

Presenting a Conceptual Model of Human Resource Training at the Islamic Republic of Iran Broadcasting Based on E-Learning

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ABSTRACT

The present study was conducted with the aim of presenting a conceptual model of human resource training at the Islamic Republic of Iran Broadcasting (IRIB) based on e-learning. In terms of purpose, the research was applied, and in terms of nature, it was classified as an exploratory sequential mixed-methods study (qualitative–quantitative). The qualitative phase was conducted using a thematic analysis approach, and the quantitative phase was carried out using a descriptive survey method. The statistical population in the qualitative phase included a number of experts and specialists in the field of human resources, consisting of selected deputies, general directors, managers, and highly experienced and senior human resource experts. Data in this phase were collected through semi-structured interviews. The statistical population in the quantitative phase comprised all deputies, general directors, managers, and human resource experts of IRIB, totaling 500 individuals. In the qualitative phase, 10 key informants were selected through purposive non-probability sampling, and in the quantitative phase, participants were selected using stratified sampling based on the Morgan table. Face validity of the questionnaire was confirmed using expert professors' opinions, and content validity was examined through a Delphi method with the aid of Content Validity Ratio (CVR) forms. Construct validity was also assessed through convergent and discriminant validity using SmartPLS software, with all factor loadings exceeding 0.50. Reliability was confirmed using Cronbach's alpha, with coefficients exceeding the acceptable threshold of 0.70. The results indicated that the developed model consisted of 174 themes, 32 components, and 8 factors, which respectively included management and planning, use of advanced technology, social interactions, monitoring and evaluation, use of instructional images and videos, attention to educational content, attention to organizational goals, and educational development.

Keywords: Training, Human Resource Training, E-Learning

Introduction

Human resource training and development has entered a fundamentally new phase as organizations confront rapid technological change, digital transformation, and evolving expectations regarding workforce competencies. Traditional training paradigms, largely grounded in face-to-face instruction and linear skill acquisition, are increasingly insufficient for organizations operating in complex, media-intensive, and technology-driven environments. Contemporary human resource management emphasizes agility, continuous learning, and the



Article history:
Received 07 January 2026
Revised 15 March 2026
Accepted 08 April 2026
Published online 01 May 2026

How to cite this article:

Salehi, M., Hanifi, F., & Abdollahi, M. (2026). Presenting a Conceptual Model of Human Resource Training at the Islamic Republic of Iran Broadcasting Based on E-Learning. *Journal of Management and Business Solutions*, 4(3), 1-21. <https://doi.org/10.61838/jmbs.172>



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integration of digital tools to enhance organizational effectiveness and employee capability (1). Within this context, e-learning has emerged as a strategic mechanism that enables organizations to respond to knowledge volatility, geographical dispersion, and the need for scalable, cost-effective training systems.

E-learning is no longer merely a supplementary training method; rather, it constitutes an essential infrastructure for human resource development. Digital learning environments support asynchronous and synchronous interaction, facilitate personalized learning pathways, and enable systematic monitoring and evaluation of learning outcomes. Empirical evidence demonstrates that well-designed electronic training systems can significantly improve employee engagement, skill development, and organizational performance (2, 3). Consequently, organizations that fail to invest in structured and context-sensitive e-learning models risk lagging behind in terms of productivity, innovation, and human capital sustainability.

The strategic relevance of human resource development has been further amplified by global shifts toward knowledge-based economies and sustainable management practices. Green human resource management, competency-based development, and employee participation in learning processes all underscore the central role of training and development as a driver of long-term organizational value (4). Training systems are increasingly expected to align with broader organizational objectives, including innovation, social responsibility, and environmental stewardship. This alignment necessitates training models that are integrative, adaptive, and grounded in empirical understanding of organizational contexts.

In parallel, the rapid diffusion of artificial intelligence and advanced digital technologies has transformed the nature of work and the competencies required of employees. Human resource professionals are now expected to possess not only traditional managerial and interpersonal skills, but also advanced digital literacy, data analytics capabilities, and the ability to leverage AI-driven insights for strategic decision-making (5, 6). These developments place unprecedented pressure on organizational training systems to continuously update content, adopt innovative instructional technologies, and prepare employees for technologically mediated work environments. Legal and institutional dimensions of workforce transformation further reinforce the urgency of reforming job training structures to anticipate AI-based work arrangements (7).

The necessity of rethinking human resource training is particularly evident in large, complex, and mission-driven public organizations such as national media institutions. Media organizations operate at the intersection of technology, culture, and public accountability, requiring highly skilled human resources capable of adapting to rapid changes in content production, distribution platforms, and audience engagement. Research conducted within media organizations highlights persistent challenges related to organizational climate, creativity, governance, and performance management, all of which are closely linked to the quality and effectiveness of human resource training systems (8, 9).

In the context of the Islamic Republic of Iran Broadcasting (IRIB), human resource development assumes particular strategic significance. As a national media organization with extensive human, technical, and cultural responsibilities, IRIB faces continuous pressure to modernize its training systems while preserving organizational values and public missions. Prior studies within IRIB have examined dimensions such as organizational citizenship behavior, creativity management, leadership styles, and operational management during crisis conditions, consistently underscoring the pivotal role of structured training and development mechanisms (10-13). However, much of this research has focused on isolated aspects of human resource management rather than offering an integrated, technology-based training model.

Recent scholarly work increasingly emphasizes the importance of competency-oriented and value-based human resource development models. Validation studies of comprehensive HRD frameworks demonstrate that effective training systems must simultaneously address individual competencies, organizational culture, leadership alignment, and strategic objectives (14, 15). E-learning, when embedded within such holistic frameworks, can serve as a powerful enabler of competency development, knowledge sharing, and organizational learning. Nevertheless, the effectiveness of e-learning depends critically on contextual factors such as infrastructure readiness, content relevance, managerial support, and learner motivation.

Another key dimension in contemporary human resource training is the growing emphasis on learner-centered and self-directed development approaches. Concepts such as self-leadership and personalized learning highlight the shift from passive knowledge transmission to active capability building, where employees take responsibility for their own learning trajectories (16). Digital learning platforms are particularly well-suited to support such approaches, offering flexibility, interactivity, and adaptive learning pathways. However, without a coherent conceptual model, organizations may struggle to translate these theoretical advantages into practical outcomes.

Empirical evidence also suggests that large-scale online training initiatives, such as MOOC-based in-service programs, can significantly enhance access to learning opportunities and reduce training costs, provided that they are aligned with organizational needs and supported by appropriate governance mechanisms (17). In public and semi-public organizations, where budget constraints and workforce diversity are prominent concerns, e-learning models must balance efficiency with inclusiveness and quality assurance. Studies in diverse national contexts demonstrate that vocational training and digital learning infrastructures play a crucial role in improving employment outcomes and organizational capability, particularly when integrated with systematic evaluation and follow-up processes (18).

Despite the expanding body of literature on human resource training, several gaps remain evident. First, many studies address e-learning, AI adoption, or competency development in isolation, without articulating how these elements can be integrated into a unified training model tailored to specific organizational contexts. Second, empirical research within media organizations, particularly in developing and transitional economies, remains limited with respect to comprehensive e-learning-based human resource training frameworks. Third, existing models often lack robust validation across multiple organizational dimensions, such as management and planning, social interaction, organizational development, and alignment with strategic goals (19, 20).

Addressing these gaps requires the development of a conceptual model that captures the multidimensional nature of human resource training in digitally mediated environments. Such a model should integrate technological infrastructures, content development, evaluation mechanisms, organizational culture, and strategic alignment into a coherent framework. It should also reflect the specific operational realities of media organizations, including their reliance on creativity, rapid information flows, and public accountability. By grounding the model in empirical data and contemporary theoretical insights, it becomes possible to provide actionable guidance for policymakers, managers, and training professionals.

Furthermore, the increasing emphasis on organizational performance and return on investment in training initiatives underscores the need for evidence-based models that demonstrate tangible outcomes. Research consistently shows that well-designed human resource management practices, including training and development, are positively associated with employee engagement, productivity, and overall organizational performance (1, 3). In

this regard, e-learning offers unique opportunities for systematic data collection, performance tracking, and continuous improvement, provided that it is embedded within a strategically coherent training architecture.

In sum, the convergence of digital transformation, artificial intelligence, and evolving human resource development paradigms necessitates a reexamination of how organizations design and implement training systems. For complex media organizations such as IRIB, this challenge is particularly acute, given their scale, diversity of roles, and strategic societal functions. Existing research provides valuable insights into individual components of training and development, but an integrated, empirically validated conceptual model of human resource training based on e-learning remains underdeveloped.

Accordingly, the aim of this study is to design and validate a comprehensive conceptual model of human resource training based on e-learning within the context of the Islamic Republic of Iran Broadcasting.

Methods and Materials

The research method, in terms of purpose, was applied; in terms of data type, it was a mixed-methods study (qualitative–quantitative) based on thematic analysis; in terms of the time of data collection, it was cross-sectional; and in terms of data collection method and the nature of the research, it was descriptive–survey. The statistical population in the qualitative phase consisted of participants including a number of experts and specialists in the field of human resources, namely selected deputies, general directors, managers, and highly experienced and senior human resource experts. In the preliminary stage, in order to identify experts' viewpoints on the subject, multiple semi-structured interviews were conducted. The interview process was designed in such a way that after each interview, the data were coded (basic, organizing, and global themes) and analyzed so that, in addition to identifying the dimensions raised by the initial experts, these dimensions could be pursued in subsequent interviews. In the present study, after repetition of themes observed in the interviews, and to ensure the frequency of the findings, an additional complementary interview was conducted. Initially, interviews were conducted with eight expert informants; however, sufficient repetition in responses was not observed among these eight individuals. Therefore, in the first step, one additional participant was included in the interviews, and theoretical saturation was observed in some responses. Nevertheless, to ensure theoretical saturation, the researcher selected one more participant for interview, and after analyzing their responses, theoretical saturation of the identified components and indicators was achieved. In consultation with the supervisor and advisor, the inclusion of additional interviewees was deemed unnecessary. Accordingly, the sample size and number of participants in the qualitative phase of the study were 10 individuals.

The statistical population in the quantitative phase included all deputies, general directors, managers, and human resource experts of the Islamic Republic of Iran Broadcasting, totaling 500 individuals, of whom 150 were women and 350 were men. Based on the Krejcie and Morgan table, the sample size in the quantitative phase was determined to be 217 individuals. In the qualitative phase, theoretical sampling was used to identify and select experts in the field. In this method, the researcher identified each participant by considering specific criteria and through referral by previously identified experts. In the quantitative phase, stratified random sampling was employed. In other words, the required 217 samples were selected proportionally according to gender distribution in the study population, such that 65 female employees and 152 male employees were randomly selected as research samples. Data were collected using two methods: documentary (library-based) and field methods. The data collection instrument in the qualitative phase consisted of semi-structured interviews. In individual interviews

with respondents, eight general interview questions were used for preliminary exploration, which were derived from the research topic and objectives. The data collection instrument in the quantitative phase consisted of a questionnaire comprising two sections: demographic information and a researcher-developed questionnaire. The researcher-developed questionnaire on factors affecting human resource training based on e-learning included 174 items, which were developed through a review of theoretical and practical foundations as well as the results of exploratory interviews.

To ensure the validity of the instruments in the qualitative phase and to enhance the accuracy of the findings from the researcher's perspective, the valuable opinions of professors familiar with this field and organizational experts with relevant expertise were utilized. At the same time, participants were also involved in the analysis and interpretation of the data. Reliability in interviews was considered across stages such as interview setting, transcription, and analysis. In addition, respondent reliability referred to the manner in which questions were guided. Transcription reliability required attention to intra-subject consistency of transcriptions performed during text typing by two individuals. During the categorization of interviews, attention to the percentages of agreement reported by two coders served as a method for determining reliability. The level (percentage) of intra-subject agreement between the two coders (which should be 60% or higher) for a single interview (analysis check) was also used as a method for assessing analysis reliability. In the present study, test–retest reliability and intra-subject agreement were used to calculate the reliability of the conducted interviews. To compute test–retest reliability, several interviews were selected as samples from the conducted interviews, and each was re-coded within a short and specified time interval. The codes identified at the two time points for each interview were then compared, thereby confirming validity and reliability in both phases. The data analysis method in the qualitative phase involved theoretical coding derived from the Attride-Stirling approach. In the quantitative phase, confirmatory and exploratory factor analyses and modeling were conducted using SmartPLS software, version 2.

Findings and Results

First, the data collected through semi-structured interviews were analyzed using the thematic analysis method. Accordingly, after identifying basic, organizing, and global themes, the identified themes were entered into the MAXQDA software and categorized as organizing and global themes using this software. To design the model, quantitative analyses were employed after confirming the normality of the data.

Table 1. Results of the Normality Test of the Data

Indicator	Management and Planning	Use of Modern Technologies	Social Interactions	Diversity of Training Methods	Attention to Organizational Goals	Organizational Development	Attention to Training Content	Monitoring and Evaluation
N	217	217	217	217	217	217	217	217
Mean	5.382	4.197	4.272	5.432	5.126	5.207	4.165	5.414
Standard Deviation	2.186	2.181	2.173	2.279	2.211	2.335	2.025	2.198
Upper Bound (Maximum)	0.078	0.086	0.074	0.076	0.074	0.078	0.071	0.074
Differences (Positive / Negative)	0.078 / -0.048	0.086 / -0.071	0.074 / -0.069	0.076 / -0.056	0.074 / -0.072	0.078 / -0.071	0.071 / -0.064	0.074 / -0.070
Kolmogorov–Smirnov Z	1.045	1.159	0.994	1.016	0.992	1.044	0.987	1.016
Significance Level (p)	0.224	0.136	0.277	0.253	0.278	0.226	0.293	0.261

The results presented in Table 1 indicate that all identified factors satisfy the assumption of normality.

Table 2. Factor Analysis in the Management and Planning Dimension

Component	Factor Loading	Indicators	Dimension Path Coefficient
Appropriate planning for learning	0.879	Training courses should be designed to be useful, engaging, understandable, and regularly updated.	0.994
	0.856	Strong planning and appropriate scheduling in conducting courses are very important.	
	0.885	A training expert should conduct a needs assessment of organizational staff before planning courses so that courses are held based on employees' needs.	
	0.855	Training should be goal-oriented.	
	0.839	Training should be comprehensive.	
	0.870	Providing appropriate environmental conditions for conducting e-learning, subject to adequate internet bandwidth.	
Appropriate budgeting	0.932	Allocating an appropriate budget to enhance e-learning.	0.861
	0.949	Human resource training can adopt a long-term (five-year) educational horizon and plan its programs, objectives, and missions accordingly (short-term, medium-term, and long-term planning) to align educational planning with e-learning.	
	0.930	E-learning entails lower costs than face-to-face training, as it does not require expenses related to physical attendance and provision of classroom facilities.	
Attention to challenges of conducting e-learning courses	0.852	Existing limitations in telecommunication networks, such as low bandwidth.	0.825
	0.849	Ambiguities in guidance provided to learners through e-learning.	
	0.858	Lack of adequate infrastructure in the field of e-learning.	
	0.848	High costs of instructional equipment and internet services.	
	0.879	Lack of appropriate technological platforms for e-learning.	
	0.877	Low internet speed.	
	0.807	In distance education courses, learners do not experience verbal interaction with instructors and other learners to the same extent as those attending face-to-face classes.	
	0.793	In traditional classes, learners' performance can be immediately assessed through questions and informal tests; in distance learning, learners must wait for feedback until the instructor reviews and responds.	
	0.751	The quality of instructional content may be insufficient and may not meet employees' needs.	
	0.814	Some employees and managers may resist change and the adoption of e-learning.	
	0.860	In e-learning, assessment may be less accurate and precise because some organizational members may not succeed in training, and due to the lack of physical presence, this may not be properly evaluated.	
	0.861	E-learning requires access to technology and stable internet, which may not be available to some organizational members.	
	0.862	E-learning requires high self-motivation and concentration, which may be difficult for some organizational members.	
	0.836	In e-learning, there is no direct, face-to-face interaction between instructor and learner, which may reduce training effectiveness.	
	0.883	The motivation of instructors and learners to implement e-learning is highly important for improving this type of learning.	
Creating motivation to participate in courses	0.920	To motivate employees, rewards and incentives can be used for active participation in e-learning.	0.564
	0.917	To develop e-learning, organizational members need to be encouraged and motivated to participate.	
	0.861	Full cooperation of managers and supervisors and their emphasis on colleagues' training.	
Organizational support	0.846	Managers should also have sufficient knowledge and a comprehensive perspective on e-learning so that, if training encounters problems, they can guide their employees.	0.777
	0.883	Colleagues' attitudes toward the virtual environment should be positive.	

Training needs assessment	0.910	Managers should emphasize the importance of e-learning within the broadcasting organization so as to increase learners' motivation and enable participation in training courses.	0.727
	0.823	Managers can support employees in the field of e-learning and contribute to its improvement and expansion.	
	0.866	Organizational leadership support is crucial for the successful implementation of e-learning.	
	0.952	Prior to conducting courses, training experts should assess employees' training needs, categorize learners according to job titles, and justify learners regarding the training courses.	
	0.961	Before holding training courses, training officials and experts should assess employees' needs for upcoming courses and coordinate with relevant instructors.	
	0.943	Training needs assessment of learners, based on which training courses can be conducted.	

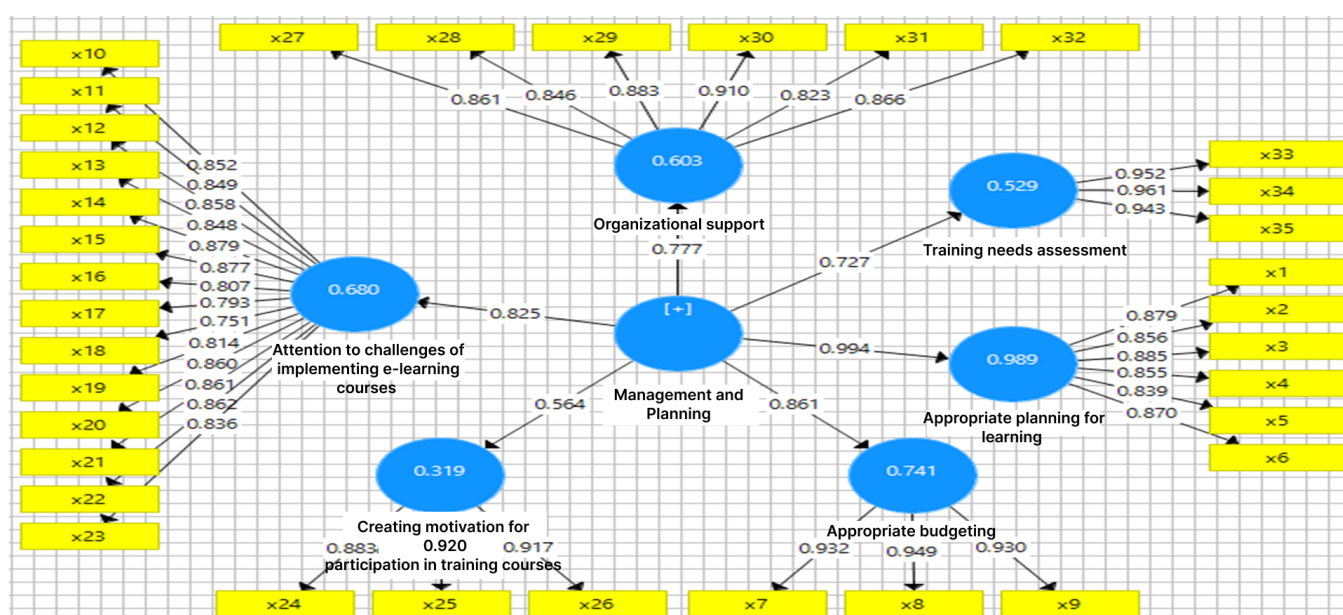


Figure 1. Factor analysis in the management and planning dimension.

Table 3. Factor Analysis in the Dimension of Using Modern Technologies

Component	Factor Loading	Indicators	Dimension Path Coefficient
Use of artificial intelligence and blockchains	0.904	Platforms and software should be used that provide all e-learning functionalities, and multiple software tools should be employed so that, in the event of potential problems, alternative software can be easily used.	0.674
	0.905	The use of videos, tests, and webinars that learners and organizational staff can utilize will certainly enhance experience and increase skills in e-learning.	
	0.866	In human resource training at the broadcasting organization, it is necessary to provide an electronic and educational platform; moreover, the web infrastructure, bandwidth, and speed should be increased, and appropriate educational and technical facilities should be provided in provincial centers.	
	0.871	Use of internet communication tools.	
	0.908	E-learning infrastructures such as internet access and computers must be available.	
	0.874	The use of advanced technologies such as virtual reality, sensors, smartphones, and similar tools is useful for improving the learning experience and increasing interaction with e-learning courses.	
	0.850	Graphical design of the e-learning environment, which can attract learners; in the broadcasting organization, these infrastructures should be upgraded.	
Gamification	0.850	Graphical design of the e-learning environment, which can attract learners; in the broadcasting organization, these infrastructures should be upgraded.	0.595

Use of knowledge from other organizations and successful countries	0.825	Consultation with institutions and organizations that can enhance technical infrastructures in the field of e-learning.	0.520
	0.918	Attractive content design and graphic creativity, which can be appealing and highly important from learners' perspectives.	
	0.874	Use of software through which training courses can be conducted.	
	0.856	Teaching with educational software featuring attractive graphic design can have a significant impact on instructors and learners.	
	0.893	E-learning requires platforms that should be optimal and ideal; if they have deficiencies, they should not disrupt the learning environment.	
	0.815	Contracting with an educational institute or organization to enhance e-learning in the broadcasting organization in order to benefit from their experiences.	
	0.896	To achieve a clear horizon, it is necessary to use the knowledge and experiences of governmental institutions to enhance e-learning and increase learners' skill levels.	
	0.898	Experiences of instructors and experts in the field of e-learning can be used to improve e-learning in the broadcasting organization.	
	0.892	Establishing appropriate connections between human resource training and universities and academic centers, employing university faculty, and using their viewpoints to promote e-learning in the broadcasting organization.	
	0.873	Use of educational experiences of institutions and organizations that have implemented e-learning.	
	0.880	Establishing connections with countries that have achieved progress in e-learning and using their experiences.	
	0.881	Utilizing experiences of countries that have been active in the field of e-learning.	

The results of Table 3 showed that among the three components examined, only the component “use of artificial intelligence and blockchains” had a factor loading above 0.60. The two components “gamification” and “use of knowledge from other organizations and successful countries,” due to having factor loadings below 0.60, were excluded from the model.

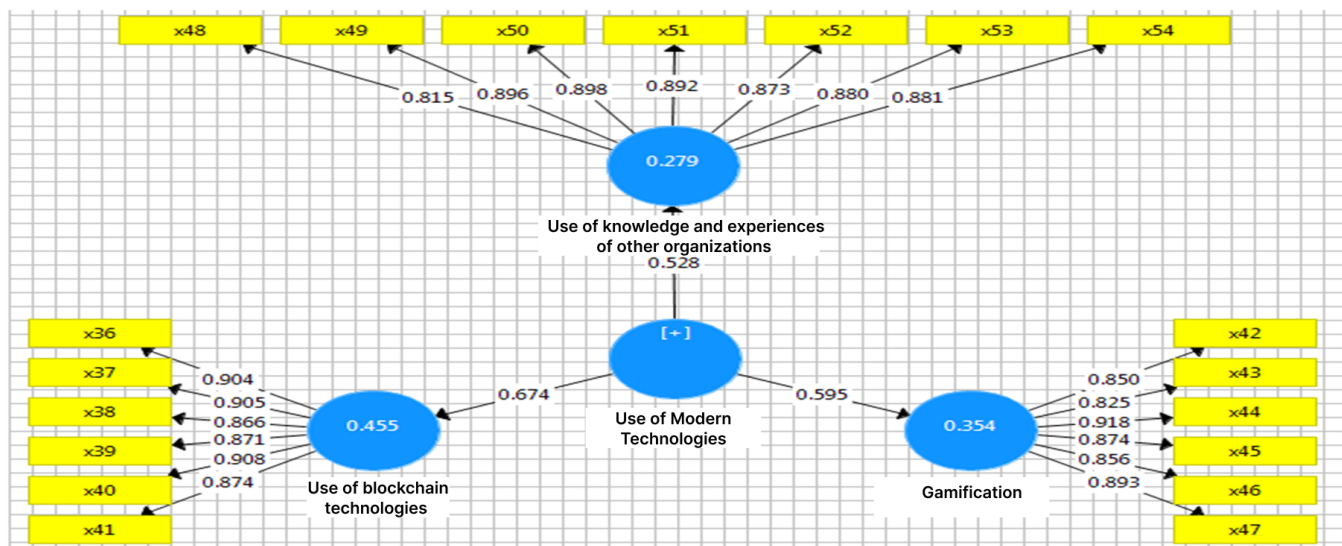


Figure 2. Factor analysis in the dimension of using modern technologies.

Table 4. Factor Analysis in the Dimension of Social Interactions

Component	Factor Loading	Indicators	Dimension Path Coefficient
Conducting collaborative activities	0.934	Increasing the participation of instructors and learners in the teaching–learning and production processes.	0.700
	0.929	In e-learning, interaction between learners and instructors is very high.	

Use of facilities and social networks	0.870	Providing a space for interaction among participants in e-learning courses is among effective strategies.	0.691
	0.889	Training managers can conduct their training courses using social networks.	
	0.940	Use of social networks.	
	0.934	Social networks can establish two-way communication between employees and managers, enabling them to benefit from information and training aimed at enhancing their professional skills in the virtual environment.	
Personalized learning	0.888	Knowledge and information sharing among employees can play a significant role in their improvement and development.	0.762
	0.858	It facilitates communication and interaction between learners and instructors.	
	0.887	To improve and enhance e-learning in the field of human resources, it is necessary to establish collaborative arrangements between learners and instructors who specialize in human resources; this factor can lead to the expansion of e-learning.	
	0.858	Communication between instructor and learner can be effective in improving and enhancing e-learning.	
	0.879	The use of interactive learning methods is necessary.	

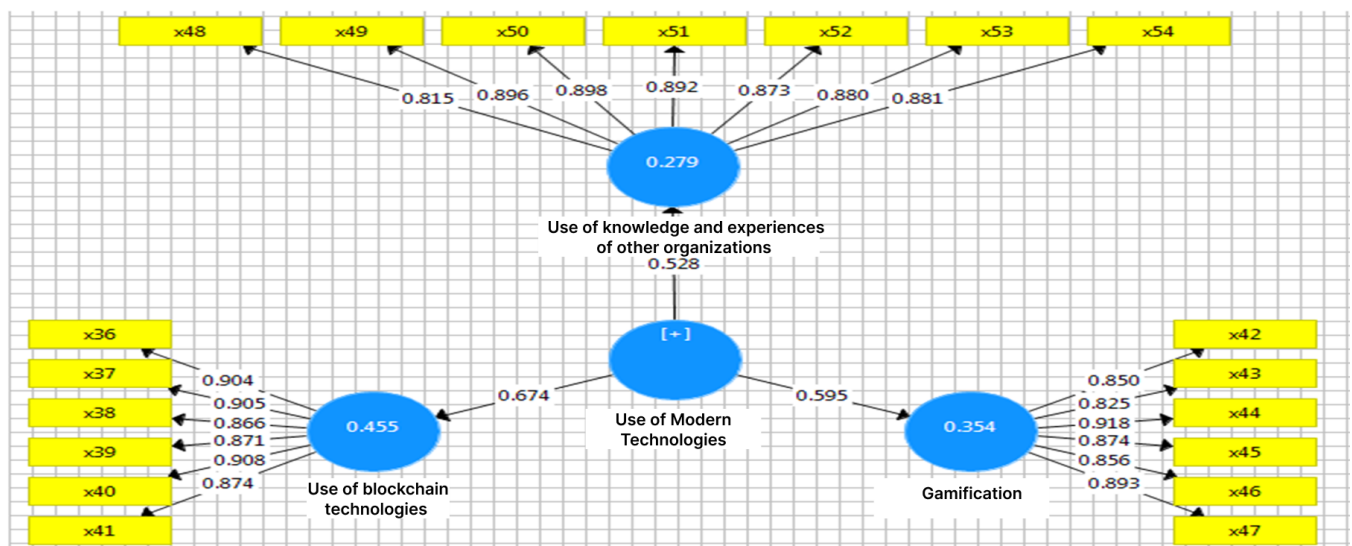


Figure 3. Factor analysis in the dimension of social interactions.

Table 5. Factor Analysis in the Monitoring and Evaluation Dimension

Component	Factor Loading	Indicators	Dimension Path Coefficient
Evaluation of learning quality	0.836	The relevant expert should evaluate the conducted training course, including the instructor, the manner of course delivery, and the training environment and venue, and address strengths and weaknesses in subsequent courses.	0.754
	0.923	At the end of these courses, various feedback should be collected through electronic questionnaires, and presentation shortcomings and conceptual ambiguities should be addressed.	
	0.929	After course implementation, follow-up is required to determine where these processes are applicable and in which areas they have influenced individuals' performance.	
	0.871	Providing opportunities for evaluation and feedback to participants in e-learning courses facilitates improvement in their learning.	
Designing an appropriate evaluation system	0.853	The absence of many learners from physical classes and their exclusively online participation.	0.799
	0.890	After the training stages, evaluations should be conducted regarding the implementation site, the instructor, and the learners to determine whether the training courses were appropriate.	

Determining the level of progress	0.893	Human resource training should maintain appropriate supervision over the implementation of training courses so that problems and shortcomings observed in each course can be addressed in the future.	0.743
	0.916	Evaluation and monitoring methods should be defined to assess the effectiveness of e-learning, and to achieve continuous improvement, the results of these evaluations should be reviewed.	
	0.892	To enhance the quality of e-learning, accurate and proper evaluations are necessary to identify existing weaknesses and improve them.	
	0.939	At the end of the course, evaluations should be conducted regarding the quality and quantity of training courses, including the instructor's teaching method and hardware and software facilities in e-learning.	
	0.908	Training experts should conduct diagnostic, formative, and summative evaluations to determine the level of learning achieved by participants in the training course.	
Training continuity	0.875	To ensure the quality of educational content, the content should be carefully evaluated and employees' feedback should be utilized.	0.950
	0.889	Having a documented plan from the beginning to the end of training.	
	0.943	Continuous and long-term educational planning for conducting training courses during the COVID-19 period and even after it should continue.	
	0.939	Training should be conducted continuously and sequentially.	

The results of Table 5 indicate that all indicators and components have factor loadings above 0.60.

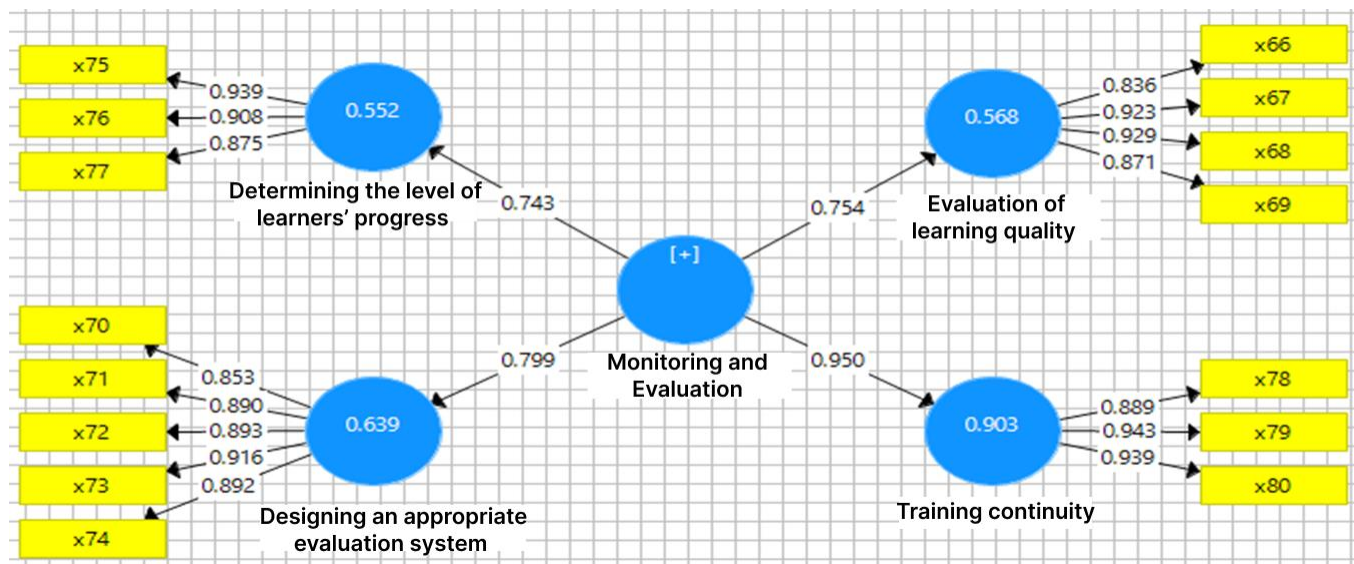


Figure 4. Factor analysis in the monitoring and evaluation dimension.

Table 6. Factor Analysis in the Dimension of Diversity of Training Methods

Component	Factor Loading	Indicators	Dimension Path Coefficient
Use of instructional images and videos	0.917	Instructional videos related to job fields and job titles relevant to employees' work domains.	0.792
	0.900	The use of images, videos, text, and audio files can make e-learning more engaging.	
	0.910	Using diverse instructional methods such as video, audio, images, practical exercises, and similar approaches is beneficial for improving and enhancing e-learning.	
MOOC-based courses	0.876	E-learning can be used anytime and anywhere and plays an important role in information sharing among employees.	0.774
	0.845	Creating learning opportunities for employees in all departments, especially operational, content production, support, and technical units, given the limited time allocated to training in these areas.	
	0.853	Learners can study and attend classes anywhere they have access to a computer and an internet connection.	
	0.853	By offering e-learning courses, organizational members can easily access educational content and engage in learning at any time and place of their choosing.	

Expansion of training	0.887	Creating opportunities for learners who have missed formal education and can achieve educational and knowledge advancement within the organization.	0.752
	0.866	Compared to traditional training, e-learning allows the attraction of a larger number of learners into classes.	
	0.860	Human resource managers and experts should use these types of training to expand and diversify training capacity through information technology and respond to societal needs.	
	0.896	Providing easy online access methods for users to educational content.	
	0.904	Through e-learning, educational content becomes more diverse and extensive.	
Use of employees' expertise	0.923	Attracting elites with outstanding backgrounds in the field of e-learning.	0.816
	0.906	Organizational employees can influence their managers to prioritize e-learning within their work agendas.	
	0.898	Training experts need to understand the stages of the training process (needs assessment, design, implementation, and evaluation) and conduct training courses accordingly.	
	0.879	Utilizing students who are active in the field of e-learning and benefiting from their experiences.	
	0.901	There is a need for experts and specialists with comprehensive mastery in the educational field, particularly e-learning, who can address employees' needs internally.	
	0.891	Without competent and specialized human resources, development of organizational infrastructure, particularly in the dimension of e-learning, is not possible.	

The results of Table 6 indicate that all indicators and components have factor loadings above 0.60.

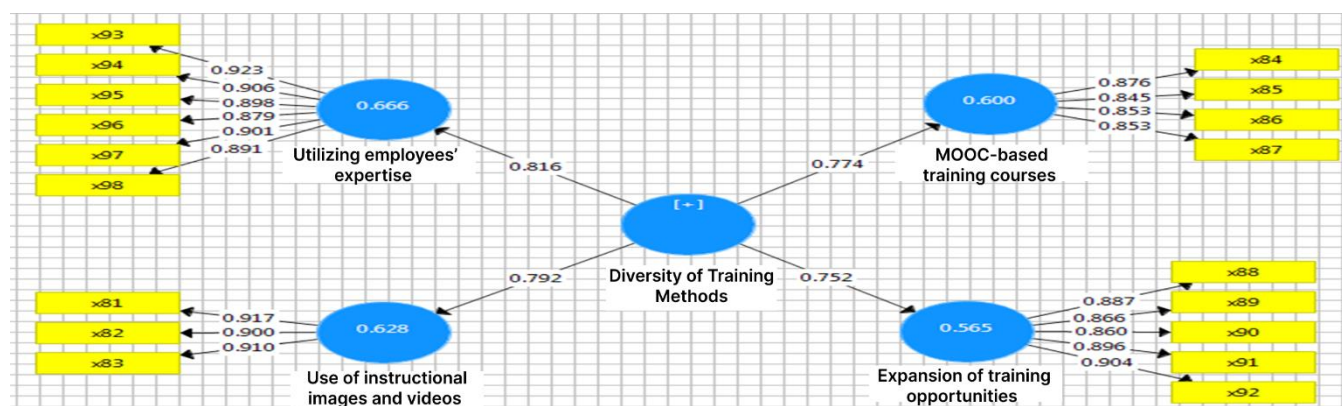


Figure 5. Factor analysis in the dimension of diversity of training methods.

Table 7. Factor Analysis in the Dimension of Attention to Training Content

Component	Factor Loading	Indicators	Dimension Path Coefficient
Attention to participants' needs	0.913	Improving training quality (training aligned with organizational needs and continuous training for employees) and sequencing training delivery across different levels of the organization's workforce.	0.743
	0.889	Developed materials should have a direct relationship with participants' job fields and assist them in performing their organizational tasks and activities.	
	0.856	Alignment of delivered content with employees' job-related needs.	
	0.848	For the development of e-learning, it is necessary to identify organizational members' needs and address them through e-learning courses.	
	0.794	To improve e-learning, attention should be paid to participants' needs and the desired training courses should be offered accordingly.	
Providing engaging and diverse content	0.871	Appropriate design of educational content.	0.676
	0.944	Content should be rich and comprehensive to compensate for the lack of physical presence in traditional classrooms.	

Use of specialized instructors	0.927	To attract organizational members to e-learning, it is necessary to provide engaging and diverse content that captures their attention.	0.730
	0.864	Utilizing instructors with experience in this field.	
	0.794	Practical applicability of educational materials and instructors' mastery of the content.	
	0.841	Using the experiences of instructors and experts in the field of e-learning.	
	0.876	Organizational employees are fully familiar with the culture of content production and dissemination in the broadcasting environment; therefore, they can more easily engage with e-learning.	
	0.866	Mastery of learning agents, including instructors, facilitators, training experts, and training implementers.	
	0.857	To implement high-quality e-learning, instructors require specific skills.	

The results of Table 7 indicate that all indicators and components have factor loadings above 0.60.

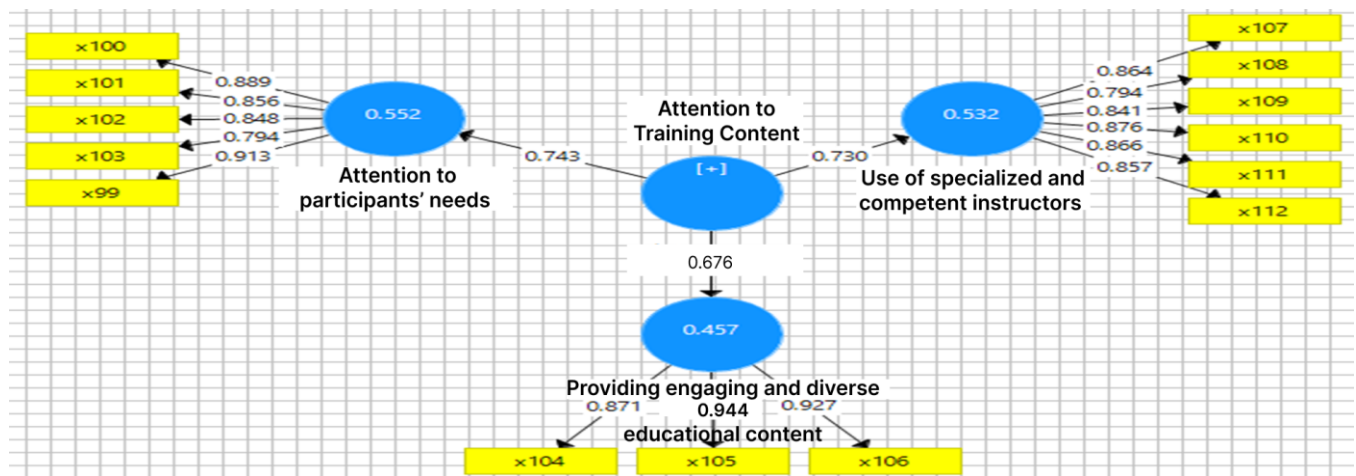


Figure 6. Factor analysis in the dimension of attention to training content.

Table 8. Factor Analysis in the Dimension of Attention to Organizational Goals

Component	Factor Loading	Indicators	Dimension Path Coefficient
Attention to organizational cultural goals	0.821	Developing a culture of technology use in daily activities and equipping organizations with subsidies and access to the global network.	0.846
	0.897	Institutionalizing e-learning to further encourage employees and promote awareness of the benefits these trainings provide to organizational staff.	
	0.884	Creating a blame-free culture, involving employees in improving organizational structure, and avoiding gender discrimination in recruitment can be effective in cultural dimensions.	
	0.843	Institutionalizing the status of e-learning among employees similar to traditional training and embedding e-learning culture in organizational training.	
	0.893	In organizations where a learning culture (i.e., a learning organization) prevails, e-learning is implemented more easily and effectively.	
Attention to organizational social goals	0.913	E-learning can contribute to strengthening organizational culture; by offering e-learning courses centered on organizational values, members can be aligned toward shared ideologies and values.	0.813
	0.955	E-learning can increase interaction among employees, enable them to use each other's ideas and opinions, and enhance participation among staff.	
	0.945	Establishing two-way interaction and communication between learners and instructors, which can be socially effective.	
	0.941	E-learning can strengthen relationships among organizational members; by providing spaces for interaction in e-learning courses, social relations and collaboration can be enhanced.	

Attention to educational goals	0.901	Increasing employees' skills, knowledge, and insight so that training contributes both to individual development and to achieving organizational goals.	0.845
	0.865	Addressing weaknesses identified in e-learning courses in subsequent offerings.	
	0.875	To enhance the knowledge and insight of managers and organizational colleagues, necessary training should be provided to promote self-development and advance organizational objectives.	
	0.917	Educational content for learners should be regularly updated.	
	0.889	E-learning can improve the knowledge and insight levels of organizational members; by offering courses focused on required technical and scientific skills, expertise can be enhanced.	
Attention to organizational performance goals	0.839	Preventing learners' time loss through the implementation of virtual courses.	0.790
	0.811	Ensuring that conducted training courses are aligned with job titles, which is important for the development and expansion of e-learning.	
	0.919	Preventing task overlap, increasing individual efficiency and organizational effectiveness, fostering latent talents, strengthening morale, and creating organizational stability.	
	0.884	Creating coordination in work processes.	
	0.865	At the end of training courses, learners should express their satisfaction with the conducted e-learning programs.	
	0.898	E-learning provides organizational members with greater flexibility in training, as they can learn at different times according to their work schedules.	

The results of Table 8 indicate that all indicators and components have factor loadings above 0.60.

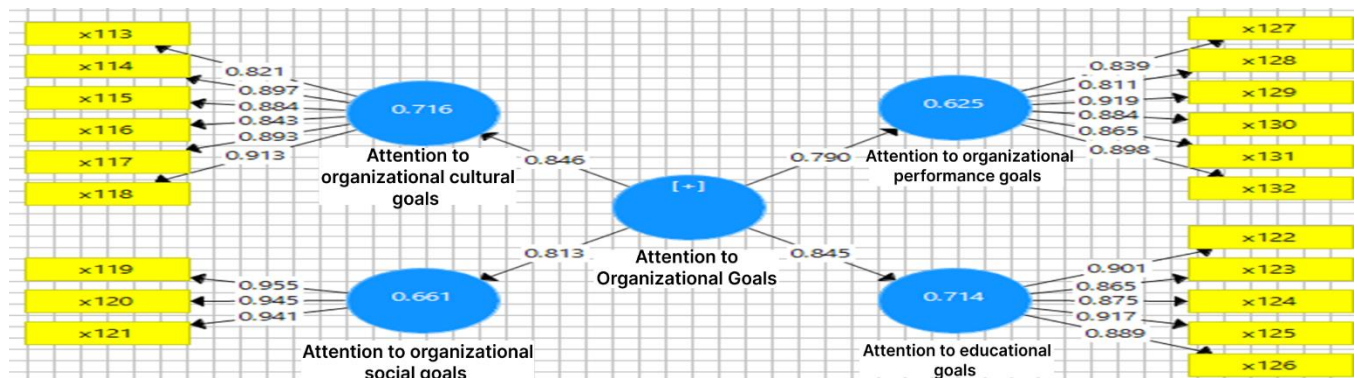


Figure 7. Factor analysis in the dimension of attention to organizational goals.

Table 9. Factor Analysis in the Dimension of Organizational Development

Component	Factor Loading	Indicators	Dimension Path Coefficient
Technology development	0.855	With the development of technology, e-learning facilities improve and organizational members can easily use them.	0.740
	0.913	Quantitative and qualitative expansion of educational software production to enhance e-learning.	
	0.915	Updating educational infrastructure and equipment.	
	0.901	To implement high-quality e-learning, it is necessary to provide required technical infrastructures, including learning management systems, e-learning platforms, and other relevant equipment.	
Development of educational content	0.876	Establishing technical infrastructures.	0.776
	0.819	Instructors and trainers should update and revise educational content.	
	0.823	Educational content should be up to date and employ new methods in e-learning.	
	0.882	In e-learning, diverse teaching approaches and learning theories can be utilized.	

Employee empowerment	0.865	In e-learning, content should be designed to advance educational objectives, increase learners' academic load, and be usable for learners.	0.925
	0.799	Improving quality fosters competition among employees and between the organization's human resource training and other institutions.	
	0.812	To institutionalize e-learning, the broadcasting organization needs to develop strategic plans, regulations, and guidelines for cyberspace and plan solutions over short-, medium-, and long-term horizons.	
	0.872	Enhancing the quality of training and educational content.	
	0.882	Inclusion in upstream policy documents in the field of training.	
	0.893	Optimal utilization of organizational capacities.	
	0.823	Producing and developing educational content aligned with organizational and employees' needs is essential; therefore, specialized content development teams should be formed.	
	0.841	Content development includes producing and compiling educational content, images, videos, and other learning resources; in the broadcasting organization, educational content is produced for many different domains.	
	0.830	Ability to solve problems scientifically.	
	0.831	Development of job-related skills.	
Research and development	0.734	With the expansion of e-learning courses in institutions and educational centers, employees and students are expected to actively use these courses and acquire skills necessary to perform their duties.	0.983
	0.871	Applying this instructional method can empower employees in skill-based and knowledge-based dimensions through the use of information and communication technologies, leading to increased productivity and expanded organizational functions.	
	0.854	The more empowered employees are in e-learning, the greater their creativity in organizational processes.	
	0.854	These trainings increase discipline and required skills among employees, enhance coordination, align employees with organizational goals, increase job satisfaction, and improve morale.	
	0.813	For effective use of e-learning, employees must actively participate; therefore, employee empowerment is necessary.	
	0.789	Participation in exhibitions and conferences and authoring multiple articles in the field of e-learning.	
	0.865	Through comparative studies conducted by human resource training experts in other countries, organizations can benefit from the latest achievements in this field to enhance organizational goals.	
	0.913	Using articles and books and participating in conferences and seminars.	
	0.923	Rational decision-making.	
	0.902	Utilizing feedback in revising and correcting programs.	
Return on investment (ROI)	0.872	Holding conferences and seminars on e-learning and strategies that can contribute to the development and expansion of e-learning in the broadcasting organization.	0.943
	0.877	Units and teams can be successful if they draw upon psychology, adult learning, and learning theories.	
	0.870	Attention should be given to research and development in e-learning to identify more effective learning methods for the Islamic Republic of Iran Broadcasting.	
	0.864	Simultaneous training of a large number of learners and reduction of course implementation costs.	
	0.911	E-learning reduces costs, as learners do not need to travel long distances and can complete training using a laptop; many universities adopted e-learning during the COVID-19 period.	
	0.921	High costs and limitations of training and retraining human resources encourage the use of advanced and alternative technologies to reduce costs, improve training quality, and expand equitable access to educational resources.	
	0.857	E-learning results in cost savings because there is no need to travel long distances to attend physical classes.	
	0.793	E-learning saves time and is significantly less costly.	
	0.780	Organizational employees achieve a level of knowledge and awareness that increases productivity.	
	0.855	In e-learning, the broadcasting organization can compete with other organizations and enhance competitiveness through innovation and the adoption of successful ideas and initiatives.	
Organizational excellence	0.918	Ability to integrate information and create new knowledge sets.	0.862

0.879	Creating added value.
0.873	Strengthening efficient human resources in scientific and technical dimensions across operational, administrative, and support units.
0.870	Developing virtual training instead of relying on traditional methods improves educational system productivity, reforms organizational functions, enhances service delivery, and ultimately leads to organizational excellence.

The results of Table 9 indicate that all indicators and components have factor loadings above 0.60.

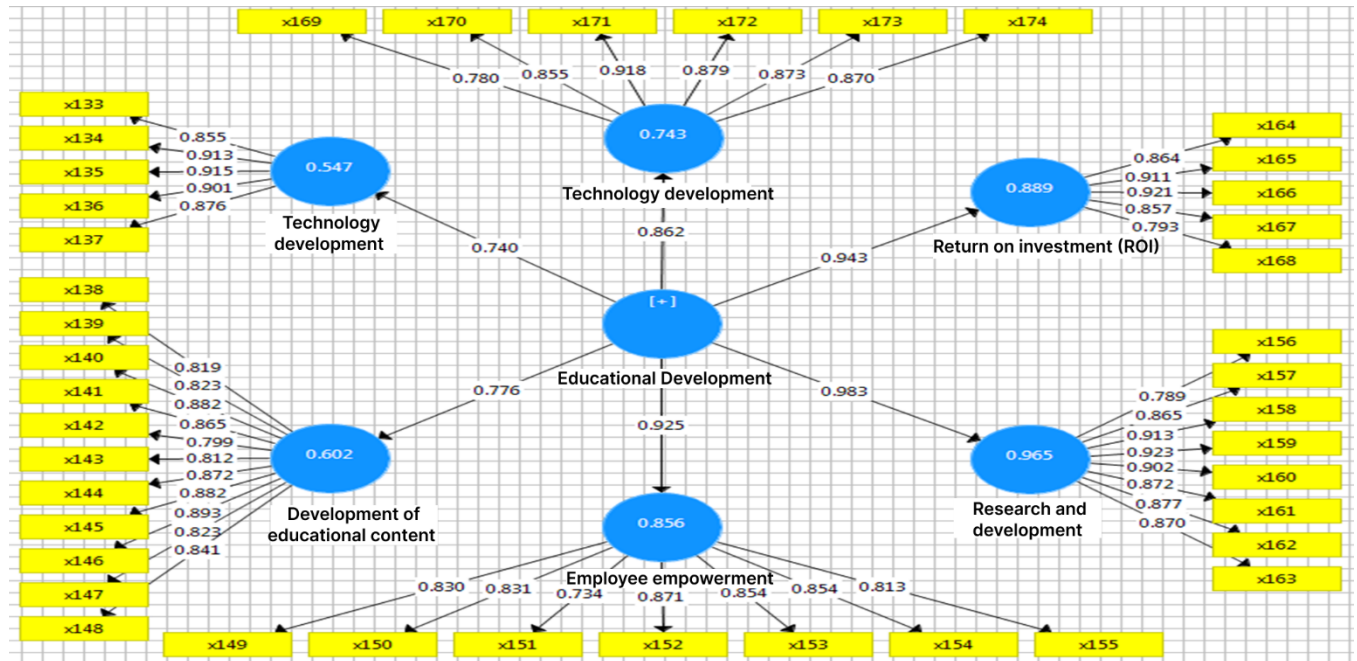


Figure 8. Factor analysis in the dimension of organizational development.

Based on the conducted factor analysis among the identified components, it was found that out of 33 identified components, two components (gamification and use of knowledge from other organizations and successful countries) had factor loadings below 0.60, while 31 components had factor loadings above 0.60. Therefore, in the final model, the two components were excluded, and based on factor loadings greater than 0.60, the final model was developed as follows.

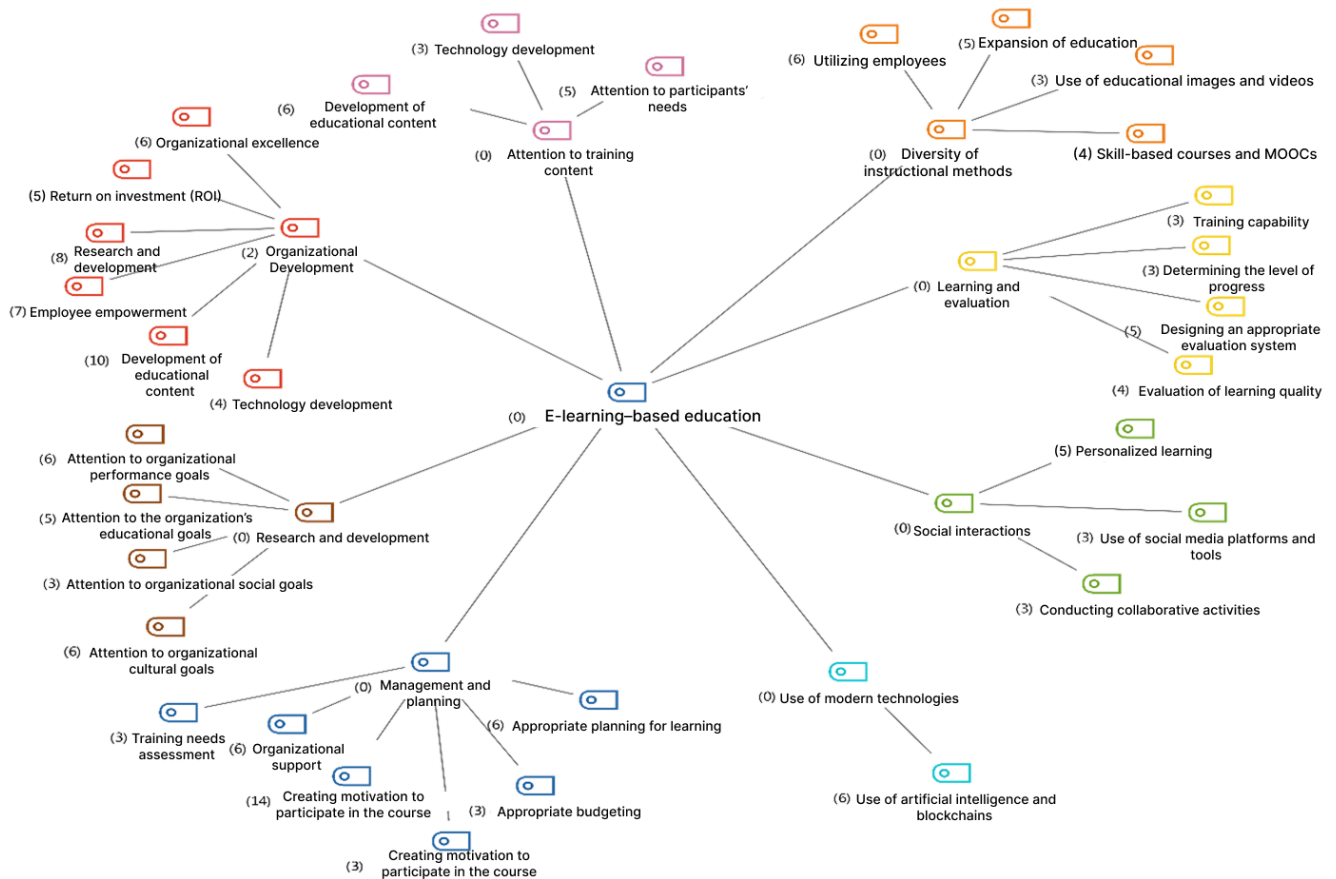


Figure 9. Final model of human resource training based on e-learning.

Table 10. Model Fit Indices of the Human Resource Training Model Based on E-Learning

No.	Dimensions	Absolute / Relative Fit Indices	Final Fitted Model	Evaluation Criterion	Result
1	Management and Planning	Chi-square/df	4.412	≤ 5	Acceptable
		RMSEA	0.068	< 0.10	
		SRMR	0.071	< 0.08	
		GFI	0.92	≥ 0.90	
		NDI	0.93	≥ 0.90	
		CDI	0.92	≥ 0.90	
2	Organizational Development	Chi-square/df	3.947	≤ 5	Acceptable
		RMSEA	0.071	< 0.10	
		SRMR	0.058	< 0.08	
		GFI	0.90	≥ 0.90	
		NDI	0.90	≥ 0.90	
		CDI	0.91	≥ 0.90	
3	Monitoring and Evaluation	Chi-square/df	4.114	≤ 5	Acceptable
		RMSEA	0.086	< 0.10	
		SRMR	0.058	< 0.08	
		GFI	0.92	≥ 0.90	
		NDI	0.93	≥ 0.90	
		CDI	0.92	≥ 0.90	
4	Diversity of Training Methods	Chi-square/df	3.980	≤ 5	Acceptable
		RMSEA	0.085	< 0.10	
		SRMR	0.077	< 0.08	
		GFI	0.91	≥ 0.90	
		NDI	0.91	≥ 0.90	
		CDI	0.91	≥ 0.90	
5	Attention to Organizational Goals	Chi-square/df	3.744	≤ 5	Acceptable

6	Use of Modern Technologies	RMSEA	0.094	< 0.10	Acceptable
		SRMR	0.071	< 0.08	
		GFI	0.90	≥ 0.90	
		NDI	0.90	≥ 0.90	
		CDI	0.90	≥ 0.90	
7	Social Interactions	Chi-square/df	3.925	≤ 5	Acceptable
		RMSEA	0.095	< 0.10	
		SRMR	0.069	< 0.08	
		GFI	0.92	≥ 0.90	
		NDI	0.92	≥ 0.90	
8	Attention to Educational Content	CDI	0.92	≥ 0.90	Acceptable
		Chi-square/df	3.818	≤ 5	
		RMSEA	0.090	< 0.10	
		SRMR	0.068	< 0.08	
		GFI	0.92	≥ 0.90	
		NDI	0.92	≥ 0.90	
		CDI	0.92	≥ 0.90	
		Chi-square/df	3.911	≤ 5	
		RMSEA	0.091	< 0.10	
		SRMR	0.067	< 0.08	
		GFI	0.93	≥ 0.90	
		NDI	0.93	≥ 0.90	
		CDI	0.93	≥ 0.90	

The results of Table 10 indicate that the model fit statistics are within acceptable levels. Furthermore, considering other absolute and relative fit indices such as Chi-square, GFI, NDI, and CDI, and comparing them with commonly accepted thresholds for well-fitting models, it can be concluded that the model has an appropriate and sound structural fit.

Discussion and Conclusion

The findings of the present study demonstrate that human resource training based on e-learning in the context of the Islamic Republic of Iran Broadcasting is a multidimensional construct that is meaningfully structured around managerial, technological, social, content-related, evaluative, and developmental dimensions. The empirical results indicate that the final model enjoys acceptable goodness-of-fit indices and that the majority of identified dimensions and components possess strong factor loadings, confirming their explanatory power within the overall training framework. These results provide evidence that e-learning-based human resource training cannot be reduced to a purely technological intervention, but rather should be understood as a systemic organizational process that integrates planning, content design, interaction, evaluation, and organizational development in a coherent manner. This interpretation is consistent with contemporary perspectives on human resource management, which emphasize the strategic and integrative role of training and development in enhancing organizational performance and sustainability (1, 3).

One of the most salient findings concerns the central role of management and planning in shaping the effectiveness of e-learning-based training. The results showed that appropriate planning, needs assessment, organizational support, budgeting, and motivational mechanisms are among the strongest predictors of successful training implementation. This aligns with previous studies that emphasize post-training evaluation, structured planning, and managerial commitment as critical enablers of human resource development outcomes (2). In large public organizations such as IRIB, where training initiatives must accommodate diverse occupational groups and complex administrative structures, systematic planning becomes even more critical. The present findings reinforce

the argument that without coherent planning frameworks, even technologically advanced training systems may fail to deliver meaningful learning outcomes.

The organizational development dimension also emerged as a core pillar of the proposed model. Components such as technological development, content development, employee empowerment, research and development, return on investment, and organizational excellence collectively illustrate how e-learning contributes to long-term organizational capacity building rather than short-term skill acquisition alone. This finding resonates with studies that conceptualize human resource development as a driver of productivity, empowerment, and sustainable organizational growth (3, 14). In particular, the strong loading of employee empowerment highlights the role of e-learning in enhancing problem-solving skills, creativity, and adaptability, which are essential competencies in media organizations facing rapid technological and content-related changes (11, 20).

The results related to the use of modern technologies further underscore the selective and context-dependent nature of technological integration in training systems. While the use of artificial intelligence and advanced digital infrastructures demonstrated strong explanatory power, other components such as gamification and the use of external organizational experiences were excluded from the final model due to insufficient factor loadings. This suggests that not all popular digital training trends are equally relevant or effective in every organizational context. Previous research has cautioned against uncritical adoption of emerging technologies without considering organizational readiness, user acceptance, and strategic alignment (5, 7). The current findings support this view by indicating that advanced technologies such as AI are valuable when they directly enhance learning quality, accessibility, and evaluation, whereas peripheral innovations may fail to generate measurable impact if not embedded within organizational processes.

Social interactions constituted another significant dimension of the model, reflecting the importance of collaboration, communication, and personalized learning in e-learning environments. The strong factor loadings associated with collaborative activities, social networks, and personalized learning confirm that digital training systems must go beyond content delivery to foster meaningful interaction among learners and instructors. This is consistent with research emphasizing self-leadership, learner autonomy, and participatory learning as value-adding strategies in human resource development (16). In media organizations, where teamwork, creativity, and rapid coordination are essential, social interaction within training platforms can reinforce professional networks and collective learning cultures (8, 13).

The findings related to monitoring and evaluation further highlight the necessity of continuous feedback, systematic assessment, and learning analytics in e-learning-based training. The strong explanatory power of evaluation quality, progress tracking, and training continuity demonstrates that training effectiveness depends not only on initial design but also on ongoing assessment and refinement. This aligns with meta-synthesis research on human resource training systems, which identifies evaluation and feedback as recurring weaknesses in organizational training practices (19). By integrating evaluation mechanisms into the core structure of the training model, the present study contributes to addressing this gap and reinforces the role of evidence-based decision-making in human resource development.

Attention to training content and organizational goals also emerged as critical dimensions, indicating that relevance, attractiveness, and alignment with strategic objectives significantly influence training effectiveness. The results show that content tailored to participants' needs, delivered by competent instructors, and aligned with cultural, social, educational, and performance goals of the organization enhances both individual learning and

organizational outcomes. These findings are consistent with prior studies emphasizing competency-based training, content relevance, and value alignment as determinants of human resource management effectiveness (15, 17). In the specific context of IRIB, where organizational values, public missions, and cultural considerations are central, aligning e-learning content with organizational goals appears particularly crucial (9, 12).

Overall, the discussion of findings suggests that the proposed model successfully integrates technological, managerial, social, and strategic dimensions of e-learning-based human resource training. By empirically validating these dimensions within a complex media organization, the study extends existing literature that often treats training, technology, and organizational development as separate domains. The results corroborate international evidence that human resource management practices, when strategically aligned and digitally enabled, contribute to enhanced organizational performance, employee engagement, and adaptability (1, 6). At the same time, the findings highlight the importance of contextualization, suggesting that training models must be tailored to organizational characteristics, institutional constraints, and workforce needs rather than adopting generic solutions.

Despite its contributions, this study is subject to several limitations. First, the research was conducted within a single large media organization, which may limit the generalizability of the findings to other sectors or organizational contexts. Second, the cross-sectional design restricts the ability to draw causal inferences regarding the long-term effects of e-learning-based training on organizational performance. Third, the reliance on self-reported data may introduce response bias, particularly in evaluating perceptions of training effectiveness and organizational support.

Future studies could extend this research by applying the proposed model to other public and private organizations, including non-media sectors, to examine its external validity and contextual adaptability. Longitudinal designs are also recommended to assess the dynamic impact of e-learning-based training on employee performance, innovation, and organizational outcomes over time. Additionally, future research may incorporate qualitative approaches or learning analytics data to gain deeper insights into learner behavior, engagement patterns, and technology adoption processes.

From a practical perspective, organizational decision-makers should prioritize integrated planning and evaluation mechanisms when implementing e-learning-based human resource training. Investment in advanced but context-appropriate technologies, continuous content development, and employee empowerment initiatives can enhance training effectiveness. Managers are also encouraged to foster supportive organizational cultures that value learning, collaboration, and innovation, ensuring that e-learning becomes an embedded and sustainable component of human resource development strategies.

Acknowledgments

We would like to express our appreciation and gratitude to all those who helped us carrying out this study.

Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adhered in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

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