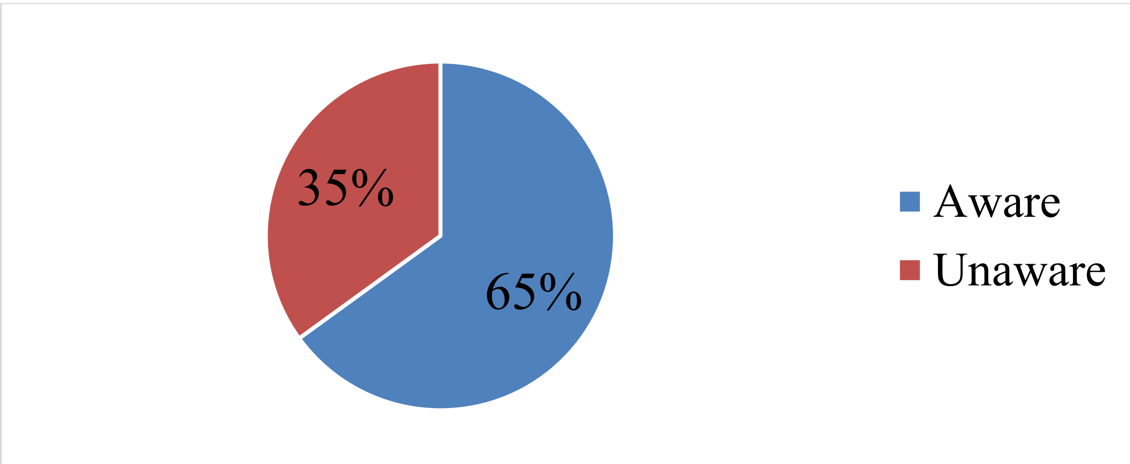
5.1.Demographic Profile of Respondents

The demographic Characteristics of respondents from Malegaon city were surveyed covering gender, age, Industry of work. Respondents were working persons. Below is description of data collected.

Gender distribution of the respondents indicates significantly high number of males compared to females. Age distribution shows most of the respondents is between 25 to 34. Significant of the respondents were working in the manufacturing industry and health care followed by IT & software.

5.2.Awareness among employees regarding the presence and use of AI technologies.

The Awareness of the presence and use of AI technologies is shown in below chart.



5.3.Evaluation of improvements in employee Core skills, Thinking skills, Self-management skills, Social and communication skills & Physical and manual skills due to AI integration.

1. Core skills:

In Malegaon, most of respondents agreed that their core skills have improved after use of AI in their workspace. Average Likert scale score is 3.82.

2. Thinking skills:

In Malegaon, most of respondents strongly disagreed that their Thinking skills have improved after use of AI in their workspace. Average Likert scale score is 1.51.

3. Self-management skills:
In Malegaon, most of respondents agreed that their Thinking skills have improved after use of AI in their workspace. Average Likert scale score is 3.31.
4. Social and communication skills:
In Malegaon, most of respondents stayed neutral their Thinking skills have improved after use of AI in their workspace. Average Likert scale score is 2.69.
5. Physical and manual skills:
In Malegaon, most of respondents disagreed that their Thinking skills have improved after use of AI in their workspace. Average Likert scale score is 2.16.

6. Conclusion

While the study confirmed that working individuals in Malegaon are the respondents (with a demographic profile skewed towards males aged 25-34 primarily in Manufacturing and Healthcare), while 65% of the respondents were aware about the AI technologies.
The evaluation of skill improvements due to AI integration reveals varied impacts across five skill categories measured on a 5-point Likert scale (with 3.0 as neutral). AI shows a positive influence on core skills, with respondents strongly agreeing that foundational abilities such as literacy and digital fluency have improved (mean score 3.82), and self-management skills like time management and flexibility also showing improvement (mean 3.31). However, AI integration appears to have little or negative impact on higher order thinking skills, as respondents largely disagreed that AI has enhanced critical thinking, problem-solving, and creativity (mean 1.51). Similarly, physical and manual skills seem to diminish or remain unimproved due to automation (mean 2.16), while social and communication skills show no significant change, hovering near neutrality (mean 2.69). These findings suggest that while AI supports foundational and organizational skills, it may not currently facilitate advancement in complex cognitive or interpersonal abilities.
The research concludes that in Malegaon City, the current integration of AI technologies primarily acts as an assistive tool for foundational execution and personal organization, boosting Core Skills and Self-management Skills. However, it presents a significant challenge by potentially stagnating or reducing the perceived development of higher-order cognitive abilities (Thinking Skills) and having a minimal impact on inter-personal and physical skills.

7. Key Implications and Strategic Recommendations

The findings underscore several critical implications for organizational strategy and workforce development:
For Organizations: Technology implementation must be accompanied by deliberate learning architecture and skill development initiatives. Organizations should establish structured programs to maintain and enhance higher-order thinking skills, potentially through problem-based learning, collaborative projects, and exposure to complex decision-making scenarios that complement AI capabilities rather than substituting human judgment.

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For Employees: Continuous upskilling and reskilling are essential for balanced skill growth in AI-driven workplaces. Employees should proactively develop critical thinking competencies, strategic reasoning abilities, and specialized technical knowledge that creates complementarity with AI systems rather than substitutability.

For Policymakers: Educational and training frameworks must evolve to prepare emerging workforce with capabilities that remain distinctively human—complex reasoning, creativity, emotional intelligence, and adaptability. Policies should incentivize organizations to invest in employee development alongside technology adoption.

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