

The Impact of Modern Training Methods on Employee Performance in Industrial Companies: A Field Study of the Hayel Saeed Anam & Partners Group of Companies

Fatah Bakil Ali Hashed^{1*}, Khaled Hassan Ali Al-Hariri²

¹ Business Administration Center, Sana'a University, Yemen.
Email: fatahbakil@gmail.com

² Associate Professor, College of Administrative Sciences, Taiz University, Yemen.
Email: dralhariry@gmail.com

Corresponding Author:

Fatah Bakil Ali Hashed
Business Administration Center, Sana'a University, Yemen.
Email: fatahbakil@gmail.com

Abstract: This study aimed to analyze the impact of modern training methods with its four dimensions (technology-based learning, observational learning, trainer-led training, and learning by doing) on employee's performance quality in the industrial sector, through a field study conducted at companies within the Hayel Saeed Anam Group in Taiz. The research employed the descriptive-analytical approach and data were collected via a questionnaire administered to a sample of 900 employees at various management levels across three industrial companies. Then the data were analyzed by SPSS V.28, using statistical methods (descriptive statistics, ANOVA, simple regression, and multiple regression). The results demonstrated a significant and positive impact of modern training methods on employees' performance quality with an over mean score of 5.64 & Std. of 0.42 and a relative importance of 80.60%. Similarly, the group showed a high level of employee performance quality with a mean score of 5.62, Std. of 0.63, and a relative importance of 80.30%. Trainer-led training and technology-based learning proved to be the most influential with mean scores of 5.65 & 5.70 and a relative weight of 81.70% & 80.40% respectively, while observational and learning by doing contributed to enhancing employees' practical understanding with mean scores of 5.63 & 5.59 and a relative weight of 80.40 & 79.80% respectively. Furthermore, the results of the main hypothesis test revealed a statistically significant positive impact of modern training methods on employee performance quality, with a correlation coefficient of ($R = 0.807$). The findings also revealed statistically significant differences related to demographic characteristics such as gender, qualifications, job title, and years of experience. The study recommends adopting and updating modern training methods, developing the technological infrastructure, and diversifying training programs with more emphasis on the qualification of trainers....

Keywords: Modern training methods, employee performance quality, technology based learning, trainer led training, learning by doing, Hayel Saeed Anam Group.

INTRODUCTION

Training is one of the main pillars in the development of human resources, as it plays a pivotal role in providing employees with the necessary knowledge and skills, and updating their attitudes and behaviors in a way that reflects positively on their efficiency and productivity. Training is particularly important in today's fast changing and highly competitive business environment, where investing in human capital through effective training programs has become a strategic necessity to ensure the quality of organizational performance and achieve organizational goals (Al-Zahrani, 2021)....

Employees' performance improvement is defined as a systematic process that aims to address the gaps between the current and expected performance by identifying training needs and designing appropriate programs that contribute to raising the level of efficiency and productivity (Fadila, 2018). Many studies have shown that the success of institutions, whether public or private, depends to a large extent on the efficiency and effectiveness of the human element, which pushes them to adopt advanced training policies that keep pace with the requirements of the times and meet the needs of employees (Al-Jaghbir, 2022).

In this context, there has been a recent increase in interest in the application of modern training methods, such as technology-based learning, observational learning, instructor-led training, and learning through doing. These methods are characterized by their ability to meet the diverse needs of workers and provide an interactive learning environment that integrates theoretical knowledge with practical application (Ahmed, 2019). Choosing the appropriate training method is also one of the decisive factors in the success of training programs, as the effectiveness of the methods varies according to the nature of work and the characteristics of the employees (Al-Taher, 2017).

Modern training methods contribute to enhancing employees' satisfaction and organizational loyalty, as employees feel valued when the organization is committed to developing their capabilities and providing opportunities for professional growth, which reflects positively on the quality of their performance and continuity in work. Leading institutions recognize the importance of investing in training as a means of enhancing competitiveness and achieving institutional excellence, by building qualified human cadres capable of keeping pace with technical and managerial developments (Al-Shamaila & Al-Shuaibi, 2024).

As part of the efforts of Hayel Saeed Anam & Partners to enhance the quality of employees' performance, the Group has adopted an integrated approach in the development of training programs, with a focus on the use of the latest training methods and techniques. The Group has established specialized units for development and continuing education and has launched digital platforms that provide learning and training opportunities for all employees, with the aim of raising their efficiency and developing their skills in various technical, behavioral, and cognitive aspects.

Based on the practical experience of the researcher at the Yemen Company for Industry and Trade, one of the group's companies, emerged the urgent need to develop training programs and adopt modern training methods that keep pace with the requirements of industrial work in a way that contributes to raising the quality of workers' performance, achieving their job satisfaction and increasing the company productivity.

Statement of the Problem

Although industrial enterprises are aware of the importance of training in developing human resources and improving the quality of performance, many of them, especially in developing countries still face challenges in activating and developing the training process in a way that keeps pace with the modern changes in the work environment. The problem lies in the fact that most of the training efforts focus on the implementation of traditional programs without sufficient attention to modern training methods that have proven to be effective in raising the efficiency of workers and improving the quality of their performance (Abdullah, 2022).

Previous studies have shown a lack of linking training programs to the actual needs of workers, a weakness in assessing the impact of training on job performance, and a lack of research that directly addresses the impact of modern training methods in the Yemeni context, especially in the industrial sector. Most studies have focused on the concept of training in general without delving into modern training methods and their qualitative impact on the quality of performance (Abdul Aziz, 2014; Muharram, 2021).

In light of these data, and noting that the Learning and Development Unit of Hayel Saeed Anam & Partners Group focuses on training in general without enough focus on modern methods, there is a need for a specialized study that explores the impact of modern training methods on the quality of performance of employees in the Group industrial companies to bridge the existing research gap and provide practical recommendations to improve the outcomes of the training process.

Literature Review

The contemporary world is witnessing rapid transformations and accelerating technological advancements, making human resource development through modern training methods a strategic choice for achieving organizational performance quality. This is particularly crucial as organizations strive to enhance their innovative and creative capabilities within a dynamic work environment (Albrecht, 2015). Training concepts have evolved from traditional methods based on rote memorization and direct

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information transfer to modern approaches that focus on technology, interaction, and active participation. These modern methods, such as e-learning, blended learning, virtual simulations, and interactive workshops, are characterized by their ability to meet the changing needs of employees and enhance their creative skills, positively impacting job performance quality (Ben Dani & Noui, 2020; Noy et al., 2017).

Training has long been recognized as a cornerstone of human resource development and played a crucial role in equipping employees with knowledge, skills, and attitudes necessary to enhance their efficiency and productivity (Mohammed, 2003). Operationally, training is defined as a systematic set of methods, programs, and behaviors implemented by trainers to effectively transfer knowledge and achieve desired objectives with high efficiency (Al-Makhlafi, 2023). The practical importance of training in organizational environments, particularly its direct impact on employees' performance has been empirically supported by various studies (Al-Jaghbir, 2022).

Training is defined as a planned, organized, and continuous process aimed at developing the behaviors and attitudes of human resources. Its objective is to improve performance and gain experience by expanding employees' knowledge and skills using modern methods, ensuring alignment with their personal aspirations and organizational goals (Ibn Azza & Mukhlifi., 2016). In an industrial context, modern training methods are of paramount importance because they bridge the gap between employees' current skills and the demands of future jobs. The effectiveness of these methods depends on several dimensions, most notably: technology-based learning, which provides flexible access to information at any time; trainer-led training, which facilitates direct interaction and immediate feedback; visual and observational learning, which fosters practical understanding; and on-the-job training (practical training), which connects theoretical knowledge with field application (Naaman, 2014; Fatima, 2020).

The modern training methods such as technology-based learning, observational training, and on-the-job learning are essential for maintaining competitiveness in industrial companies. The experimental results from regional and international studies confirm the positive effects of these modern methods on employees' performance quality, job satisfaction, and capacity development (Abdul Rashid et al., 2022; Al-Khasawneh, 2022; Pillai et al., 2022). They have also gained increasing attention as effective approaches to meeting the diverse needs of employees and fostering interactive learning environments that integrate theoretical knowledge with practical application. These methods include technology-based learning, observational learning, trainer led sessions, and experiential learning through practical application. These methods have demonstrated significant contributions to improving production efficiency, provided that training plans are well aligned with the actual needs of employees and their job contexts (Ahmed, 2019; Al-Taher, 2017).

On the other hand, employee performance is the most prominent indicator of an organization's effectiveness and its ability to develop and grow. Employee performance quality is defined as the set of tasks and activities performed by individuals within an organization to achieve predetermined goals, encompassing the interaction between employee behavior and the results achieved (Balali & Alahem, 2018). Performance is also a key criterion for evaluating the relationship between employee efforts and the achievement of organizational goals. It reflects the efficiency of employees and their ability to perform assigned tasks accurately and according to established standards (Fatima, 2020).

Employees' performance is defined as the degree to which individuals successfully complete job tasks and is shaped by their abilities and motivation (Aguinis & Kraiger, 2009). Improvements in training quality have consistently been linked to increased employee productivity and overall performance effectiveness (Al-Jaghbir, 2022). Competence is defined as the set of experiences and skills that enable tasks to be completed in a timely and successful manner and enhanced through specialized and relevant training programs (Muharram, 2021).

Furthermore, performance quality is linked to vital dimensions such as increased employee efficiency, knowledge and experience acquisition, and improved productivity. Organizations that invest in developing their employees' skills ensure reduced error rates, higher production quality standards, and enhanced job satisfaction and organizational loyalty among the workforce (Al-Jaghbir, 2022). The literature indicates that the impact of investing in modern training extends beyond simply increasing employee efficiency; it also fosters creativity in the workplace, which is the essential link between receiving training and achieving peak performance quality (Aguines & Krieger, 2009, p. 460). The deliberate adoption of modern training methods enables industrial organizations to meet increasing challenges and ensures the sustainability of their competitive edge in the market (Al-Zahrani, 2021).

Assessing training needs remains crucial in designing effective training initiatives. These needs encompass the knowledge, skills, and attitudes required by individuals or organizations to perform their tasks efficiently (Abbas, & Hamza, 2024). Ongoing assessment helps organizations address weaknesses and reinforce strengths through tailored training programs (Ben Yamina & Hafsawi, 2022). Based on the study framework illustrated in Figure 1 below, the following hypotheses were formulated:

The First Main Hypothesis (H1)

There is a statistically significant impact at the significance level ($\text{sig.} \leq 0.05$) of modern training methods (technology-based learning, learning by seeing and observing, trainer-led training, and learning by doing) on improving the quality of performance of the employees of the Hayel Saeed Anam & Partners Industrial Group under study. Out of this hypothesis, the following subhypotheses were derived.

H1. There is a statistically significant impact at the significance level ($\text{sig.} \leq 0.05$) of the trainer-led training dimension on improving the quality of performance of workers in industrial companies under study.

H2. There is a statistically significant impact at the significance level ($\text{sig.} \leq 0.05$) of the technology-based learning dimension on improving the quality of performance of workers in industrial companies under study.

H3. There is a statistically significant impact at the significance level ($\text{sig.} \leq 0.05$) of the learning dimension by doing on improving the quality of the performance of workers in industrial companies under study.

H4. There is a statistically significant impact at the significance level ($\text{sig.} \leq 0.05$) of the distance of learning by sight and observation on improving the quality of the performance of workers in the industrial companies under study.

The Second Main Hypothesis

There are statistically significant differences at the significance level ($\text{sig.} \leq 0.05$) between the average opinions of the participants about the impact of modern training methods on improving the quality of the performance of the employees in the Hayel Saeed Anam & Industrial Partners Group attributed to the demographic variables of the participants' gender, educational qualification, job degree, years of experience.

The Study Conceptual Model

The model of this study is based on the theory that considered employees as an internal agents of companies success. This model also showed the impact of the independent variable of modern training methods dimensions (Trainer-led training and technology-based learning on improving the employee performance quality in Hayel Saeed group companies. This model provides a scientific and practical framework for measuring and improving the quality of job performance in line with the conditions and the local and sustainable development requirements. Figure (1) below displays the conceptual model of the study.

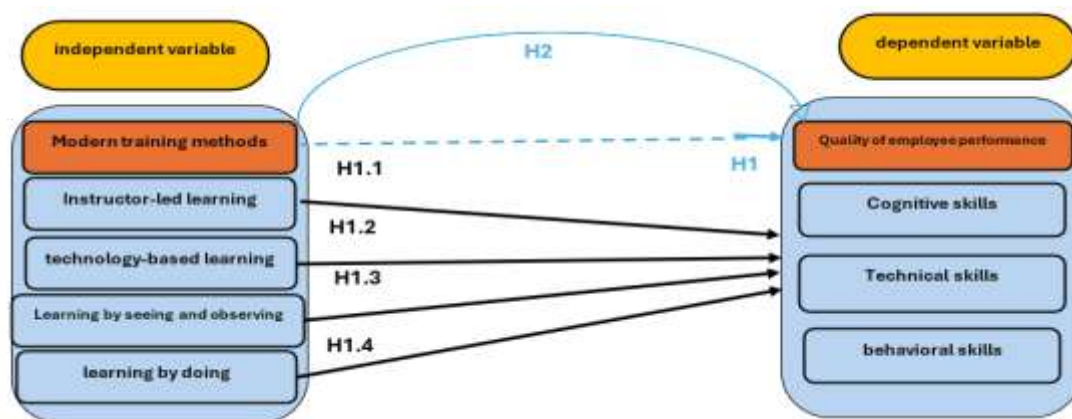


Figure 1: Conceptual Model of the Study

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Study Methodology

Study Design

The study employed the descriptive-analytical method for conducting the whole study as it focuses on studying the phenomenon as it really is, aiming to describe and analyze phenomena, interpret the relationships between their variables, and test related hypotheses scientifically and systematically.

Study Population

The study population consists of all administrators and employees of the Hayel Saeed Anam & Partners Group of Companies in Taiz Governorate, Yemen. The population includes all the employees of the following companies: a) Yemen Company for Industry and Trade, b) Yemen Company for Ghee and Soap Manufacture, and c) Diversified Industries & Packing Materials Company.

Study Sample

A relatively random sample was selected from the study population to ensure that all working groups were represented, and the results are credible. The sample size was 900 employees distributed internally to the different departments in each company according to the percentage of representation as shown in Table 1 below.

Table (1) Sample Distribution in Companies

Company name	Population size	Sample size
Yemen Company for Industry and Trade	2300	341
Yemen Company for Ghee and Soap Manufacture	1140	284
Diversified Industries & Packing Materials Company	1040	275
Total	4480	900

Source: Industry, Trade, Ghee and Soap Companies

Demographic Characteristics of the Study Sample

The demographic and occupational characteristics of the study sample consisting of 900 respondents were analyzed to identify the demographic distribution of participants according to the variables of company, gender, educational qualification, job title, and years of experience.

First: Gender

Table (2) below presents the percentage distribution of the study sample according to the gender variable, with the aim of identifying the representation of males and females within the study population.

Table 2: Distribution of Sample Participants by Gender

Gender	Frequency	Percentage
Male	801	89%
Female	99	11%
Total	900	100%

Table 2 above shows that the overwhelming majority of the sample participants were male, with 801 respondents, representing 89% of the total number, compared to 99 female respondents, representing 11%. This disparity indicates a clear dominance of males within the workforce of the targeted companies. Such difference may be related to the operational and industrial nature of these organizations which tend to attract a higher proportion of male employees. This imbalance may also influence the study findings, particularly if substantial differences exist between males and females in their perceptions of the research variables, such as training methods or performance quality. Consequently, further analysis based on gender differences may be warranted.

Second: Educational Qualification

The distribution of the study sample according to educational qualification is presented in Table 3. This table summarizes the frequencies and percentages of participants across the different educational levels included in the study.

Table 3: Descriptive distribution of the study sample according to educational qualification.

Educational Qualification	Frequency	Percentage
High School or Below	122	13.60%
Post-Secondary Diploma	227	25.20%
Bachelor Degree	474	52.70%
Postgraduate Diploma	59	6.60%
Master Degree	12	1.30%
Doctorate Degree	6	0.70%
Total	900	100%

Table (3) above indicates that the largest proportion of participants held a Bachelor degree, with 474 individuals, accounting for 52.7% of the total sample. This reflects a strong concentration of university-educated personnel within the targeted companies. They were followed by holders of a Post-Secondary Diploma (25.2%) and those with a High School education or lower (13.6%). The remaining participants held a Postgraduate Diploma (6.6%), a Master degree (1.3%), or a Doctorate degree (0.7%).

This distribution suggests that the majority of employees possess an educational background that enables them to understand and evaluate training programs and contribute to quality performance. The relatively low proportion of respondents with postgraduate degrees may reflect limited opportunities for advanced professional development within these organizations. This factor may be considered when interpreting differences related to educational qualifications in subsequent analyses.

Third: Years of Experience

Table (4) below presents the descriptive distribution of the study sample according to years of experience, aiming to assess the representation of different experience groups within the workplace and their potential influence on understanding and evaluating the study concepts.

Table 4: Distribution of Sample Participants by Years of Experience

Years of Experience	Frequency	Percentage
Less than 5 years	147	16.30%
5 to Less than 10 years	231	25.70%
10 to Less than 15 years	168	18.70%
15 to Less than 20 years	176	19.60%
20 years or more	178	19.80%
Total	900	100%

As shown in Table 4 above, the largest group of participants had 5 to less than 10 years of experience, representing 25.7% of the sample. This was followed by respondents with 20 years or more of experience (19.8%), and those with 15 to less than 20 years of experience (19.6%). Participants with 10 to less than 15 years of experience accounted for 18.7%, while those with less than 5 years of experience represented 16.3% of the sample.

This distribution reflects a relatively balanced representation across different experience categories, with a noticeable concentration in the medium and highly experienced groups. Such a distribution enhances the reliability of the survey data, particularly in understanding training approaches and their impacts, as

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experienced employees are more likely to provide evaluations based on practical knowledge and long-term workplace experience.

Fourth: Job Title

Table 5 below presents the descriptive distribution of the study sample according to job title. The frequencies and percentages shown in the table provide an overview of the occupational positions of the respondents included in the study.

Table 5: Distribution of Sample Participants by Job Title

Job Title	Frequency	Percentage
Employee	599	66.60%
Unit Head	2	0.20%
Department Head	62	6.90%
Product Manager	39	4.30%
Department Manager	31	3.40%
Deputy Manager	3	0.30%
General Manager	3	0.30%
Other	161	17.90%
Total	900	100%

Table (5) above reveals that the majority of participants held non-managerial positions, with employees constituting 66.6% of the sample. This was followed by the "Other" category at 17.9%, which may include technical or operational positions not classified under traditional managerial categories. The remaining respondents occupied various managerial positions, including Department Heads (6.9%) and Product Managers (4.3%), while higher-level management positions such as Department Manager, Deputy Manager, and General Manager collectively accounted for less than 5% of the sample.

This distribution indicates that the majority of respondents represent operational and executive levels, which is appropriate given the study's objective of examining the impact of modern training methods on performance and workplace creativity. Employees at these levels tend to interact most frequently with training programs and are often the most directly affected by their outcomes in the work environment.

Fifth: Company Name

Table 6 below presents the distribution of the study participants according to company name. The table summarizes the representation of respondents from the three companies included in the study.

Table 6: Distribution of Sample Participants by Company Name

Company Name	Frequency	Percentage
Yemen Company for Industry and Commerce	341	37.90%
Yemen Company for Ghee and Soap Manufacturing	284	31.60%
Diversified Industries and Packaging Materials Company	275	30.60%
Total	900	100%

Table (6) above shows that the Yemen Company for Industry and Commerce ranked first in terms of participant representation, accounting for 37.9% of the total sample. It was followed by the Yemen Company for Ghee and Soap Manufacturing with 31.6%, and the Diversified Industries and Packaging Materials Company with 30.6%. This distribution reflects a relatively balanced representation of the study population

across the three companies, thereby enhancing the credibility of the findings and enabling an objective comparison of participants' views regarding training, creativity, and performance quality across different workplace environments within the same group of organizations.

Data Collection instruments

The researcher collected the secondary data from books, studies, periodicals, whereas the primary data were collected using a field questionnaire consisted of 35 items with 5 items to each dimension of independent variable (modern training methods) and dependent variables (quality job performance). The study questionnaire was prepared based on a review of the literature and previous studies, and then presented to experts and academics to ascertain its apparent and content validity. Exploratory interviews were also conducted with some managers and employees to support the qualitative analysis.

Data Analysis

The study relied on the questionnaire as the main tool for collecting field data and measuring the study variables due to its suitability and efficiency in achieving the goals of the study. Firstly, to measure the level of internal marketing as an independent variable, a measure of (25) items was built based on a number of previous studies, including the study of Al-Jaghbir (2022), Muharram (2021), and the studies of Pillai et al. (2022), Abdul Rashid et al. (2022). The participants used a Likert's seven-point scale to answer the questionnaire, ranging from (1 *strongly disagree*) to (7 *strongly agree*). The data were analyzed using SPSS software. The study also relied on some statistical methods. Cronbach Alpha test was used for measuring instrument reliability, and Pearson's correlation coefficient was used for testing constructive validity. In addition, descriptive Statistics represented by frequencies, percentages, arithmetic mean, and standard deviation were used to answer the study questions and to test its hypotheses. To test the differences between study variables, t-test to examine demographic differences regarding gender and qualifications, and one-way ANOVA analysis was used to examine differences of years of experience, job title. Inferential Analysis represented by simple and multiple regression analysis were used to test the effect of modern training methods on performance quality. Path analysis was also used to measure the direct and indirect impact between variables.

Reliability and Validity Verification

To ensure the validity of the study tools, the questionnaire was presented to a group of experts and academics specialized in the field of training and human resources to ensure that the items are appropriate to the objectives of the study and that they are relevant to dimensions. Construct validity was tested using Pearson's correlation coefficient between the items and dimensions. The reliability of the study tools was verified using Cronbach's Alpha coefficient, where the results showed in Table 7 below revealed that all values for all dimensions are higher than 0.85, indicating internal consistency and high reliability of the tool.

Table (7): Reliability Coefficients of the Study Variables Using Cronbach's Alpha

Variables	No. of Dimensions	Cronbach's Alpha Value	Stability Level
Independent variable (Modern training methods)	4	0.859	Very high
Intermediate variable (Job creativity)	3	0.863	Very high
Dependent variable (Employee quality performance)	3	0.89	Excellent

All values shown in Table 7 above were within the statistically acceptable range (> 0.70), which enhances the reliability of the data. The results showed that all Cronbach's alpha values for the three main variables were very high, indicating a high degree of internal reliability and consistency between the items also.

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Table 8: Reliability Test Results (Cronbach Alpha) for Subdimensions

Variables	Subdimensions	Cronbach's alpha value	Correlation Coefficient	Level of Reliability
Independent variables	Technology Based Training	0.865	0.585	Very high
	Trainer led training	0.794	0.763	Very high
	Learning with vision and observation	0.799	0.753	Very high
	Learning by doing	0.813	0.723	Very high
Dependent Variables	Performance Efficiency	0.875	0.774	Very high
	Productivity	0.81	0.831	Very high
	Career Commitment	0.852	0.783	Very high

Table 8 above shows that all Cronbach's alpha values for the subdimensions exceeded 0.70, reflecting a high degree of internal reliability. No substantial decrease in Cronbach's alpha value was seen when any dimension was removed, suggesting that the dimensions are correlated and support the overall reliability of the subdimensions.

Results and Discussion

Table (9) Descriptive Statistics of the Means and Standard Deviations of Study Variables

Dimension	Mean	Std.	Relative Importance %	Verbal Rating	Rank
Modern training methods	5.64	0.42	80.60%	High	
Technology based Training	5.70	0.44	81.40%	High	First
Trainer led training	5.65	0.50	80.70%	High	Second
Learning with vision and observation	5.63	0.51	80.40%	High	Third
Learning by doing	5.59	0.54	79.80%	High	Fourth
Employee's Performance Quality	5.62	0.63	80.30%	High	
Performance Efficiency	5.78	0.80	82.60%	Very High	First
Productivity	5.54	0.65	79.10%	High	Second
Career Commitment	5.54	0.65	70.10%	High	Third
Overall Average For the two variables:	5.63	0.52	80.40%	high	

The results in the Table 9 above shows that the arithmetic means for all dimensions of the two variables (modern training methods and employee performance quality) fell within the "high" level according to the seven-point Likert scale. The overall mean for both variables together was (5.63) with a standard deviation of (0.52) and a relative importance of (80.40%).

At the level of the dimensions of the independent variable (modern training methods), the "technology-based training" dimension ranked first with an arithmetic mean of (5.70) and a relative importance of (81.4%), while the "learning by doing (practical training)" dimension ranked last with an arithmetic mean of (5.59) and a relative importance of (79.80%).

Regarding the dimensions of the dependent variable (employee performance quality), the "performance efficiency" dimension ranked first with a mean of 5.78 and a relative importance of 82.60%, receiving a "very high" rating. This was followed by the "productivity" and "job commitment" dimensions, which ranked second and third respectively, with equal means of 5.54 and a relative importance of 79.10%, also receiving a "high" rating. These results generally indicate a high and positive perception among the sample group regarding the training methods implemented in the industrial companies under study, which directly impacts the quality and efficiency of their job performance. Moving on to the main hypothesis test, the simple linear regression was used, as shown in Table 10 below.

Hypotheses Testing

The first main hypothesis (H1)

The main hypothesis states that "There is a statistically significant impact at the significance level ($\text{sig} \leq 0.05$) of the dimensions of modern training methods (technology-based learning, learning by seeing and observing, trainer-led training, and learning by doing" on improving the quality of performance of employees in the Hayel Saeed Anam & Partners Industrial Group. To test this hypothesis, the Correlation coefficient was used and revealed that the $(R) = 0.708$ indicating a strong positive correlation between the study variables. The selection Coefficient (R^2) = 0.501 (i.e., 50.1% of the change in performance quality is explained by modern training methods. F value = 901.998 and Sig. = 0.000 indicating a strong statistical significance. Also, the Regression coefficient (β): 0.783 as shown in Table 10 below. Therefore, the first main hypothesis was accepted, as it was proven that there was a strong and statistically significant effect of modern training methods in improving the quality of workers' performance.

Table 10: Results of the Simple Linear Regression Analysis for the Main Hypothesis

Independent Variable	R	R ²	F	Sig.	β	Significance
Modern training methods ----- employee performance quality	0.807	0.501	901.998	≤ 0.05	0.783	0.000

Testing the subhypotheses

Table 11 below presents below the results of the multiple regression analysis conducted to examine the overall significance of the regression model. The results provide evidence of the statistical significance of the relationship between modern training methods subdimensions and employee performance quality.

Table 11: Results of the Multiple Regression Analysis for the the Subhypotheses

Dimension	Correlation coefficient (R)	Selection Coefficient (R ²)	P. Value	Beta β	Statistical significance
Trainer led training ----- employee performance quality	0.589	0.347	0.541	0.589	0.000
Technology based learning ----- employee performance quality	0.441	0.194	0.462	0.441	0.000
Learning with vision and observation ----- employee performance quality	0.665	0.442	0.607	0.665	0.000
Learning by doing ----- employee performance quality	0.661	0.437	0.567	0.661	0.000

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The results of the multiple regression shown in Table 11 above confirmed the subhypotheses reflected the existence of a direct causal relationship between the adoption of modern training methods dimensions in the Yemeni industrial environment and the improvement of the quality of employees' performance, whether in terms of efficiency, productivity, or job commitment. The highest impact was seen in the dimensions of "learning using vision and observation" and "learning by doing", reflecting the importance of applied learning and practical experience in the industrial work environment. Instructor-led training has also had a strong impact, underscoring the importance of direct interaction with professional trainers in the transfer of expertise and knowledge. Technology-based learning has shown a positive impact but is relatively less than the rest of the dimensions, indicating the importance of supporting technical infrastructure and developing e-content.

The results are consistent with several Arab and foreign studies that have confirmed that investing in modern training methods leads to improved job performance quality, such as the study of Al-Jaghbir (2022), Muharram (2021), and the studies of Pillai et al. (2022), Abdul Rashid et al. (2022). The results confirmed that modern training does not only affect technical skills, but also extends to the behavioral and cognitive aspects of employees, which enhances the organization ability to achieve its strategic goals. Some studies have suggested that the impact of modern training may vary depending on the regulatory environment, but the results of this study show a strong impact in the Yemeni industrial context, reinforcing the importance of adopting these methods in similar environments.

Testing the second main hypothesis (H2)

The second main hypothesis states that "there are statistically significant differences at the significance level ($\text{sig} \leq 0.05$) between the average opinions of the sample members about the effect of modern training methods on improving the quality of workers' performance attributed to some demographic and functional variables (gender, educational qualification, job degree, years of experience).

Table 12: Results of Analysis of variance ANOVA Test

Source of variance	Sum of squares	Degree of freedom df	Mean squares	F-value	Significance
Regression	96.794	1	96.794	901.998	0.000
Residuals	96.365	898	0.107	-	-
Total	193.159	899	-	-	-

Furthermore, the results of the ANOVA test in Table 12 above showed that there is statistically significant ($F\text{-value}=901.998$, $\text{Sig.}=0.000$), confirming that there were statistically significant differences in estimating the impact of modern training methods on performance quality due to variables such as gender (females were the highest rated), job grade (leadership positions were more aware of the impact), and years of experience (those with long experience benefited more). No significant differences were shown attributable to educational qualification, indicating that the effect of modern training is relatively equal between different levels of education.

To sum up, the results of the study confirmed that investing in modern training methods is a strategic necessity to improve the quality of performance of workers in the industrial sectors. The study recommends the development of interactive training programs that integrate practical and technical learning, while enhancing the role of professional trainers and intensifying the use of visual and technological media. The need to consider functional and experience differences when designing training programs to ensure the highest levels of effectiveness in institutional performance. The researcher believes that modern training methods (technological learning, observation, trainer-led training, and learning by doing) have proven to be effective in raising the quality of the performance of workers in the Yemeni industrial sector, with a difference in the strength of influence according to the training dimension, and the existence of demographic differences that require the design of flexible and integrated training programs.

Study Limitations

The study was limited to a set of limitation in terms of topic, place, time, and human limitations. The

study examined the impact of modern training methods on the quality of job performance. The study was conducted in three industrial companies belonging to the Hayel Saeed Anam Industrial Group in Taiz Governorate, Republic of Yemen. The study was limited to administrative and technical employees in the companies under study, with a sample size of 254 individuals. The study was conducted in the academic year of 2025/2026 and the data were collected via a questionnaire and analyzed using SPSS version 28.

Study Recommendations

Based on the findings, the study recommends the following:

1. Adopting modern training methods within industrial companies, while constantly updating training programs to keep pace with technical and professional changes.
2. Enhancing learning by watching and live experiences, by providing learning environments that simulate real-world work situations, has an effective impact on improving the quality of performance.
3. Developing the technological infrastructure to support technology-based learning and ensure the readiness of the technical systems used in training.
4. Diversifying training methods and linking them to work requirements, to ensure the transfer of theoretical knowledge into practical application and the achievement of productive efficiency.
5. Designing training programs aimed at developing employee creativity by incorporating innovative thinking and critical thinking skills.
6. Allocating differentiated training programs that suit the characteristics of different demographic groups (gender, qualification, job grade, years of experience).
7. Paying attention to training and qualifying trainers professionally, to ensure that programs are presented in modern interactive methods that achieve the desired goals.
8. Integrating modern training programs into the foundation strategic plans and emphasizing its role in improving institutional performance and developing competitiveness.
9. Utilizing modern technologies such as simulation and virtual reality in training, to create interactive learning environments that increase the effectiveness of programs.

Future Research Suggestions

The current study suggest the following:

1. Conducting future studies on the impact of modern training methods on job performance and creativity in other economic sectors (services, finance, etc.).
 2. Examining the role of other mediating variables such as job satisfaction, motivation, and organizational commitment.
 3. Conducting longitudinal studies to measure the sustainable impact of modern training methods over time.
 4. Conducting comparative research between traditional and modern training to identify nuances.
- Studying the impact of organizational and cultural factors in the work environment on the effectiveness of modern training methods.
5. Expanding the sample to include multiple industrial establishments within Yemen or in other Arab countries.
 6. Studying the impact of full technological training compared to blended training on performance quality and creativity.

Conclusion

The current study aimed to determine the impact of modern training methods on the quality of performance in Hayel Saeed Anam Industrial Group. The results showed that modern training methods have a strong and statistically significant impact on the quality of employees' performance. Each dimension of modern training has a statistically significant positive effect. There are significant differences in the impact according to gender, job grade, years of experience, and there are no differences according to educational qualification. The study recommended that the management should continue to develop and adopt modern training methods in industrial companies and allocate training programs that consider the job and experience differences of employees. They should strengthen the technological infrastructure and training of trainers to ensure the effectiveness of training programs and raise the efficiency of performance in the industrial work

environment.

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Conflict of Interest

The researcher declares that there are no financial, personal, or professional interests that could influence the results or interpretation of this research.

Data Availability Statement

The data supporting the findings of this study is available from the lead researcher and can be provided upon request for scientific research purposes, subject to confidentiality and privacy requirements.

Author Contributions

The two authors contributed to all stages of the study, including research design, data collection, analysis, interpretation of results, and preparation of the final manuscript. The authors have approved the final version submitted for publication.

Ethic declarations: The informed consent was obtained from all participants included in this study. Participation was voluntary and participants were informed for the purpose of the study and their responses were kept confidential and only used for research purposes, and participants have the right to withdraw any time without any penalty...

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