

Training and Development Management Techniques: A Survey

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ABSTRACT

Management development involves various steps such as reviewing organizational goals, assessing current management resources, identifying individual needs, designing and implementing development programs, evaluating program effectiveness, and measuring the impact of training on participants' work-life quality. Training and development plays a crucial role in maximizing the utilization of human resources, leading to the individual goals. The various techniques of training and development is reviewed and analysed in this paper.

Keywords: Training, Development, Management

INTRODUCTION

Training and development programs play a crucial role in organizations. The necessity for such programs is determined by comparing the employee's actual performance with the standard performance. Training contributes to the overall improvement of an organization in various ways [1]. The key areas where employees receive training in an organization include enhancing soft skills, developing personality, improving interpersonal relationships, acquiring problem-solving techniques, participating in managerial and supervisory training, engaging in quality improvement initiatives, learning technical processes, engaging in quality circle programs, developing time management skills, enhancing employee efficiency [2], participating in violence prevention programs, ensuring compliance with regulations, setting and implementing goals, managing workplace safety, and improving workplace communication.

Training programs facilitate skill development among employees, leading to increased market value, earning potential, and job security within the organization. Training also shapes employees' attitudes and fosters better cooperation within the organization, thereby improving work-life quality [3]. In the public sector, training aims to provide new employees with the necessary instruction and experience to quickly and cost-effectively reach the expected performance level in their roles. For existing staff, training helps enhance their performance in current jobs, acquire knowledge of new technologies or procedures, and prepare for higher responsibilities in the future. Employee development programs are designed with specific objectives to enhance both individual and organizational effectiveness [4]. Management development involves various steps such as reviewing organizational goals, assessing current management resources, identifying individual needs, designing and implementing development programs, evaluating program effectiveness, and measuring the impact of training on participants' work-life quality.

Importance of Training and Development

Following factors can help understand the importance of training and development

1. **Human resource optimization:** Training and development plays a crucial role in maximizing the utilization of human resources, leading to the individual goals. It provides a platform and achievement of both organizational and structured framework for enhancing technical and behavioural skills in an organization, fostering personal growth [5], and expanding employees' knowledge and competencies at every level. It also broadens employees' intellectual horizons and contributes to their overall personal development.
2. **Productivity enhancement:** Training and development initiatives contribute to increasing employee productivity, which, in turn, aids organizations in reaching their long-term objectives [6].
3. **Team spirit:** Training and development programs foster a sense of teamwork, team spirit, and inter-team collaborations among employees. They also cultivate a strong desire to learn and grow within the workforce.
4. **Organizational culture:** Training and development programs contribute to the development and enhancement of the organizational culture and its effectiveness. They foster a learning culture within the organization.
5. **Organizational climate:** Training and development initiatives play a role in building a positive perception and sentiment about the organization. These feelings are influenced by leaders, subordinates, and peers [7].

6. **Quality:** Training and development efforts contribute to improving the quality of work and work-life within the organization.
7. **Healthy work environment:** Training and development programs help create a healthy work environment by fostering positive employee relationships and aligning individual goals with organizational goals.
8. **Health and safety:** Training and development initiatives improve the health and safety practices within the organization, thereby preventing obsolescence.
9. **Morale:** Training and development programs boost workforce morale, leading to higher motivation and job satisfaction [8].
10. **Image:** Training and development initiatives contribute to creating a better corporate image for the organization.
11. **Profitability:** Training and development activities result in improved profitability and cultivate a more positive attitude towards profit orientation among employees.
12. **Training and development:** Programs contribute to the overall organizational development by enhancing decision-making and problem-solving capabilities. They facilitate understanding and implementation of organizational policies [9]. Moreover, training and development initiatives foster the development of leadership skills, motivation, loyalty, and positive attitudes, which are typically exhibited by successful workers and managers.

Need for Training and Development Management

Human resource development: Training and Development provides a structured framework for the development of technical and behavioural skills in employees, fostering their personal growth.

1. **Skill development:** Training and Development enhances the job knowledge and skills of employees at all levels, expanding their intellectual horizons and overall personality [10].
2. **Productivity:** Training and Development increases employee productivity, aiding the organization in achieving long-term goals.
3. **Teamwork:** Training and Development instills a sense of teamwork, team spirit, and inter-team collaboration, fostering a desire to learn among employees.
4. **Organizational culture:** Training and Development contributes to the development and improvement of the organizational culture and effectiveness, promoting a culture of continuous learning [11].
5. **Organizational climate:** Training and Development helps create a positive perception and fosters positive feelings about the organization among employees, influenced by leaders, subordinates, and peers.
6. **Quality:** Training and Development improves the quality of work and work-life within the organization.
7. **Healthy work environment:** Training and Development creates a healthy working environment, fostering strong employee relationships and aligning individual goals with organizational goals [12].
8. **Health and safety:** Training and Development enhances health and safety practices within the organization, preventing obsolescence.
9. **Morale:** Training and Development boosts workforce morale, leading to increased motivation and job satisfaction.
10. **Image:** Training and Development contributes to creating a positive corporate image [13].
11. **Profitability:** Training and Development results in improved profitability and cultivates a more positive attitude towards profit orientation among employees.

LITERATURE REVIEW

M. Irfan, et.al (2020) projected a framework in which Partial Least Squares Structural Equation Modeling (PLS-SEM) approach was implemented [14]. Moreover, a sample consisted of 425 respondents was considered for analysing the hypotheses created in the study. The results exhibited that the maturity to manage the project was positively related to the reputation of public sector organizations. In addition, the analysis confirmed that the maturity of project management such as to manage the process management, perform the project management training, transmit the knowledge management, rapid progress and the deployment of software for managing the project, laid impact on the reputation of the public sector organizations in Pakistan.

A. Ahmadi, et.al (2023) suggested a Bidirectional Encoder Representations from Transformers (BERT) and Doc2Vec algorithms and a comparative analysis was conducted on their performance [15]. The results depicted that the initial algorithm performed more effectively in contrast to the latter one to pre-train the system in most of the scenarios. The major Project Management Body of Knowledge (PMBOK) regions of interest among the project managers were to manage the schedule, and manage the resource. The planning was other significant factor of the questions. The learning and training status quo in eleven top Canadian universities was considered for comparing the outcomes. An analysis was conducted on 46 SPM-related courses. The findings demonstrated that the rank correlation of PMBOK knowledge regions was calculated 0.23 among the key content of the analyzed courses. Moreover, a further analysis was performed on the focus of knowledge areas of Q&A taken from Stack Exchange.

J. Flotyński, et.al (2021) introduced an ontology-based representation approach of knowledge-based management of virtual training cases to model the scenarios flexibly and exactly [16]. For this, the concepts were employed in a specific application domain rather than forcing the designers for deploying programming and 3D modelling of lower level. The managers were trained to generate and modify the scenarios effectively through the presented editor. Thus, this approach assisted in formulating a VR (Virtual reality) training setting that was an extremely technical task. The introduced approach was applicable for non-technical users and helped them in deploying the terminology of their domains of interest in the designing procedure.

E. Andrade, et.al (2023) formulated a technique and conducted a case study of an e-learning training platform which was created for neonatal sepsis risk monitor system (Digi-NewB) [17]. A multi-modal qualitative research case study technique was presented in which 3 qualitative data sources were analysed. The initial was to examine the audio/video recordings of simulation sessions that suggested the participants about operating the system (like updating the medical observations and monitoring the sepsis risk); conducting the interviews with the simulation participants and an attending key opinion leader (KOL) responsible for observing all simulation sessions; and post-simulation survey was conducted at last. The first analysis depicted the potential of participants for implementing and interpreting the Digi-NewB interface. Moreover, the other analysis indicated the satisfaction of participants with the training platform. The efficacy and effectiveness of this platform was proved to train the medical device.

H. Zhang, et.al (2020) emphasized on reforming the training model of digital media application technology in the Virtual Reality and Augmented Reality (VRAR) direction to manage the tourism [18]. The training system of the professionals of managing the tourism was reformed using the digital media application technology. An analysis was conducted on a teaching technique of the talent training model. Diverse programs of talent training of several universities were compared, and the presented model was evaluated in experimentation. According to experimental results, the presented model was assisted in enhancing the overall learning efficiency up to 13.2% and maximizing the research ability in VR and AR technology up to 23.7%.

J. L. Romero-Gázquez, et.al (2022) designed a model in which the new technologies were inter-operated with each other and with employees, and a smart and effective setting was generated [19]. Moreover, a novel teaching-learning technique was recommended for the personalized learning paths. The recommendation and reinforcement methods were deployed, and the gamification process was executed for making the learning procedure more effective. An analysis was conducted on adopting the present status of I4.0 from the industry, employees, and training viewpoint. The curricula of vocational education training (VET) and higher education (HE) had not enough potentials. In the end, the European innovative training action IN4WOOD was put forward as an optimal tool for providing an easy way of learning, utilizing, and implementing KET of I4.0 to the students, employees, and managers. This tool was applicable in other business fields also. The results confirmed the effectiveness of the presented tool of training for bridging the skill gaps of the current VET/HE students and enhancing the affordability of employees, managers, and enterprises.

J. Ammann, et.al (2021) focused on performing an online survey among teachers and students of the farm management vocational programme across Switzerland [20]. Around 150 participants, in which 41 were teachers, considered. Participants led to answer the questions regarding the learning content in the programme of managing the farm. The students had to give report that they would earlier had a farm to be managed in the future, and whether they perceived FMIS. The outcomes depicted that the digital technologies acted significantly in agriculture and assisted in convincing the teachers and students. Around 43% of student participants were incapable of learning the digital technologies in their basic agricultural training and the farm management programme. Moreover, 515 students were not heard regarding FMIS during their farming training. The findings exhibited that for adopting the digital technologies and FMIS effectively, training for future farm managers had to learn the way of operating an FMIS for maximizing the perceived ease of deployment of this technology.

B. J. Kim, et.al (2021) focused on offering a practice-oriented evidence related to implement healthcare data analytics and its impact on the deployment of novel data analytics tools and relevant analytical skills enhancement [21]. A huge medical system was employed to carry out a quasi-experimental pre-/post-test controlled study. A comparative analysis was conducted on healthcare data analytics training program participants (N = 21) and trainee-identified peers completing comparable work (N = 27) when the training was initialized and one year later. Based on results, the trainees and peers had enhanced the data analytics skills over time. This study exhibited that the major intent of the healthcare organizations was to exploit a novel data analytics framework for providing well-designed training. Hence, the trainees became capable of improving only particular learning and performance objectives but relevant skills and capability for implementing novel tools also.

W. Xie, et.al (2021) established a cloud platform-based digital teaching and training system for combining the theory with practice, teaching with training, and enhancing the overall quality of teaching and training [22]. Three units were comprised in a hardware unit of the system: building unit of the cloud platform, the processor selection unit and the controller selection unit. The software module was executed to gather and process a teaching and training data, a

module for managing a training room and a module to generate a database. Both the modules made the implementation of the digital teaching and training system in vocational colleges. The experimental results revealed that the outcomes of the teaching and training quality were higher than the qualification standard. Moreover, the established system was effective to support the society in nurturing more high-skilled talent and research on the teaching and training system.

Y. Zhou, et.al (2021) projected a technique of questionnaire survey [23]. The initial phase was to gather the adequate data and conduct analysis on the present computer development direction of managing the information and an information system, professional talent training mode. A training mechanism group was put forward for discovering a training system to manage accounting talents in the direction of combining business and finance which the big data had generated. A mechanism of training accounting talents was also adopted. Some evaluation metrics were employed for quantifying the projected technique against the traditional methods. The outcomes validated that the professionals of presented required competency of 44.4%. Moreover, the theory and practice assisted in training the talents of information management and information system in Colleges and universities and fulfilling the actual requirements.

Comparison Table

| Author | Year | Technique Used | Findings | Limitations |
|---------------------|------|---|--|---|
| M. Irfan, et.al | 2020 | Partial Least Squares Structural Equation Modeling (PLS-SEM) approach | In addition, the analysis confirmed that the maturity of project management such as to manage the process management, perform the project management training, transmit the knowledge management, rapid progress and the deployment of software for managing the project management, laid impact on the reputation of the public sector organizations in Pakistan. | It was not possible to generalize the results due to the gathering of data from the project managers of public sector. |
| A. Ahmadi, et.al | 2023 | Bidirectional Encoder Representations from Transformers (BERT) and Doc2Vec algorithms | The results depicted that the initial algorithm performed more effectively in contrast to the latter one to pre-train the system in most of the scenarios. The findings demonstrated that the rank correlation of PMBOK knowledge regions was calculated 0.23 among the key content of the analyzed courses. | The scope was restricted to the Canadian universities only and it was not suitable for generalizing the data taken from other countries. There was not any similarity amid the content taught in these courses and in Stack Exchange. |
| J. Flotyński, et.al | 2021 | an ontology-based representation approach | The introduced approach was applicable for non-technical users and helped them in deploying the terminology of their domains of interest in the designing procedure. | The distributed users were not allowed to generate the scenarios collaboratively. Moreover, the performance of trainees was not assessed. |
| E. Andrade, et.al | 2023 | A multi-modal qualitative research case study technique | The first analysis depicted the potential of participants for implementing and interpreting the Digi-NewB interface. Moreover, the other analysis indicated that the satisfaction of participants with the training platform. The efficacy and effectiveness of this platform was proved to train the medical device. | The usage of the presented platform was not done comprehensively due to restricted amount of members. |

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|-----------------------------|------|---|---|--|
| H. Zhang, et.al | 2020 | Talent Training Model | According to experimental results, the presented model was assisted in enhancing the overall learning efficiency up to 13.2% and maximizing the research ability in VR and AR technology up to 23.7%. | The vitality of the primary document was found poor. |
| J. L. Romero-Gázquez, et.al | 2022 | a novel teaching-learning technique | The results confirmed the effectiveness of the presented tool of training for bridging the skill gaps of the current VET/HE students and enhancing the affordability of employees, managers, and enterprises. | This tool was not applicable for all the users and not an open source. |
| J. Ammann, et.al | 2021 | An online study system | The findings exhibited that for adopting the digital technologies and FMIS effectively, training for future farm managers had to learn the way of operating an FMIS for maximizing the perceived ease of deployment of this technology. | All the individuals were allowed to take participation which resulted in causing a bias in the present sample. It was not possible to check the particular regional differences among cantons. |
| B. J. Kim, et.al | 2021 | A novel data analytics model | The trainees became capable of improving only particular learning and performance objectives but relevant skills and capability also for implementing novel tools. | The employee was allowed to self-report which led to maximize the common-source biases. |
| W. Xie, et.al | 2021 | A cloud platform-based digital teaching and training system | The established system was effective to support the society in nurturing more high-skilled talent and research on the teaching and training system. | The small sized datasets resulted in alleviating the possibility to observe effects that were otherwise significant. |
| Y. Zhou, et.al | 2021 | a technique of questionnaire survey | The outcomes validated that the professionals of presented required competency of 44.4%. Moreover, the theory and practice assisted in training the talents of information management and information system in Colleges and universities and fulfilling the actual requirements. | The available data was not enough and the sample size was modest to consider differences in responses within staff groups. |

CONCLUSION

Management development involves various steps such as reviewing organizational goals, assessing current management resources, identifying individual needs, designing and implementing development programs, evaluating program effectiveness, and measuring the impact of training on participants' work-life quality. The machine learning and deep learning techniques is most advanced techniques for the training and development.

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