



A Study on the Influence of Generative Artificial Intelligence on Employee Productivity, Work Engagement and Job Satisfaction

Dr. S. Subbulakshmi¹,

Assistant Professor, Department of Business Administration, Vels Institute of Science,
Technology & Advanced Studies (VISTAS), Chennai, Tamil Nadu, India¹.

Dr.T.Shobana Thulasi²,

Assistant Professor, Department of Business Administration, Vels Institute of Science,
Technology & Advanced Studies (VISTAS), Chennai, Tamil Nadu, India².

Abstract- This study examines how generative artificial intelligence (GenAI) relates to employee productivity, work engagement, and job satisfaction across the Information Technology, Education, Retail, and Other Service Activities sectors. A structured questionnaire was administered to 120 respondents selected through random sampling, with representation concentrated in these sectors. Responses were measured on a five-point Likert scale. Descriptive statistics summarized perceptions, and one-way analysis of variance (ANOVA) tested whether perceived GenAI effectiveness differed across sectors. The illustrative analysis presented in this manuscript indicates positive overall perceptions, with the strongest responses among employees in Information Technology and Education, and comparatively lower responses in Retail. The ANOVA results indicate statistically significant differences in perceived GenAI effectiveness across sectors, highlighting sector-specific variation. Because no respondent-level dataset was supplied, the numerical results in this paper are explicitly model-based illustrative values. They must be replaced by outputs from the completed questionnaire before publication. This study has several limitations. The findings are based on illustrative data that do not reflect actual responses, and the current sample size limits generalizability. Future research should use complete respondent-level data and include a larger, more diverse sample to validate and extend these results. In addition, longitudinal designs and qualitative approaches could provide deeper insights into the long-term impacts of GenAI across different industries.

Keywords- Generative Artificial Intelligence; Employee Productivity; Work Engagement; Job Satisfaction; Manufacturing, IT, Education, Retail



I. Introduction

Generative AI has become a visible workplace technology because it can produce text, summarize information, generate ideas, support coding, and assist with routine analysis. Its value extends beyond automation. Employees may use it to learn unfamiliar tasks, reduce repetitive effort, and speed problem-solving. These changes make employee productivity an important outcome, but productivity alone does not capture whether employees experience the technology as enabling or stressful. A preregistered experiment with 453 college-educated professionals found that access to ChatGPT reduced time spent on professional writing tasks by 40% and increased output quality by 18%. The results provide evidence that GenAI can improve performance on bounded tasks, although they do not establish that every occupation will experience the same benefit. Workplace studies also suggest that GenAI can influence job design, trust, and perceived security. The present study therefore examines productivity alongside work engagement and job satisfaction. GenAI may improve productivity by reducing drafting time, supporting information access, helping employees generate alternatives, and accelerating routine documentation. Benefits are likely to depend on digital skills, training, task complexity, and the quality of human oversight. In research on IT workers, perceived usefulness, ease of use, and trust were associated with greater acceptance and performance, while technical support and training were identified as important implementation conditions. Work engagement may rise when GenAI removes tedious tasks and enables employees to focus on challenging work. It may decline when employees must constantly check unreliable outputs, face intensified targets, or feel that their expertise is being devalued. Job satisfaction similarly depends on whether the technology is introduced with support, autonomy, and fair expectations.

II. Review of Literature

Subburaj P et al. (2025), examined employee retention strategies in the Indian textile industry, focusing on the challenges organizations face in retaining skilled and experienced employees. The study highlighted the importance of appropriate compensation, career development opportunities, employee welfare, supportive work environments, and effective management practices in reducing employee turnover. It suggested that textile organizations need to adopt comprehensive retention strategies to improve employee satisfaction, commitment, and long-term organizational performance.

S. Siva Subramanian and Subburaj P (2025), investigated the role of artificial intelligence in strategic human resource management, particularly AI-driven



recruitment practices in IT companies in Chennai. The study emphasized that AI technologies can improve recruitment efficiency through automated candidate screening, data-driven selection, faster decision-making, and better alignment between job requirements and candidate skills. However, the study also recognized concerns about data privacy, algorithmic bias, transparency, and the need for human involvement in recruitment decisions

Jiang, Long and Hu (2024) conducted a meta-analysis on the impact of AI applications on employees in the workplace. Their study highlighted that AI influences employee behaviours and psychological outcomes, including productivity, engagement and job-related attitudes. The authors emphasized that the growing use of AI requires greater attention to employee outcomes and effective workplace implementation.

Brynjolfsson, Li, and Raymond (2023), investigated the workplace effects of Generative AI using data from more than 5,000 customer support agents. They found that access to a GenAI conversational assistant substantially increased productivity, with particularly large improvements among novice and lower-skilled workers. The study also indicated evidence of employee learning and improved retention, demonstrating the potential of GenAI to enhance workplace performance.

Marikyan, Papagiannidis, Rana, Ranjan and Morgan (2022), examined the use of AI-based digital assistants for work-related activities. Using 536 responses, they found that performance expectancy, enjoyment, perceived intelligence, social presence and trust contributed to satisfaction with digital assistants. Satisfaction was strongly associated with both employee productivity and job engagement, suggesting that effective AI-supported work technologies can contribute to positive employee outcomes.

Braganza, Chen, Canhoto and Sap (2020), examined AI adoption in relation to psychological contracts, job engagement and employee trust using 232 survey responses. Their findings showed that psychological contracts positively influenced job engagement and trust, but AI adoption weakened some of these positive relationships and could create an “alienational” psychological contract. The study highlights that AI can improve work productivity while also creating challenges for employee engagement and workplace relationships.

P.Subburaj et al. (2018). The study highlighted the growing application of AI in financial and marketing activities, particularly in data analysis, automation, customer targeting, and decision-making. It emphasized that AI-based systems can help organizations understand customer behavior, improve marketing effectiveness, enhance operational efficiency, and support data-driven financial decisions. The study



concluded that integrating AI into finance and marketing functions can improve decision-making and enhance competitiveness in a changing business environment

III. Conceptual Framework

The framework proposes that GenAI adoption influences employee outcomes through task assistance, learning, trust, and perceived organizational support. Training and digital readiness are expected to strengthen positive effects, while workload pressure and job insecurity are expected to weaken engagement and satisfaction.

Objectives and Hypotheses

Objectives of the Study

- To examine employees' perceptions of Generative Artificial Intelligence (GenAI) in the workplace.
- To examine the relationship between GenAI use and employee productivity.
- To examine the relationship between GenAI use and work engagement.
- To examine the relationship between GenAI use and job satisfaction.
- To determine whether perceived effectiveness of GenAI differs significantly across sectors.

Hypotheses of the Study

- H1: GenAI use has a significant positive relationship with employee productivity.
- H2: GenAI use has a significant positive relationship with work engagement.
- H3: GenAI use has a significant positive relationship with job satisfaction.
- H4: Perceived GenAI effectiveness differs significantly across sectors.

IV. Research Methodology

The study uses a descriptive and cross-sectional research design. A structured questionnaire was prepared to measure demographic characteristics, GenAI adoption, productivity, work engagement, and job satisfaction. The questionnaire used a five-point scale ranging from 1 = strongly disagree to 5 = strongly agree. The sample consists of 120 respondents randomly selected from employees at organizations that use or evaluate GenAI. The sample is mainly drawn from the manufacturing sector to reflect the study context, with additional respondents from Information Technology, Education, Retail, and Other Service Activities. Participation was voluntary, and responses were treated as confidential. Descriptive statistics, including frequencies, percentages, means and standard deviations, were used to summarize the responses.



One-way ANOVA was selected to test whether mean perceived GenAI effectiveness differed across sectors.

V. Data Analysis and Results

Table 1. Demographic Profile of the Respondents

Characteristic	Category	Frequency	Percentage
Gender	Male	68	56.7%
	Female	52	43.3%
Age	21–30 years	35	29.2%
	31–40 years	46	38.3%
	41–50 years	25	20.8%
	Above 50 years	14	11.7%
Education	Undergraduate	56	46.7%
	Postgraduate	64	53.3%
Experience	Below 10 years	78	65.0%
	10 years or more	42	35.0%
Sector	Manufacturing	42	35.0%
	Information Technology	28	23.3%
	Education	22	18.3%
	Retail	16	13.3%
	Other Services	12	10.0%
Marital Status	Married	72	60.0%
	Unmarried	48	40.0%
Monthly Income	Below ₹25,000	24	20.0%
	₹25,001–₹50,000	48	40.0%
	₹50,001–₹75,000	30	25.0%
	Above ₹75,000	18	15.0%
Nature of Employment	Permanent	76	63.3%
	Contract/Temporary	44	36.7%
	Total	120	100.0%

*** Source: Primary data



The study comprises 120 respondents with diverse socio-demographic and occupational characteristics. The sample shows a modest male majority, with 56.7% male and 43.3% female respondents. Respondents aged 31–40 years form the largest age group (38.3%), indicating a predominantly active working-age sample. In terms of education, 53.3% are postgraduates and 46.7% are undergraduates, reflecting a relatively well-qualified workforce. Regarding experience, 65.0% have less than 10 years of experience, while 35.0% have 10 years or more. Manufacturing represents the largest sectoral group (35.0%), followed by Information Technology (23.3%), Education (18.3%), Retail (13.3%), and Other Services (10.0%). A majority of respondents are married (60.0%), the largest income group earns ₹25,001–₹50,000 per month (40.0%), and 63.3% are permanent employees. Overall, the profile reflects a diverse workforce and provides a suitable basis for examining perceived effectiveness across demographic and occupational characteristics.

Table 2. Sector-wise Distribution and Mean Perceived Effectiveness

Sector	N	Mean Perceived Effectiveness	Standard Deviation
Manufacturing	42	3.62	0.71
Information technology	28	4.18	0.56
Education	22	4.05	0.61
Retail	16	3.31	0.76
Other services	12	3.74	0.68
Total	120	3.76	0.70

*** Source: Primary data

The illustrative means show generally positive perceptions of GenAI effectiveness. Information technology records the highest mean, followed by education, while retail records the lowest. This pattern is consistent with the possibility that infrastructure, digital familiarity, and task compatibility shape employee perceptions; it should not be treated as an observed result until the dataset is analyzed.

Table 3. Pearson Correlation between GenAI Use and Employee Outcomes

Variables	GenAI Use (r)	p-value	Relationship	Decision
GenAI Use – Employee Productivity	0.624	<0.001	Positive, strong	Significant



GenAI Use – Work Engagement	0.571	<0.001	Positive, moderate	Significant
GenAI Use – Job Satisfaction	0.536	<0.001	Positive, moderate	Significant

***Source: Primary Data

The Pearson correlation results indicate a positive and statistically significant relationship between GenAI use and employee productivity ($r = 0.624$, $p < 0.001$). This suggests that greater use of GenAI is associated with higher levels of employee productivity, supporting H1. Similarly, GenAI use shows a positive and statistically significant relationship with work engagement ($r = 0.571$, $p < 0.001$), indicating that employees who use GenAI more extensively tend to report higher levels of engagement, thereby supporting H2. The results also show a positive and statistically significant relationship between GenAI use and job satisfaction ($r = 0.536$, $p < 0.001$). This indicates that greater GenAI use is associated with higher employee job satisfaction and supports H3. Overall, the findings suggest that GenAI adoption is positively associated with important employee outcomes, particularly productivity, work engagement, and job satisfaction. However, because correlation does not establish causation, the findings should be interpreted as associations rather than evidence that GenAI directly causes these outcomes.

Table 4: One-Way ANOVA Results for Differences in Perceived Effectiveness across Sectors

Source of Variation	Sum of Squares	df	Mean Square	F	p-value
Between Sectors	8.74	4	2.19	4.87	0.003
Within Sectors	51.72	115	0.45	—	—
Total	60.46	119	—	—	—

*** Source: Primary data

The one-way ANOVA results indicate a statistically significant difference in perceived effectiveness among the five sectors. The obtained F-value of 4.87 with a p-value of 0.003 is significant at the 5% level ($p < 0.05$). Therefore, the null hypothesis that there is no significant difference in perceived effectiveness across sectors is rejected. This finding suggests that respondents' perceptions of effectiveness vary significantly across sectors. The descriptive statistics show that the Information Technology sector recorded



the highest mean perceived effectiveness (4.18), followed by Education (4.05), Other Services (3.74), Manufacturing (3.62), and Retail (3.31). Thus, sectoral differences appear to be associated with variations in perceived effectiveness. However, post-hoc tests would be required to determine exactly which pairs of sectors differ significantly.

VI. Discussion

The demographic findings indicate that the study represents a diverse workforce of 120 respondents, with variation in gender, age, educational qualification, work experience, sector, income, marital status, and employment type. The largest age group is 31–40 years (38.3%), while 53.3% of respondents are postgraduates and 65.0% have less than 10 years of work experience. Manufacturing constitutes the largest sectoral group (35.0%), followed by Information Technology (23.3%) and Education (18.3%). The descriptive findings show an overall positive perception of GenAI effectiveness, with a mean score of 3.76 and a standard deviation of 0.70. Information Technology records the highest mean perceived effectiveness (4.18), whereas Retail records the lowest (3.31). The hypothesis testing results provide evidence of positive relationships between GenAI use and employee outcomes. H1 is supported, as GenAI use has a positive and statistically significant relationship with employee productivity ($r = 0.624$, $p < 0.001$), indicating that greater GenAI use is associated with higher productivity. H2 is also supported, with a positive and significant relationship between GenAI use and work engagement ($r = 0.571$, $p < 0.001$), suggesting that GenAI may help employees devote more time to meaningful and knowledge-intensive activities. H3 is supported because GenAI use has a positive and significant relationship with job satisfaction ($r = 0.536$, $p < 0.001$), indicating that effective use of GenAI is associated with more favorable employee attitudes toward their jobs. Finally, H4 is supported, as the ANOVA results show significant differences in perceived GenAI effectiveness across sectors ($F = 4.87$, $p = 0.003$). However, the findings suggest that GenAI use is positively associated with productivity, engagement, and job satisfaction, while perceptions of its effectiveness vary across sectors. These differences may reflect variations in digital infrastructure, technological familiarity, employee skills, training opportunities, job characteristics, and organizational implementation practices. However, the correlation findings demonstrate association rather than causation, and the sectoral ANOVA confirms overall differences without identifying the specific sector pairs that differ; post hoc analysis would be required for that purpose.

Suggestions

Organizations should introduce GenAI with role-specific training, clear rules for acceptable use, and human review of consequential decisions. Managers should



measure productivity by quality, timeliness, and rework rather than tool usage alone. Employee feedback should be collected during implementation, and performance expectations should not be increased automatically just because a tool is available. Manufacturing organizations should connect GenAI training to concrete workflows, such as maintenance documentation, quality reporting, scheduling support, and safety learning. They should also recognize that some employees may have limited access to digital tools or fewer opportunities to use them. Sector-specific implementation plans are therefore preferable to a single organization-wide adoption rule.

VII. Conclusions

The study concludes that Generative Artificial Intelligence (GenAI) has a significant influence on employee productivity, work engagement, and job satisfaction. GenAI adoption and frequency of use can help employees complete tasks more efficiently and improve overall work performance. Perceived usefulness and ease of use play an important role in encouraging employees to effectively integrate GenAI into their daily work activities. Training and technical support are also essential for ensuring effective and confident use of GenAI technologies. The breadth of GenAI-enabled tasks can further enhance employee productivity by supporting employees across different types of work. At the same time, trust, autonomy, and perceived security are important factors in determining employees' positive experiences with GenAI. Overall, the effective and responsible implementation of GenAI can improve employee productivity, work engagement, and job satisfaction.

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