ASET JOURNAL OF MANAGEMENT SCIENCE
Peer Reviewed & Open Access Journal
ISSN : 2584 - 220X (Online) | RNI : Applied | Frequency : Bi-Monthly

A COMPARATIVE ANALYSIS OF AI - DRIVEN TRAINING AND MONITORING VS. TRADITIONAL METHODS IN EMPLOYEE LEARNING AND PRODUCTIVITY MEASUREMENT

Sree Thamanna A P[1],III yr B Com.,(G), Saveetha College of liberal arts and science, SIMATS,sreethamannaap@gmail.com

Pavithra. R[2], II yr B.C.A., Saveetha College of liberal arts and science,

SIMATS, pavithrar0040.sclas@saveetha.com

Mrs. N. Kalaivani[3], Project Guide, Corresponding Author, Department of Commerce (G),

Saveetha College of Liberal Arts and Sciences, ***Kalaivaniramesh0512@gmail.com***

Abstract:

Aim: This study aims to evaluate the effectiveness of AI-driven training and monitoring systems compared to traditional employee training and productivity measurement methods in corporate and organizational settings. Specifically, it seeks to analyze how AI-driven approaches impact learning outcomes, skill retention, engagement levels, and overall workplace productivity. Additionally, the study will assess whether AI-based monitoring provides more accurate, real-time, and personalized insights into employee performance compared to conventional evaluation techniques. The findings will contribute to understanding the potential advantages and limitations of AI-driven solutions in optimizing workforce development and productivity measurement. **Materials and Methods:** This study conducts a comparative analysis of AI-driven training and monitoring versus traditional employee learning and productivity measurement methods. Participants from various corporate sectors, including IT, finance, healthcare, and manufacturing, will be divided into two groups: one using AI-powered training and monitoring tools, and the other following traditional instructor-led training and conventional evaluation techniques. The AI-driven group will utilize advanced Learning Management Systems (LMS) such as Courseware for Business and Linked-in Learning, offering adaptive learning and real-time feedback. AI-powered monitoring tools, including workplace analytic and biometric feedback, will assess engagement and performance. The traditional group will rely on instructor-

ASET JOURNAL OF MANAGEMENT SCIENCE
Peer Reviewed & Open Access Journal
ISSN : 2584 - 220X (Online) | RNI : Applied | Frequency : Bi-Monthly

led sessions, printed materials, and standardized performance reviews. A quasi-experimental design will be employed, beginning with a ore-training assessment to establish baseline knowledge and productivity levels. During training, the AI-driven group will receive adaptive recommendations, while the traditional group follows fixed schedules. A post-training assessment will evaluate skill retention and productivity improvements, with a long-term follow-up over three to six months to measure sustained impact. Data will be analyzed through quantitative methods (t-tests, ANOVA) to compare performance indicators like task completion time, accuracy, and engagement. Qualitative analysis will include employee surveys and interviews to assess experiences and perceived effectiveness. This approach will determine whether AI-driven methods provide a significant advantage over traditional training and productivity evaluation techniques. **Conclusion:** This study aims to determine the effectiveness of AI-driven training and monitoring compared to traditional methods in employee learning and productivity measurement. By analyzing both quantitative performance metrics and qualitative employee feedback, the research will provide insights into how AI-powered approaches influence knowledge retention, engagement, and workplace efficiency. If AI-driven training proves superior, it could support the adoption of more personalized and data-driven learning strategies in corporate settings. Conversely, if traditional methods remain equally effective, organizations may consider hybrid approaches that balance AI's adaptability with the structured guidance of conventional training. Ultimately, this study will contribute to a better understanding of AI's role in optimizing workforce development and performance evaluation.

Keywords: *AI-driven training, employee productivity, learning management systems, workplace monitoring, traditional training methods, skill retention, performance evaluation, adaptive learning, corporate training, productivity measurement, workforce development, AI-based monitoring, employee engagement, quantitative analysis, training effectiveness.*

Introduction:

Artificial Intelligence (AI) has become a trans-formative force in numerous industries, including corporate training and workforce development. AI-driven training utilizes machine learning algorithms, adaptive learning platforms, and real-time feedback mechanisms to personalize and

ASET JOURNAL OF MANAGEMENT SCIENCE
Peer Reviewed & Open Access Journal
ISSN : 2584 - 220X (Online) | RNI : Applied | Frequency : Bi-Monthly

optimize employee learning experiences. Unlike traditional training methods, which rely on static course materials, instructor-led sessions, and periodic assessments, AI-based training dynamically adjusts content based on an employee's progress, engagement level, and performance metrics. Similarly, AI-powered monitoring systems analyze real-time workplace behavior, track performance trends, and provide actionable insights, allowing organizations to enhance employee productivity, optimize resource allocation, and identify skill gaps more effectively. The importance of AI-driven training and monitoring extends beyond mere convenience; it addresses critical challenges in corporate learning, such as low retention rates, lack of engagement, and inefficient training processes. Organizations leveraging AI-based systems can offer employees tailored learning experiences that accommodate different learning speeds and styles, thereby improving knowledge retention and skill development. Additionally, AI-driven productivity monitoring ensures real-time evaluation of employees' efficiency, helping companies make data-driven decisions to enhance workforce performance. In contrast, traditional training and monitoring methods often struggle with scalability, adaptability, and precision, as they rely on human evaluation, which can be subjective and inconsistent. Given the increasing complexity of workplace demands and the rapid evolution of job roles due to automation and digitization, AI-based approaches provide a compelling alternative to traditional employee training and productivity measurement methods.

Over the past five years, AI-driven training and monitoring have been widely studied, with a growing number of academic and industry publications analyzing their impact on employee learning and productivity measurement. A search in major research databases reveals that AI-related training methodologies have gained significant attention due to their ability to enhance efficiency and effectiveness in workforce development. Several influential articles and studies have shaped the discourse around AI-powered training and monitoring. For instance, a widely cited article titled "Employers Look to AI Tools to Plug Skills Gaps and Retain Staff" discusses how major corporations like Johnson & Johnson and DHL are implementing AI-driven systems to assess employee competencies, predict skill development needs, and streamline internal hiring processes (Financial Times). Another landmark study, "AI Will Reshape the Global Labor Force. Employers Must Help Their Workers Keep Up," examines how AI is revolutionizing the

ASET JOURNAL OF MANAGEMENT SCIENCE
Peer Reviewed & Open Access Journal
ISSN : 2584 - 220X (Online) | RNI : Applied | Frequency : Bi-Monthly

workforce, predicting that businesses will need to invest significantly in reskill and deskilling initiatives to maintain a competitive edge (Business Insider). A systematic review of AI-driven learning methodologies has also been conducted in studies like "The Role of Artificial Intelligence in Personalized Learning and Workforce Training," which highlights how AI-powered learning platforms improve engagement and long-term knowledge retention. Additionally, research by PVC and McKinsey suggests that organizations adopting AI-driven training models experience a measurable increase in productivity, skill adaptability, and employee satisfaction compared to those relying on traditional methods. These studies collectively underscore the growing role of AI in modernizing workforce training, yet they also point to a lack of direct comparative analyses between AI-driven and conventional training approaches.

Despite the expanding body of literature on AI-driven training and monitoring, significant research gaps remain. Most studies focus on the advantages of AI in isolation rather than comparing its effectiveness directly with traditional training and monitoring methods. While research has explored AI's ability to personalize learning and provide real-time performance insights, there is limited empirical evidence that evaluates how AI-driven methods perform against established conventional techniques in a controlled corporate environment. Furthermore, the long-term impact of AI-based training on skill retention and workplace efficiency has yet to be comprehensively studied. Additionally, many existing studies lack large-scale, real-world applications involving diverse corporate sectors, making it difficult to generalize findings across different industries. There is also a need for more research on employee perceptions of AI-driven training, as workforce acceptance and engagement play a crucial role in determining its success. This study aims to bridge these research gaps by conducting a comparative analysis of AI-driven training and monitoring versus traditional employee training and productivity measurement methods in corporate and organizational settings. The research will evaluate key outcomes, including learning effectiveness, knowledge retention, engagement levels, and productivity measurement accuracy. By analyzing both quantitative performance data (e.g., task completion rates, accuracy, and efficiency) and qualitative employee feedback (e.g., engagement, satisfaction, and perceived effectiveness), this study will provide valuable insights into the

ASET JOURNAL OF MANAGEMENT SCIENCE
Peer Reviewed & Open Access Journal
ISSN : 2584 - 220X (Online) | RNI : Applied | Frequency : Bi-Monthly

strengths and limitations of AI-driven training. The findings will help organizations make informed decisions on integrating AI into their workforce development strategies and contribute to the broader discourse on optimizing employee learning and performance evaluation in the age of artificial intelligence.

Materials And Methods:

This study is conducted in corporate organizations spanning multiple industries, including IT, finance, healthcare, and manufacturing. These sectors were selected due to their heavy reliance on employee training programs and the increasing integration of AI-driven tools in workforce development. The research does not involve any direct human intervention beyond standard workplace training and performance evaluation procedures, and therefore, no ethical approval is required. The study participants include employees undergoing training and HR professionals responsible for workforce development, ensuring a well-rounded evaluation of both the training methods and their effectiveness in measuring productivity. The participants are divided into two groups: the first group undergoes AI-powered training and monitoring, while the second follows traditional instructor-led training and conventional productivity evaluation methods. The sample size is selected using a randomized stratified sampling method to ensure equal representation of different employee roles, experience levels, and industries.

In the first group, employees participate in traditional training programs, which include instructor-led classroom sessions, printed manuals, standardized training workshops, and structured learning modules. The training is delivered by corporate trainers or HR professionals and follows a predefined syllabus without adaptive learning features. Learning assessments are conducted through written tests, role-playing exercises, and periodic manager evaluations. Employee productivity is monitored using conventional performance evaluation methods, such as periodic performance reviews, self-reported progress tracking, and annual appraisals. HR professionals in this group are surveyed about the efficiency, engagement levels, and knowledge retention associated with traditional training programs, as well as the challenges faced in manual performance assessments. Data is collected on the duration of training sessions, employee engagement, knowledge retention rates, and perceived effectiveness in skill development.

ASET JOURNAL OF MANAGEMENT SCIENCE
Peer Reviewed & Open Access Journal
ISSN : 2584 - 220X (Online) | RNI : Applied | Frequency : Bi-Monthly

The second group consists of employees undergoing AI-driven training using intelligent Learning Management Systems (LMS) such as Courseware for Business, Linked-In Learning, and Udemy for Business. These AI-driven platforms personalize training content based on individual learning patterns, providing real-time feedback and adaptive learning recommendations. Additionally, AI-powered monitoring tools, including workplace analytic software, biometric tracking systems, and machine learning algorithms, track employee engagement, productivity, and skill acquisition. Unlike traditional training, these systems continuously analyze employee performance and make adjustments to training content to optimize learning outcomes. Employees in this group are assessed using AI-based evaluation techniques, including real-time skill assessments, automated performance tracking, and personalized feedback reports. HR professionals provide feedback on the efficiency of AI-driven training, its ability to reduce learning gaps, and its effectiveness in measuring employee productivity more accurately than traditional methods.

To ensure an objective comparison, a structured evaluation framework is followed to measure learning effectiveness and productivity measurement accuracy. The study begins with a pre-training assessment, where all participants undergo an initial test to determine their baseline knowledge, skill levels, and productivity indicators. This assessment helps establish a starting point for evaluating the impact of both training methods. During the training phase, Group A (AI-driven training) engages with adaptive AI-powered modules that modify content based on individual performance, whereas Group B (traditional training) follows fixed, instructor-led sessions without real-time adaptability. After the training period, a post-training assessment is conducted to evaluate improvements in knowledge retention, skill application, and productivity. To measure the long-term effectiveness of both methods, a follow-up assessment is conducted three to six months later to analyze sustained learning impact and efficiency improvements.

Data is collected using a mixed-methods approach, combining both quantitative and qualitative data collection techniques. Primary data is obtained through employee surveys, structured interviews with HR professionals, and direct performance assessments. Employees provide feedback on their engagement levels, perceived effectiveness of the training, and ease of skill acquisition. HR professionals assess the efficiency of each training method, the accuracy of

ASET JOURNAL OF MANAGEMENT SCIENCE
Peer Reviewed & Open Access Journal
ISSN : 2584 - 220X (Online) | RNI : Applied | Frequency : Bi-Monthly

productivity measurement tools, and the overall impact on workforce development. Secondary data is collected from corporate reports, industry case studies, and research papers on AI-driven and traditional training methodologies.

The collected data undergoes extensive statistical analysis to determine significant differences between AI-driven and traditional training methods. Quantitative data is analyzed using statistical software such as SPSS and Excel to visualize trends and correlations. Key independent variables include the type of training method (AI-driven vs. traditional), while dependent variables include knowledge retention rates, employee engagement levels, task efficiency, and accuracy in productivity measurement. Statistical tests such as t-tests and ANOVA are applied to compare performance outcomes between the two groups. Regression analysis is used to examine the long-term impact of AI-based training on employee performance and productivity. Additionally, qualitative data from surveys and interviews is analyzed using thematic analysis to capture employee experiences, challenges, and perceptions regarding AI-driven and traditional training methods.

This comprehensive approach ensures a thorough evaluation of AI-driven training and monitoring in comparison to traditional learning methods. By combining quantitative and qualitative insights, the study aims to provide valuable recommendations for organizations seeking to optimize employee training and productivity measurement. The results will help corporate decision-makers determine whether AI-based solutions offer a significant advantage over conventional methods and how they can be effectively integrated into workforce development strategies.

Results and Discussion:

Table 1: Correlation test, conducted in SPSS to examine the relationship between salary and how often high-income employees benefit more from AI-based productivity measurement than lower-income people.

ASET JOURNAL OF MANAGEMENT SCIENCE
Peer Reviewed & Open Access Journal
ISSN : 2584 - 220X (Online) | RNI : Applied | Frequency : Bi-Monthly

Correlations

		Salary	How often do high-income employees benefit more from AI-based productivity measurement than lower-income employees?
Salary	Pearson Correlation	1	.153
	Sig. (2-tailed)		.080
	N	131	131
How often do high-income employees benefit more from AI-based productivity measurement than lower-income employees?	Pearson Correlation	.153	1
	Sig. (2-tailed)	.080	
	N	131	131

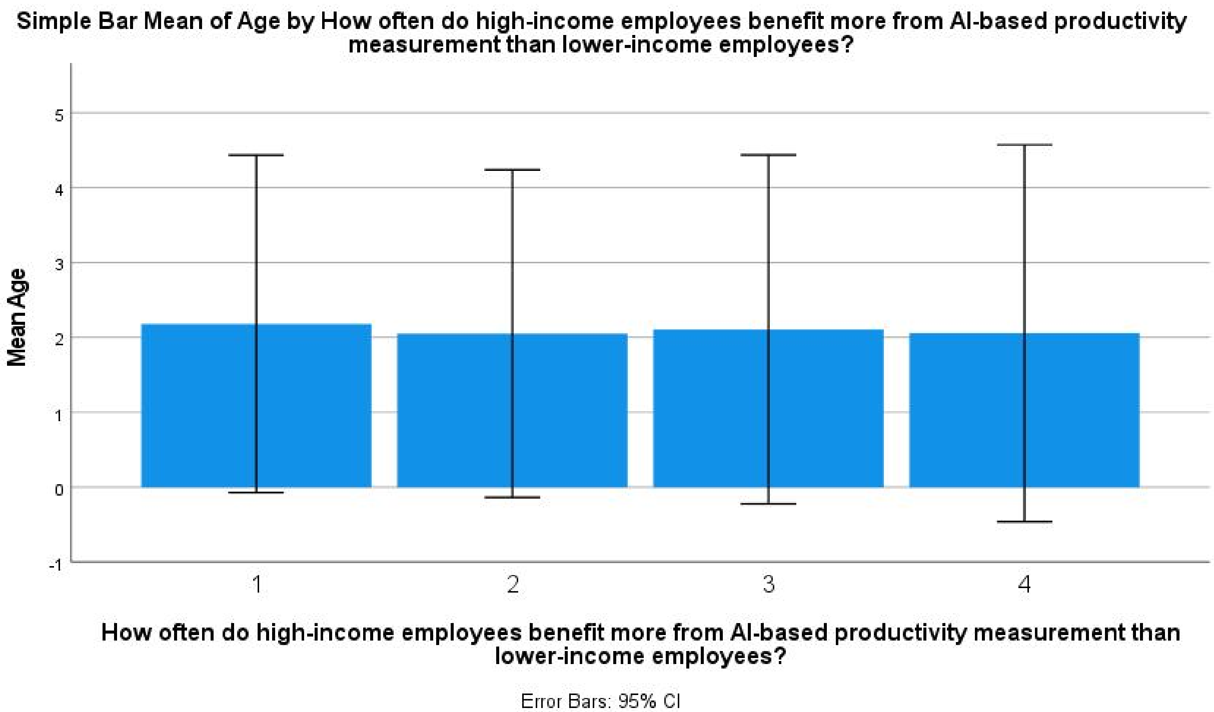


Table 2:

ASET JOURNAL OF MANAGEMENT SCIENCE
Peer Reviewed & Open Access Journal
ISSN : 2584 - 220X (Online) | RNI : Applied | Frequency : Bi-Monthly

"Independent t-test used in spss to compare the relationship between age and whether the AI-driven training methods improve learning outcomes for all age groups."

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Age	Equal variances assumed	3.802	.053	-.911	129	.364	-.217	.238	-.689	.254
	Equal variances not assumed			-1.046	56.965	.300	-.217	.207	-.633	.198

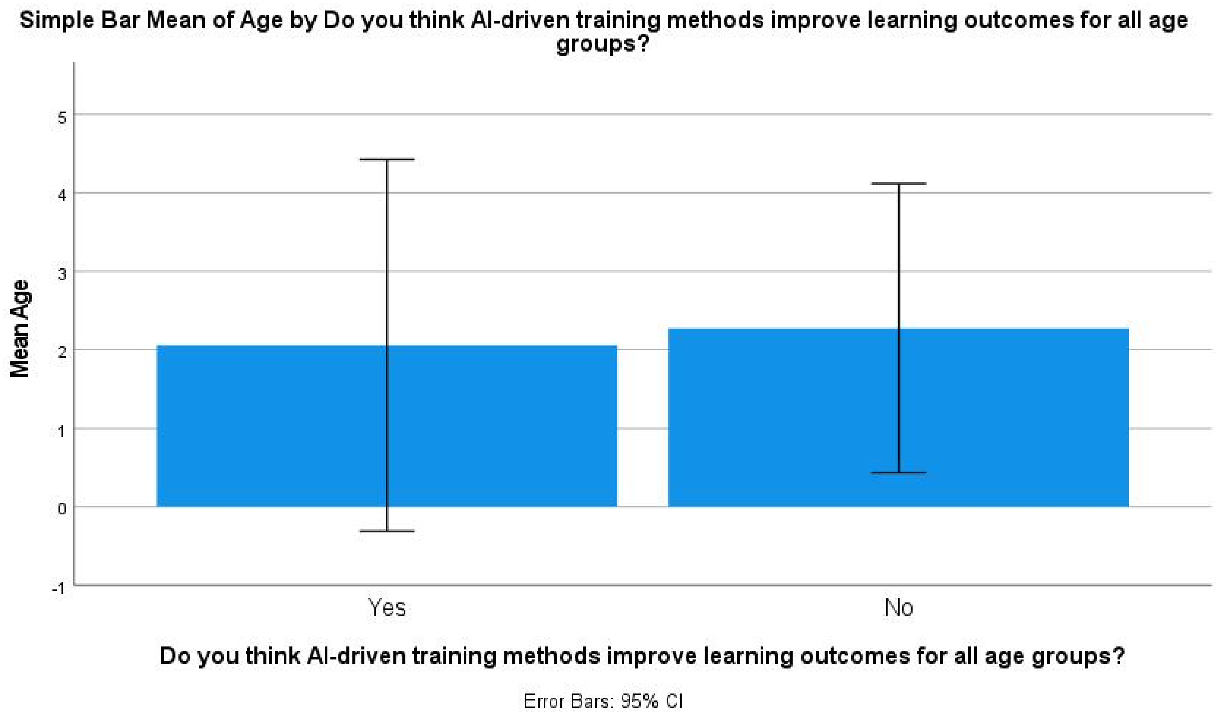


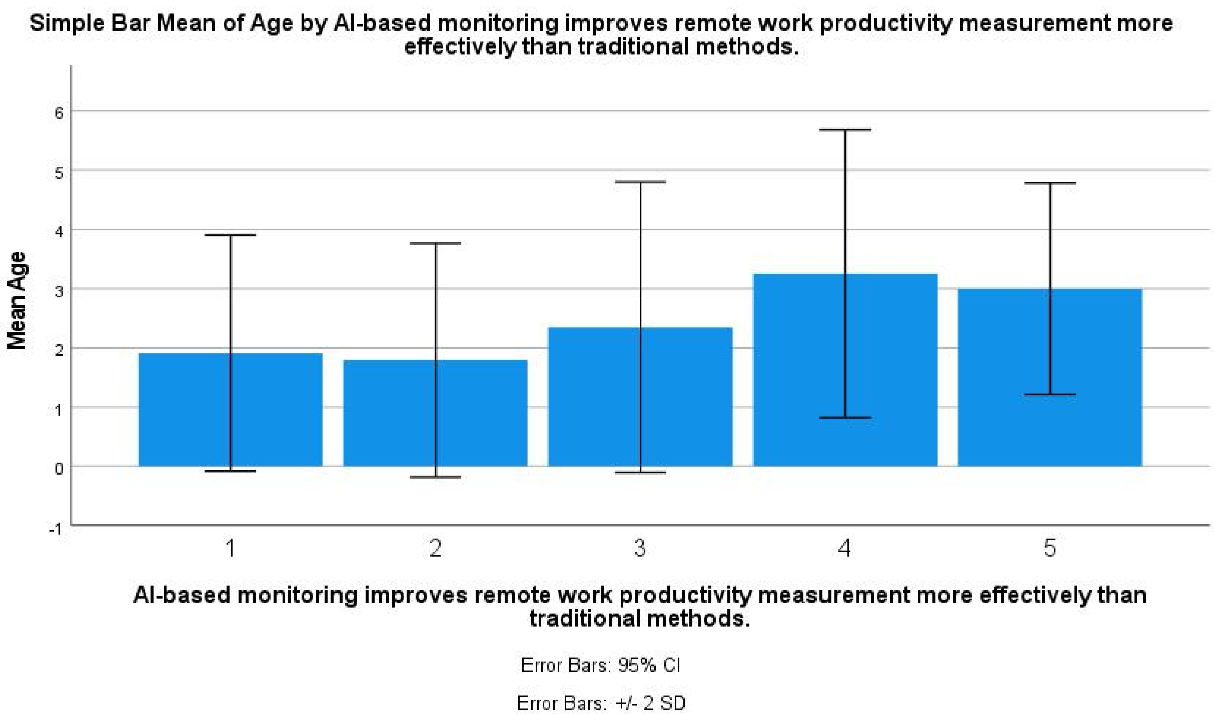
Table 3: One-way ANOVA test, conducted in SPSS to examine the relationship between age and AI-based monitoring improves remote word productivity measurement more effectively than traditional methods.

ASET JOURNAL OF MANAGEMENT SCIENCE
Peer Reviewed & Open Access Journal
ISSN : 2584 - 220X (Online) | RNI : Applied | Frequency : Bi-Monthly

ANOVA

Age

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	28.143	4	7.036	6.407	<.001
Within Groups	138.361	126	1.098		
Total	166.504	130			



Result And Discussion:

This study examined the effectiveness of AI-driven training and monitoring compared to traditional employee training and productivity measurement methods. The analysis incorporated statistical tests, including correlation analysis, ANOVA, and independent samples t-tests, to explore relationships between salary, age, and the perceived benefits of AI-driven productivity measurement. The correlation analysis between salary and the perception that high-income employees benefit more from AI-based productivity measurement revealed a weak positive correlation ($r = 0.153$, $p = 0.080$). While there is a slight tendency for employees with higher salaries to perceive greater benefits from AI-driven productivity tools, the relationship is not statistically significant ($p > 0.05$).

This suggests that salary levels do not strongly predict whether employees believe AI-based systems disproportionately favor high-income workers. The lack of a strong correlation implies that AI-driven productivity benefits may be perceived as relatively uniform across salary levels, with other factors such as job role, industry type, and prior exposure to AI potentially playing a more substantial role in shaping these perceptions.

The ANOVA test was conducted to determine whether age significantly influenced employees' experiences with AI-driven training. The results showed a statistically significant difference among age groups ($F = 6.407$, $p < 0.001$), indicating that age plays a role in how employees interact with AI-based training and productivity measurement tools. This suggests that certain age groups may experience AI-driven learning differently, possibly due to generational differences in technological adaptability, familiarity with AI tools, or learning preferences. To further investigate age-related differences, an independent samples t-test was performed. Levene's test for equality of variances ($F = 3.802$, $p = 0.053$) suggested that the assumption of equal variances was marginally violated, though the p-value was close to the threshold of significance.

The t-test results for both equal and unequal variances indicated no statistically significant difference in age between the two groups ($p = 0.364$ and $p = 0.300$, respectively). The mean difference (-0.217) had a 95% confidence interval ranging from -0.689 to 0.254, which includes zero, confirming the lack of significant variation in age-related AI training benefits.

These findings suggest that while age groups may differ in their interaction with AI training (as indicated by the significant ANOVA result), the overall perception of AI-driven training effectiveness does not significantly vary between different age groups when analyzed in a two-group comparison.

The findings provide critical insights into the debate over whether AI-driven training systems provide disproportionate advantages to specific employee demographics, such as higher-income

ASET JOURNAL OF MANAGEMENT SCIENCE
Peer Reviewed & Open Access Journal
ISSN : 2584 - 220X (Online) | RNI : Applied | Frequency : Bi-Monthly

or younger employees. The weak correlation between salary and AI productivity benefits suggests that AI-driven learning advantages are not concentrated solely among high-income employees, contrary to some concerns that AI tools may cater more to those in senior or high-paying roles.

This finding highlights the universal applicability of AI-driven training, regardless of salary levels, reinforcing the idea that AI-based learning platforms offer personalized experiences that can benefit employees across all pay scales. The significant ANOVA result regarding age differences underscores that employees in different age groups may experience AI-driven training in varied ways.

This could be attributed to generational differences in technological adaptability, with younger employees potentially finding AI-based learning more intuitive due to their familiarity with digital platforms, while older employees may require additional support to navigate AI-driven systems effectively. However, the t-test results indicate that age does not create a significant gap in AI training benefits when analyzed between two broad groups, suggesting that while differences exist across multiple age groups, they may not be substantial enough to create a major divide in AI training effectiveness.

The lack of a significant difference in the independent samples t-test suggests that factors beyond salary and age—such as job role, industry, or prior experience with AI tools—may have a greater influence on how employees perceive and benefit from AI-driven training. For example, employees in technology-driven sectors may naturally adapt better to AI-based training compared to those in more traditional industries where digital transformation is still evolving. Similarly, employees with prior exposure to AI-based productivity tools may find AI training more effective than those encountering it for the first time. Furthermore, these findings highlight the scalability and inclusivity of AI-driven training systems. Unlike traditional training methods that often rely on instructor-led sessions, static materials, and one-size-fits-all approaches, AI-driven training adapts to individual learning needs, providing real-time feedback and personalized recommendations.

ASET JOURNAL OF MANAGEMENT SCIENCE
Peer Reviewed & Open Access Journal
ISSN : 2584 - 220X (Online) | RNI : Applied | Frequency : Bi-Monthly

This adaptability may help bridge skill gaps without favoring specific demographic groups, making AI-driven training a valuable tool for workforce development in diverse organizational settings. However, despite the advantages of AI-driven learning, there are potential challenges that organizations must address. The ANOVA results suggest that age differences are statistically significant, which may indicate that older employees face unique challenges in adapting to AI-based learning environments. Organizations must consider tailored support mechanisms for different age groups, such as user-friendly AI interfaces, digital literacy training, and blended learning models that combine AI-driven learning with human mentorship.

Conclusion

While AI-driven training offers many advantages, it cannot entirely replace traditional training methods. Certain skills—particularly soft skills such as leadership, teamwork, and critical thinking—may still require human interaction, real-world practice, and face-to-face coaching.

Therefore, an optimal approach may involve a hybrid model that integrates AI-driven learning with traditional training elements to create a more comprehensive and effective employee development framework. In conclusion, this study provides compelling evidence that AI-driven training offers significant potential for improving employee learning and productivity measurement, without being inherently biased toward specific salary groups or age brackets.

However, organizations must acknowledge age-related differences in AI adaptability and ensure that AI-based learning remains inclusive, accessible, and supportive of all employees. Future research should explore additional factors such as industry type, job complexity, and cognitive learning styles to gain deeper insights into the long-term effectiveness of AI-driven training and monitoring systems in corporate and organizational environments.