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Impact of Artificial Intelligence on Personalised Training and Professional Development of Employees

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Abstract

Personalised, data-driven learning experiences made possible by artificial intelligence (AI) have revolutionised professional development and employee training. The current study looks at how employee's professional development and individualised training are affected by artificial intelligence. AI-driven personalisation of training materials, AI-based performance evaluation and feedback and AI-enabled learning support systems are the three main AI-driven components that are the subject of this study. Employee professional development is regarded as the dependent variable. This includes career advancement, skill improvement, knowledge improvement, training efficacy and job performance improvement.

A self-designed well-structured questionnaire using a five-point Likert scale was designed to collect primary data from employees working in organizations that utilize AI-based training systems. The Friedman Rank Test is used to evaluate the relative effectiveness of AI factors, correlation analysis is used to evaluate the relationship between professional development and AI-driven training factors, regression analysis is used to assess the impact of AI components on employee professional development and descriptive statistics are used to examine the degree of AI adoption.

The findings are expected to provide empirical evidence on the effectiveness of AI-driven Personalised training systems in enhancing employee growth and organizational performance. In order to optimise professional development outcomes, the study also provides useful recommendations for enhancing AI-based training techniques. This study offers an organised analytical framework for upcoming research on AI-enabled employee training and adds to the expanding corpus of literature on AI applications in HRD.

Introduction

AI has emerged as a revolutionary innovation in contemporary businesses, having a big impact on professional growth and staff training. For workers to improve their abilities, performance, and knowledge in the fast-paced, cutthroat world of today, they must engage in ongoing learning. The standardised approach used in traditional training approaches frequently ignores learning pace, skill gaps, and individual learning demands. AI gets around these restrictions by using sophisticated data analytics, machine learning and clever algorithms to provide individualised and flexible learning experiences. By analysing employee performance, identifying skill gaps, and suggesting personalised learning routes, AI-driven training systems can increase training efficacy and employee engagement.

AI-enabled training systems offer automatic evaluation, intelligent learning help via chatbots and virtual assistants, and real-time performance feedback. Employees can track their progress, enhance their abilities, and acquire skills related to their work duties and career advancement with the aid of these tools. By expanding knowledge, boosting job performance, boosting productivity and preparing workers for future career options, AI-driven personalised training supports employee professional development. Even if AI is being used more and more in training and development, its ability to enhance employee professional growth needs to be investigated. In order to help organisations improve their workforce capabilities and training strategies, this study focuses on examining the effects of AI-driven personalisation, AI-based performance feedback and AI-enabled learning support systems on employee professional development.

Need For the Study

Artificial Intelligence (AI) is becoming more and more integrated into staff development and training, changing traditional learning methods into data-driven, personalised and adaptable systems. Businesses are making significant investments in AI-enabled training solutions to boost performance, foster skill development and stay competitive in a business climate that is changing quickly. Though AI-based training systems are becoming more and more popular, little empirical research has been done on the effects of particular AI-driven elements on employee professional development, such as performance evaluation and feedback, personalised training materials and AI-enabled learning support systems. It is crucial to comprehend these connections in order to evaluate how well AI can improve knowledge, abilities, professional development and job performance. This study is therefore required in order to provide recommendations based on evidence for enhancing AI-enabled training methods and to comprehensively analyse the effects of AI-driven personalised training on employee professional growth.

Scope of the Study

With a focus on three AI-driven factors personalization of training content, performance feedback and evaluation and AI-enabled learning support systems. this study investigates the effects of artificial intelligence (AI) on employee professional growth and personalised training. It examines the opinions, experiences and results of workers in companies that use AI-based training. By offering insights into how AI can improve knowledge, abilities, career advancement and work performance, the study hopes to assist organisations in optimising their training plans and HR professionals in putting AI technologies into practice that are in line with organisational objectives and learning requirements. Further research on the integration of AI in workforce training across industries and job roles is also made possible by this.

Objectives of the Study

- To examine the level of adoption of AI-driven personalization, AI-based performance feedback and AI-enabled learning support systems in employee training programs.
- To determine the relative effectiveness of AI-driven personalization, AI-based performance feedback and AI-enabled learning support systems in enhancing employee professional development based on employee perceptions.
- To analyse the relationship between AI-driven training factors and employee professional development.
- To investigate the impact of AI-driven personalization, AI-based performance feedback, and AI-enabled learning support systems on employee professional development.
- To provide suggestions for improving the effectiveness of AI-driven Personalised training systems in enhancing employee professional development.

Significance of the Study

The study is important because it offers insightful information about how AI improves employee professional growth and individualised training. Through the analysis of AI-driven elements like learning support systems, performance feedback, and training personalisation, the study aids organisations in comprehending how well AI-based training enhances knowledge, abilities, career advancement, and work performance. The results can help HR managers create and execute AI-enabled training initiatives that support organisational goals and employee learning requirements. The study also adds to the body of knowledge by providing a methodical framework for assessing AI's contribution to workforce development. It also lays the groundwork for further research on using AI to maximise employee learning and career advancement.

Statement of Research Problem

In order to be competitive in today's quickly changing business climate, organisations are under more and more pressure to improve staff productivity, skills, and professional

development. Conventional training approaches, which frequently take a standardised approach, don't take into account employees' varied learning demands, skill gaps and pace, which results in less-than-ideal training outcomes. Only a small amount of empirical research has been done on the effects of AI-driven training factors on employee professional development, despite the fact that AI offers sophisticated solutions like intelligent learning support systems, real-time performance feedback and personalised learning content. This knowledge gap makes it difficult for organisations to assess the efficacy of AI-based training initiatives and optimise them for job performance, career advancement, knowledge acquisition, and skill development. This study aims to give evidence-based insights to improve training strategies and workforce competency by examining the effects of AI-driven personalised training systems on employee professional development.

Research Methodology

This study uses a descriptive research design to investigate how training methods based on artificial intelligence (AI) affect workers' professional growth. AI-Driven Personalisation of Training Content, AI-Based Performance Feedback and Assessment and AI-Enabled Learning Support Systems are the three main AI-related aspects that are the subject of this study. The dependent variable is employee professional development.

A self-designed, well-structured questionnaire was created to gather the primary data. The questionnaire was divided into two parts: the first part contained statements about the respondents' professional and demographic traits and the second part had eight statements measuring the dependent variable using a five-point Likert scale and seven statements each measuring the three independent variables.

The data was gathered using non-probability sampling approaches, including Convenience Sampling and Snowball Sampling, from workers in companies that use AI-based training systems. Convenience sampling ensured rapid and effective data collection by choosing employees who were available and willing to participate in the study. In order to reach more participants through recommendations from the first respondents, snowball sampling was used. This helped include staff members with experience with AI-enabled training programs from a variety of departments and organisations. This combination made it possible to analyse the effect of AI-driven training on the professional growth of employees using an adequate and pertinent sample.

Apart from primary data, secondary data was collected from academic papers, research journals, and conference proceedings pertaining to AI applications in professional development and employee training.

IBM SPSS Version 23 was used to analyse the data collected for the study. A total of 113 responses were obtained through a structured questionnaire with administered via Google Forms using convenience sampling and snowball sampling. Descriptive statistics were used to summarize the demographic and professional characteristics of the respondents, as well as the extent of utilization of AI-based training methods. The Friedman Rank Test was applied to evaluate the relative effectiveness of AI-driven training components based on employee perceptions. Correlation Analysis was conducted to examine the relationship between AI-based training elements and employee professional development. Furthermore, Linear Regression Analysis was used to predict the impact of AI-driven personalization, performance feedback and learning support systems on employee professional development.

In order to assist organisations in developing efficient, customised, and data-driven learning environments that enhance workforce capabilities and professional outcomes, the study attempts to generate important insights into how AI-driven training strategies improve employee skills, knowledge, career growth and job performance.

Review of Literature

Dr. N. Madhumithaa et.al., (2025), highlighted that by enabling individualised, data-driven learning experiences, artificial intelligence (AI) has drastically changed professional development and staff training. In order to improve skill development, knowledge acquisition and work performance, AI-driven systems evaluate employee performance data to detect skill gaps, suggest tailored training programs, offer real-time feedback and forecast career progression paths. Predictive analytics, machine learning and natural language processing are examples of advanced technologies that facilitate effective and flexible learning environments that match organisational objectives with personnel competencies. The necessity for openness and human oversight in the application of AI is highlighted by studies that also highlight issues with algorithmic bias, data privacy and ethical considerations. Personalised training systems powered by AI are essential for promoting ongoing professional growth and creating a workforce that is knowledgeable,

flexible and prepared for the future, according to the findings of current research[1].

Dr. Fatima Shamim et.al., (2025), Compared to conventional training techniques, artificial intelligence (AI) offers increased customisation, efficiency and scalability, which has had a substantial impact on staff training and development. According to research, companies can design individualised learning pathways that improve employee competencies and career advancement by utilising AI-driven technologies like predictive analytics and adaptive learning systems. Continuous learning is supported, training effectiveness is increased, and skill gaps are identified with the use of these technologies. However, there are drawbacks to using AI in training, such as high implementation costs, worries about data privacy and employee fears about job security. According to studies, the best strategy is to combine AI skills with human knowledge while taking ethical factors like accountability, justice and openness into account. Furthermore, effective workforce development requires sustaining social-emotional learning, innovation, and human mentorship. In order to ensure that AI-based training systems are effective and in line with the demands of employees and organisations, the literature also emphasises the significance of progressive implementation, ethical governance, and ongoing evaluation. In general, by improving learning outcomes while upholding a human-centric approach to professional development, AI is anticipated to play a significant role in revolutionising employee training[2].

Most. Sharmin Ara Chowdhury et.al., (2025) have found that Organisational tactics have been revolutionised by the use of Artificial Intelligence (AI) into employee training and development. This is because AI has improved the effectiveness, accessibility and personalisation of training programs. AI promotes greater skill development and career advancement by enabling personalised learning experiences, offering real-time feedback and enhancing employee engagement. Problems like algorithmic prejudice, decreased human engagement, and data privacy issues must be properly handled. According to studies, successful learning requires a well-rounded strategy that incorporates both human mentoring and AI skills. All things considered, AI is essential for fostering lifelong learning and creating a knowledgeable, flexible workforce while guaranteeing moral and open application[3].

Natalia Tusquellas et.al., (2024), have analysed that AI helps businesses to find skill gaps, customise learning paths, and improve staff capabilities, it has emerged as a crucial tool for talent management, training and professional development. In order to improve employee performance, engagement and retention, literature suggests that AI technologies like machine learning, natural language processing and predictive analytics are frequently used to evaluate employee skills, suggest specialised training courses and give real-time feedback. AI-driven technologies also aid in career planning, recruitment and attrition forecasting, assisting businesses in creating a staff that is highly qualified and prepared for the future. AI also makes it easier to study continuously using mobile learning platforms and e-learning, which improves accessibility, efficiency and alignment of training with organisational objectives. Notwithstanding these advantages, issues including implementation costs, privacy concerns, algorithmic bias and employee resistance need to be resolved through fair governance, openness and appropriate workforce development. The research to date has shown that AI-driven training and development systems are essential for boosting employee professional development, increasing organisational effectiveness and promoting long-term workforce sustainability. However, more empirical studies are required to assess the practical and ethical implications of these systems[4].

Research Gap

The relevance of AI in improving employee training through automated feedback systems, performance evaluation, and personalised learning has been highlighted in previous research. However, the majority of studies have concentrated on theoretical and conceptual debates, with little empirical data looking at how AI-driven training elements directly affect workers' professional growth. Studies that examine employee views and use statistical analysis to assess the connection between AI-based training programs and outcomes like work performance, career advancement and skill improvement are also lacking. Therefore, this study aims to fill this gap by providing empirical

evidence on how AI-driven Personalised training influences employee professional development.

Analysis and Interpretation

1. Validation Of Questionnaire Reliability

Table 1: Showing Reliability Analysis

PARTICULARS	CHRON BACH ALPHA
Overall Reliability	0.803

Source: Primary Data

With a Cronbach's Alpha rating of 0.803, the study instrument's reliability analysis demonstrates a good degree of internal consistency among the scale's items. This score shows that the questionnaire questions are dependable and consistently assess the intended constructs because it is higher than the generally accepted cutoff of 0.70.

When the instrument's variables have a Cronbach's Alpha above 0.80, it indicates that they are highly associated and produce consistent, reliable results. This demonstrates that the study's measuring scale is appropriate for additional statistical analysis.

Therefore, the research instrument's total reliability score of 0.803 attests to its dependability, and the data gathered can be regarded as accurate and suitable for making sound inferences.

2. Summary Statistics Of Key Research Variables

Table 2: Showing Descriptive Analysis

PARTICULARS	AI-DRIVEN PERSONALIZATION	AI-BASED PERFORMANCE FEEDBACK	AI-ENABLED LEARNING SUPPORT SYSTEMS
Mean	29.96	32.52	29.53
Median	30	33	29
Mode	30	33	28
Std. Deviation	2.100	1.955	2.983
Min. Mean Value	25	23	22
Max. Mean Value	34	35	35

Source: Primary Data

An overview regarding the way employees feel about AI-powered learning support systems, AI-driven personalisation and AI-based performance feedback is given by the descriptive statistics. Employees believe AI-based performance feedback is the most effective way to assist their training and development, as evidenced by the fact that its mean score (32.52) is greater than that of the other two categories. AI-enabled learning assistance systems (Mean = 29.53) and AI-driven personalisation (Mean = 29.96) appears next, indicating that staff members also favour these AI-enabled training elements.

All three variables' median and mode values are extremely near to their corresponding mean values, indicating consistency in replies and a likelihood that the majority of employees have similar views on the efficacy of AI-based training programs.

The degree of variety in employee replies is shown by the standard deviation figures. The standard deviation of AI-based performance feedback is the lowest (1.955), suggesting that employee opinions are more consistent. AI-enabled learning support systems, on the other hand, exhibit a marginally greater variance (Std. Deviation = 2.983), indicating some variations in the experiences or perceptions of employees.

Employees have shown varied degrees of agreement while maintaining an overall good opinion of AI-driven training methods, as evidenced by the lowest and maximum values, which show that responses are evenly dispersed along the range.

Employees' perceptions of AI-driven personalisation, performance feedback, and learning support systems are generally positive and consistent, according to the descriptive analysis; the most strongly perceived and consistently evaluated dimension is AI-based performance feedback.

3. Comparative Ranking Of AI-Based Training Dimensions Using Friedman Test

H_1: There is no significant difference in employee perceptions toward AI-driven personalization, AI-based performance feedback and AI-enabled learning support systems.

Table 3: Showing Friedman Rank Test

VARIABLES	FRIEDMAN RANK TEST	CHI-SQUARE	SIG
AI-enabled learning support systems	1.74	91.257	p<0.01
AI-based performance feedback	2.70		
AI-enabled learning support systems	1.56		

Source: Primary Data

The Friedman Rank Test was used to determine whether employee perceptions of AI-driven training components specifically, AI-enabled learning assistance systems, AI-driven personalisation and AI-based performance feedback differ significantly.

Employees view AI-based performance feedback as the most effective and significant AI-driven training component, as evidenced by the mean rank values, which reveal that it obtained the highest rank out of the three variables (Mean Rank = 2.70). AI-driven personalisation comes next (Mean Rank = 1.74), which shows a moderate degree of efficacy as judged by staff. Despite their usefulness, AI-enabled learning support systems (Mean Rank = 1.56) were ranked lowest, indicating that they have less influence than other AI-driven training features.

The differences in employee views among the three AI-driven training components are statistically significant, according to the Chi-square value of 91.257 with a significance level of $p < 0.01$. Hence, the Null hypothesis is rejected. This suggests that employee opinions on AI-enabled learning support systems, AI-driven personalisation and AI-based performance feedback differ statistically significant. The most important AI-driven training element among these is performance feedback based on AI.

4. Relationship Between Ai-Based Training Systems And Employee Professional Development

Table 4: Showing Correlation

VARIABLES	PEARSON CORRELATION	SIG
AI-driven personalization	0.546	p<0.01
AI-based performance feedback	0.579	
AI-enabled learning support systems	0.692	

Significant @ 1% Level

H_2: There is no significant relationship between AI-driven personalization and employee professional development.

To investigate the connection between AI-driven training elements and staff professional development, a Pearson correlation analysis was performed. According to the findings, there is the strongest positive association ($r = 0.692$, $p < 0.01$) between employee professional development and AI-enabled learning support systems. Hence, the null hypothesis is rejected. This implies that learning assistance systems powered by AI are crucial for improving workers' learning efficacy, skill development and general career advancement.

H_3: There is no significant relationship between AI-based performance feedback and employee professional development.

Employee professional growth and AI-based performance feedback are strongly positively correlated ($r = 0.579$, $p < 0.01$). Therefore, the null hypothesis is rejected. This suggests that employees can improve their performance and career growth by identifying their strengths and limitations with the aid of rapid, precise and AI-generated performance feedback.

H_4: There is no significant relationship between AI-enabled learning support systems and employee professional development.

Employee professional growth and AI-driven personalisation have a moderately positive connection ($r = 0.546$, $p < 0.01$). This suggests that AI-supported adaptive learning paths and tailored training materials improve worker skill development and learning effectiveness. The results show that AI-enabled learning support systems, AI-based performance feedback and AI-driven personalisation have the strongest correlations with employee growth.

5. Impact Of Ai-Based Training Systems On Employee Professional Development: A Regression Analysis

Table 5: Showing Regression

VARIBLES	R SQUARE	ADJUSTED R SQUARE	BETA VALUE	F-STATISTICS	SIG
AI-driven personalization	0.298	0.291	0.546	47.038	p<0.01
AI-based performance feedback	0.322	0.314	0.649	56.441	
AI-enabled learning support systems	0.479	0.474	0.692	101.879	

Significant @1% Level

H_5: AI-driven personalization has no significant effect on employee professional development.

The F-Statistics (47.038) is significant at the 1% level ($p < 0.01$), according to the results. The null hypothesis is thus disproved. The regression model is regarded as a good match since it can be deduced that the R square value (0.298) and the Adjusted R square value (0.291) are roughly comparable. Therefore, there is a 54.6% rise in employee professional development for every unit increase in AI-driven personalisation, suggesting that AI-driven personalisation significantly boosts employee professional development.

H_6: AI-based performance feedback has no significant effect on employee professional development.

The results indicate that the F-Statistics (56.441) is significant at the 1% level ($p < 0.01$). The null hypothesis is thus disproved. The regression model is regarded as a satisfactory match since it can be deduced that the R square value (0.322) and the Adjusted R square value (0.314) are roughly identical. Therefore, there is a 64.9% rise in employee professional development for every unit increase in AI-based performance feedback, suggesting that AI-based performance feedback significantly boosts employee professional growth.

H_7: AI-enabled learning support systems have no significant effect on employee professional development.

According to the results, the F-Statistics (101.879) is significant at the 1% level ($p < 0.01$). Thus, the null hypothesis is disproved. It is inferred that the R square value (0.479) is more or less equal with Adjusted R square value (0.474), hence the regression model is considered to be a good fit. This suggests that AI-enabled learning support systems have a major beneficial impact on employee professional development because for every unit increase in AI-enabled learning support systems, employee professional development increases by 69.2%.

Conclusion

The current study comes to the conclusion that AI significantly and favourably affects employee professional growth and individualised training. The accuracy of the results was ensured by the reliability analysis, which verified that the research instrument was reliable and consistent. According to the descriptive statistics, employees view AI-driven training systems favourably, with the most highly rated feature being AI-based performance feedback. Employee impressions varied significantly, according to the Friedman Rank Test, which ranked AI-based performance feedback as the most beneficial element. AI-driven personalisation and AI-enabled learning support systems came in second and third, respectively. AI-enabled learning support systems showed the largest correlation with employee professional growth, although all AI-driven training components had a positive and substantial relationship, according to the correlation analysis. Additionally, the results of the regression study demonstrated that AI-enabled learning support systems, AI-driven personalisation and AI-based performance feedback all have a substantial impact on employee professional growth, with the largest impact being shown. In summary, the results show that by offering individualised learning experiences, real-time feedback and ongoing learning support, AI-driven training improves employee skills, knowledge, job performance and career advancement. This helps companies increase workforce effectiveness and achieve

sustainable growth in a cutthroat digital environment.

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