Designing a Comprehensive Model for Assessing the Effectiveness of Specialized Accounting Training for Employees of the Iranian National Tax Administration

Hossein Shalalnejad[1], Mohammad Tamimi [2,*], Shiva Hassanpour [3] and Farshin Hormozi Nejad [4]



[1] Department of Accounting, Ahv.C., Islamic Azad University, Ahvaz, Iran;
[2] Department of Accounting, Dez.C., Islamic Azad University, Dezful, Iran;
[3] Department of Accounting, Ahv.C., Islamic Azad University, Ahvaz, Iran;
[4] Department of Statistics, Ahv.C., Islamic Azad University, Ahvaz, Iran;

* Correspondence: Tamimi@iau.ac.ir

Citation: Shalalnejad, H., Tamimi, M., Hassanpour, S., & Hormozi Nejad, F. (2027). Designing a Comprehensive Model for Assessing the Effectiveness of Specialized Accounting Training for Employees of the Iranian National Tax Administration. *Business, Marketing, and Finance Open*, 4(12), 1-19.

Received: 03 June 2026
Revised: 08 November 2026
Accepted: 16 November 2026
Initial Publication: 17 November 2026
Final Publication: 01 December 2027

Copyright: © 2027 by the authors. Published under the terms and conditions of Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) License.

Abstract: The present study aimed to identify the components and indicators constituting a model for assessing the effectiveness of specialized accounting training for employees of the Iranian National Tax Administration (INTA) and to explain the relationships among these components. In terms of purpose, the study was applied, and in terms of approach, it was qualitative and exploratory. The research data were collected from two sources: semi-structured interviews with 15 experts in accounting, auditing, taxation, and training, and a review of relevant scientific studies. Participants were selected purposively, and the data were analyzed using inductive thematic analysis conducted in six stages. To enhance the credibility of the findings, data-source triangulation was also employed by comparing themes derived from the interviews with evidence reported in scientific studies. MAXQDA software was used to organize and manage the qualitative data. The findings led to the identification of four main themes: "essential specialized courses," "course selection factors," "course quality," and "indicators of the training effectiveness assessment model." Based on these themes, the final model was organized into eight dimensions: training needs assessment, job relevance and organizational support, specialized content, quality of training delivery, learning, learning transfer, job performance, and organizational outcomes. The results indicated that the effectiveness of specialized accounting training is a sequential process that begins with identifying training needs and ensuring alignment between training and job responsibilities, continues through the quality of training delivery and employee learning, and is completed through the transfer of acquired knowledge and skills to the workplace, improvement in job performance, and realization of organizational outcomes. Measurability, flexibility, comprehensiveness, and applicability were also identified as overarching characteristics of the model. Overall, the proposed model can provide a basis for designing, implementing, and assessing the effectiveness of specialized accounting training in accordance with the occupational and organizational requirements of the Iranian National Tax Administration.

Keywords: training effectiveness, specialized accounting training, thematic analysis, learning transfer, Iranian National Tax Administration, training effectiveness assessment, employee training.

1. Introduction

Human capital development has become a central concern for organizations operating in environments characterized by technological change, regulatory complexity, increasing accountability, and continuous pressure for higher levels of efficiency and service quality. In such contexts, employee training is no longer regarded merely as a supportive human resource activity but as a strategic mechanism through which organizations develop knowledge, strengthen competencies, improve performance, and adapt to changing operational demands. Contemporary research on training and development indicates that the value of

organizational training depends not simply on whether training is delivered, but on whether it addresses genuine competency gaps, produces meaningful learning, is transferred to the workplace, and ultimately contributes to individual and organizational performance [1, 2]. This perspective is particularly relevant to public organizations whose employees must perform specialized duties within complex legal, administrative, and technological systems.

The effectiveness of training therefore represents a multidimensional construct that extends beyond immediate learner reactions or satisfaction with a course. Traditional approaches to evaluation have often focused heavily on short-term indicators, such as participant satisfaction, perceived usefulness, or post-training knowledge acquisition, whereas contemporary approaches emphasize the importance of assessing whether learning is retained, applied in the work environment, and translated into improved performance and organizational outcomes [3, 4]. A training program may be well received by participants and may even result in measurable learning, yet still fail to produce meaningful organizational value if employees are unable or unwilling to apply the acquired knowledge and skills in their actual work settings. Consequently, training effectiveness must be conceptualized as a process encompassing training needs identification, training design and delivery, learning, transfer, performance improvement, and organizational consequences.

One of the most critical stages in this process is training needs assessment. Effective training begins with the identification of discrepancies between current and desired levels of knowledge, skills, and performance. Training needs assessment enables organizations to determine whether performance deficiencies can appropriately be addressed through training, which employees require development, and what specific competencies should be targeted. Empirical evidence suggests that systematic training needs assessment can enhance employee skill development and contribute to firm performance by improving the alignment between training interventions and actual workplace requirements [5]. In public-sector settings, this issue becomes especially important because generalized or standardized courses may not correspond to the highly differentiated responsibilities of employees working in specialized administrative, financial, or regulatory roles.

The effectiveness of training is also influenced by the extent to which training content is relevant to employees' job duties and professional competencies. Research on training transfer has consistently shown that the transfer of acquired knowledge and skills is more likely when learners perceive training as applicable to their work and when training design reflects actual task demands [6, 7]. Training programs that are disconnected from workplace realities may lead to temporary knowledge gains but are less likely to change behavior or improve job performance. Training design therefore requires close alignment among organizational objectives, employee needs, occupational responsibilities, instructional content, learning activities, and performance expectations.

In-service training research has similarly emphasized the necessity of developing comprehensive models that account for the multiple dimensions influencing effectiveness. Studies in organizational and public-sector contexts have highlighted factors such as needs assessment, employee motivation, managerial support, instructional quality, organizational conditions, and follow-up mechanisms as significant components of successful in-service training [8, 9]. The empowerment of employees through in-service education also depends on approaches that promote learner autonomy, active engagement, self-directed development, and the capacity to apply knowledge to changing professional situations [10]. These findings indicate that training effectiveness cannot be attributed to any single component; instead, it emerges from the interaction of individual, instructional, managerial, and organizational factors.

Employee motivation represents another important determinant of training effectiveness. Participation in training does not necessarily guarantee active learning, particularly when employees perceive courses as obligatory, repetitive, irrelevant, or disconnected from career and job requirements. Research on government in-service training has shown that weak motivation can undermine purposeful participation and reduce employees' engagement with training activities [11]. Learner readiness, perceived utility of training, personal responsibility for learning, and willingness to use newly acquired competencies are also central to the transfer process [12]. Thus, effective training systems should not only provide learning opportunities but also establish conditions that encourage employees to perceive training as relevant, valuable, and applicable.

The training environment itself is equally important. Instructor expertise, teaching methods, learning resources, practical exercises, interaction, and opportunities for active participation influence the depth and durability of learning. Transformational trainers can enhance learners' psychological empowerment and thereby promote training transfer [13]. Likewise, instructional strategies that involve simulation, practice, and experiential learning can contribute to the development of complex interpersonal and professional competencies more effectively than passive forms of instruction in appropriate contexts [14]. The quality of training delivery therefore involves much more than presentation of information; it requires instructional methods that enable employees to interpret, practice, and apply specialized knowledge under conditions resembling actual work.

Training evaluation itself can also improve training design. Evaluation should not be treated only as a final stage conducted after course completion; rather, evidence generated through evaluation can inform the redesign of content, teaching methods, exercises, and support mechanisms. Research has shown that systematic training evaluation may enhance training design and facilitate subsequent transfer of learning [7]. This reinforces the importance of building evaluation into the training cycle rather than viewing it as an isolated administrative requirement.

Among the various dimensions of training effectiveness, learning transfer is particularly important because it connects training participation with real workplace outcomes. Training transfer refers to the extent to which knowledge, skills, attitudes, or behaviors acquired through training are applied and sustained in the work environment. Recent reviews demonstrate that transfer is influenced by a broad range of learner-related, training-related, and organizational factors and that its assessment requires appropriate and context-sensitive tools [4, 15]. The diversity of transfer measures identified in the literature further indicates that there is no universally applicable instrument for all types of training, occupations, or organizational contexts.

Individual differences also shape the transfer process. Personality traits, attitudes, motivation, and readiness can affect whether employees convert learning into workplace behavior. Longitudinal evidence indicates that individual personality and team characteristics can influence transfer over time [16]. Similarly, research on hybrid training has shown that individual characteristics may interact with supervisor support in determining whether learned skills are subsequently used at work [17]. These findings suggest that training effectiveness models should incorporate both characteristics of learners and characteristics of the organizational environment.

Organizational and social support are among the most consistently recognized contextual determinants of transfer. Employees are more likely to apply new competencies when supervisors encourage experimentation, provide opportunities for application, recognize learning-related effort, and create conditions that support knowledge sharing. Social support has been shown to strengthen training transfer and maximize the impact of workplace learning [18]. Managerial roles are especially important because managers can influence both employees' participation in training and their opportunity to use new capabilities after training [19]. Qualitative

research on training transfer leadership likewise highlights the importance of managerial attitudes, strategies, and behaviors in creating a supportive transfer climate [20]. In Iranian organizational contexts, individual factors, training design, and organizational support have also been linked to training transfer and employee performance [21, 22].

The complexity of training effectiveness becomes even more evident in accounting-related occupations. Accounting work has undergone substantial transformation due to digitization, data analytics, automation, artificial intelligence, and increasingly integrated information systems. The accounting profession now requires competencies that extend beyond conventional technical accounting knowledge to include digital literacy, technological adaptability, data interpretation, systems competence, and the ability to work with emerging technologies [23, 24]. In this evolving environment, professional accounting training must be regularly updated to ensure that employees possess both current technical knowledge and the digital capabilities required to perform effectively.

The increasing influence of artificial intelligence further reinforces the need to rethink accounting training. Studies have emphasized that future accountants require specific AI-related knowledge and skills to remain professionally competent [25]. Technology readiness, perceptions of AI, and digital competence can shape the adoption and effective use of AI within accounting education and professional preparation [26]. Digital accounting education may also foster innovation, particularly when learners possess adequate digital literacy and technological self-efficacy [27]. At the same time, the integration of generative AI into accounting education creates both opportunities and challenges for learning, assessment, and skill development [28, 29]. Market-oriented evidence further indicates an increasing demand for future-ready digital skills in accounting, requiring closer alignment between educational programs and emerging professional expectations [30].

These developments are directly relevant to taxation organizations because modern tax administration increasingly depends on digital systems, information processing, data integration, electronic services, and technologically enabled compliance mechanisms. International evidence shows that tax administrations are undergoing substantial transformation in their organizational processes, technologies, service delivery, and data-driven practices [31]. Employees working in such environments must therefore continuously update their knowledge of tax regulations, accounting principles, auditing practices, digital platforms, and organizational procedures. Specialized accounting training in tax organizations must consequently respond simultaneously to legal change, professional accounting requirements, technological developments, and the operational realities of tax administration.

The assessment of accounting training also presents specific methodological challenges. Accounting education interventions may produce outcomes at multiple levels, including conceptual knowledge, technical competence, analytical ability, professional judgment, behavioral change, and workplace application. Research examining accounting education interventions has demonstrated the importance of using appropriate assessment strategies that are aligned with the intended learning outcomes and intervention context [32]. In organizational settings, evaluation must go further by examining whether employees use acquired accounting knowledge and skills to improve accuracy, reduce errors, solve practical problems, and enhance the quality of work processes.

From an organizational perspective, the ultimate justification for investment in employee training lies in its contribution to performance. Meta-analytic evidence demonstrates that organizational-level training is associated with organizational performance, although the magnitude and nature of this relationship depend on how training is designed, implemented, and aligned with organizational goals [2]. Accordingly, a comprehensive evaluation

model should connect individual learning outcomes with job performance and broader organizational outcomes rather than evaluating training solely at the participant level.

An effective model must also be sufficiently flexible to reflect the characteristics of different courses and target groups. Systematic reviews indicate substantial variation in the concepts, instruments, and criteria used to assess workplace training transfer [4, 15]. Training effectiveness frameworks should therefore be comprehensive enough to include core dimensions while remaining adaptable to different occupational, technological, and organizational contexts. Contemporary organizational training models increasingly emphasize integrated structures that link capacity development, organizational priorities, and decision-making requirements [33]. Such flexibility is especially important in public organizations where employee responsibilities, regulations, technologies, and service expectations can change rapidly.

Methodologically, the development of a context-sensitive training effectiveness model benefits from qualitative inquiry because qualitative methods allow researchers to identify dimensions that may not be adequately represented in pre-established evaluation frameworks. Interviews with experienced practitioners can reveal practical issues, contextual barriers, and occupational requirements that standardized models may overlook. Documentary and research evidence can then be used alongside field data to enrich interpretation and identify convergence or divergence between organizational experience and the broader scientific literature. Qualitative document analysis provides a systematic means of extracting and interpreting relevant information from documentary sources and can complement interview-based evidence in exploratory research [34]. This approach is particularly appropriate when the purpose is to construct a model grounded in both organizational practice and existing knowledge.

Recent literature therefore supports a comprehensive understanding of training effectiveness as a chain linking needs assessment, course selection, instructional design, learner engagement, learning outcomes, transfer, job performance, and organizational results. It also demonstrates that this chain is shaped by factors such as employee motivation, managerial support, training climate, technological infrastructure, organizational culture, and opportunities for application [6, 35]. Conditions before and after training are especially important because skill acquisition during a course does not automatically guarantee subsequent performance improvement in the workplace [35]. Accordingly, the effectiveness of specialized accounting training should be assessed through a multidimensional framework capable of capturing both the training process and its consequences.

Despite the extensive literature on training effectiveness, transfer, accounting education, and digital competencies, there remains a need for models specifically tailored to the occupational and organizational context of tax administration employees. Generic evaluation models may identify broad dimensions such as learning, transfer, and performance but may not sufficiently incorporate the specialized content requirements of taxation work, including direct taxation, value-added tax, practical auditing, regulatory change, accounting systems, and digital platforms. Moreover, the coexistence of technical, behavioral, technological, and organizational determinants means that a model designed for this context should integrate both general principles of training effectiveness and the specific realities of tax administration. The systematic literature on employee training confirms the value of comprehensive and contextually responsive training systems [1], while the emerging accounting and digital-skills literature underscores the necessity of continuous updating of specialized competencies [23, 30].

Therefore, the aim of the present study was to identify the components and indicators of a comprehensive model for assessing the effectiveness of specialized accounting training for employees of the Tax Administration and to explain the conceptual relationships among these components.

2. Methods and Materials

The present study was applied in terms of purpose and qualitative and exploratory in terms of approach. It was conducted with the aim of identifying appropriate components and indicators for designing a model to assess the effectiveness of specialized accounting training for employees of the Iranian National Tax Administration. The qualitative approach was selected because of the exploratory nature of the research problem and the need to develop an in-depth understanding of experts' experiences, perspectives, and perceptions. Rather than specifying a predetermined set of variables and testing the relationships among them, the study sought to identify components associated with training effectiveness from the perspectives of individuals with relevant expertise, as well as through an examination of research evidence, and to organize these components within a coherent conceptual structure.

The research data were collected from two main sources: first, semi-structured interviews with experts and, second, scientific studies and research related to training effectiveness and training transfer. The use of two data sources was intended to enhance the richness of the findings and enable comparison between expert perspectives and evidence reported in previous research. The use of scientific documents and studies alongside interviews can contribute to completing and contextualizing findings derived from field data, with data-source triangulation representing one of its important applications.

The participants in the qualitative phase consisted of experts in accounting, auditing, taxation, and training. Purposive sampling was employed, and a total of 15 experts participated in the study. The inclusion criteria comprised at least five years of relevant professional experience; educational, research, or executive experience in accounting and taxation; and familiarity with specialized accounting training and taxation processes. Experts were selected according to these criteria to ensure the inclusion of individuals who possessed not only theoretical knowledge but also sufficient experience with actual work environments and employee training and who could provide meaningful information concerning training needs, course quality, and approaches to evaluating training effectiveness.

Semi-structured interviews were used to collect the field data. The interview framework was developed according to the research objective, and the main questions were organized around four areas: specialized courses required by employees, factors affecting the selection and prioritization of courses, characteristics of high-quality training courses, and appropriate indicators for assessing training effectiveness. During the interviews, follow-up questions were asked according to participants' responses to clarify the dimensions and details of their perspectives. This structure enabled the interviews to remain consistent while providing sufficient flexibility to explore the experts' diverse experiences and viewpoints.

With participants' consent, the interviews were recorded using a digital audio recorder and subsequently transcribed completely and verbatim. Following transcription, the interview texts were read several times to enable the researcher to develop an in-depth familiarity with the data. MAXQDA software was used to manage, organize, and code the textual data. In the present study, the software was used solely to organize the data, retrieve relevant sections of text, record codes, and facilitate the processes of comparison and thematic organization; interpretation

and theme development were conducted by the researcher. The use of MAXQDA in studies employing thematic analysis has similarly been reported as a means of organizing qualitative data and codes.

The second source of data consisted of scientific studies and research related to training effectiveness. In this phase, relevant scientific articles, particularly studies published in domestic academic journals, were examined. The literature search was conducted using scientific databases, including Noormags and the Scientific Information Database (SID). The study-selection criteria included publication in reputable scientific journals, publication from 2021 onward, direct relevance to training effectiveness or the assessment of training effectiveness, and a focus on employee training in organizations, institutions, or universities. In addition, keywords such as "training effectiveness" and "training effectiveness assessment" were used in the titles, abstracts, and full texts during the search and study-selection process. Following a review of their content, the selected sources were used alongside the interview data to identify and compare components related to training effectiveness.

The research data were analyzed using inductive thematic analysis. Thematic analysis was selected because it enables researchers to identify meaningful patterns within a qualitative dataset and organize them into themes related to the research question. Braun and Clarke describe thematic analysis as a flexible method for identifying, analyzing, and reporting patterns within qualitative data and emphasize the importance of systematically attending to the entire analytical process. In the inductive approach, codes and themes are generated, as far as possible, from the content of the data, and the researcher seeks to identify meaningful patterns without imposing a predetermined analytical framework. In qualitative studies employing thematic analysis, this approach has also been described as a six-phase process consisting of familiarization with the data, generation of initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report.

In the first phase, the complete interview transcripts were read several times after transcription, and points, ideas, and concepts relevant to the research objective were recorded. In the second phase, meaningful segments of the text were identified and subjected to initial coding. At this stage, efforts were made to ensure that the codes remained as close as possible to the actual content of participants' statements. In the third phase, similar or conceptually related codes were compared and organized into preliminary themes. In the fourth phase, the preliminary themes were reviewed in relation to both their constituent codes and the entire dataset to ensure the internal coherence of each theme and adequate differentiation among themes. In the fifth phase, the final themes were defined and named. In the sixth phase, the relationships among the themes and their components were interpreted and presented in the form of the research findings and the conceptual model. This process was consistent with the recursive nature of thematic analysis, meaning that whenever inconsistencies or overlaps were identified, the researcher returned to the codes, themes, and original data and revised the thematic structure accordingly.

Throughout the analysis, themes were not determined solely on the basis of the frequency with which a concept was repeated. Instead, attention was given to their significance in relation to the research question and their capacity to explain dimensions of training effectiveness. Accordingly, a theme was conceptualized as a meaningful pattern relevant to the research problem, and the initial codes were organized within themes on the basis of their conceptual relationships. At the conclusion of the analysis, four main themes were identified: "essential specialized courses," "course selection factors," "course quality," and "training effectiveness assessment indicators."

To enhance the credibility and richness of the interpretation of the findings, data-source triangulation was employed. For this purpose, the themes and components extracted from the expert interviews were compared with the findings of selected scientific studies. Through this comparison, areas of convergence between the two data

sources were identified, and where scientific studies contributed to explaining or supplementing the interview findings, these relationships were taken into consideration during interpretation. Components more closely related to the contextual characteristics of the Iranian National Tax Administration were also distinguished from more general components identified in the research literature. In qualitative research, data-source triangulation can contribute to a more comprehensive understanding and enhance the credibility of findings by comparing information derived from different sources.

Finally, the findings obtained through thematic analysis and data-source triangulation were used to design the conceptual model of the study. At this stage, the main themes and their associated components were organized according to conceptual relationships among training prerequisites, the training process, learning, transfer of acquired knowledge and skills, and occupational and organizational outcomes. Therefore, the final model was derived directly from the qualitative findings of the study, and its purpose was to provide a context-sensitive framework for assessing the effectiveness of specialized accounting training for employees of the Iranian National Tax Administration. It should be emphasized that the validity of the model was not examined through quantitative tests or statistical methods in the present study; rather, the proposed model resulted from qualitative analysis, comparison of data sources, and interpretation of the relationships among themes. From an ethical perspective, participation in the interviews was voluntary and based on participants' informed consent, and participants' information and viewpoints were treated confidentially throughout the analysis and reporting of the results. Furthermore, interview data were used exclusively for research purposes, and no information that could reveal participants' identities was included in the reporting of the findings.

3. Findings and Results

In the present study, the findings were derived from thematic analysis of data obtained through semi-structured interviews with experts and a review of relevant scientific studies. The data were analyzed inductively, and four main themes were identified through the processes of familiarization with the data, extraction of initial codes, searching for themes, reviewing and refining the themes, and finally defining and naming them. These four themes were "essential specialized courses," "course selection factors," "course quality," and "training effectiveness assessment indicators."

To enhance the richness of the findings, the themes extracted from the interviews were compared with evidence reported in scientific studies. This comparison was conducted through data-source triangulation and enabled the identification of areas of convergence between experts' perspectives and previous research findings, as well as the identification of components more closely related to the contextual characteristics of the Iranian National Tax Administration. The results of this process indicated that the effectiveness of specialized accounting training cannot be limited merely to the outcomes observed immediately after a course. Rather, effectiveness develops through a sequence comprising "training needs, course selection and design, quality of delivery, learning, transfer of learning to the workplace, and occupational and organizational outcomes."

Table 1. Themes, Components, Conceptual Indicators, and Research Evidence Supporting the Findings

Main Theme	Component	Extracted Indicators and Conceptual Codes	Evidence from Interviews	Research Support
Essential specialized courses	Direct taxation	Mastery of laws and regulations; application of regulations to actual cases; familiarity with implementation procedures	Experts emphasized specialized taxation training and the practical applicability of content	Arabi and Garza (2023); Ardvandi et al. (2026)

Essential specialized courses	Value-added tax	Knowledge of regulations; assessment procedures; application of concepts in actual processes	Need for training on current taxation regulations and procedures	Ardvandi et al. (2026)
Essential specialized courses	Practical auditing	Examination of documents; identification of discrepancies; case analysis; solving real-world problems	Experts emphasized the gap between theoretical training and practical needs	Arabi and Garza (2023)
Essential specialized courses	Accounting software and related systems	Software operation; mastery of organizational systems; use of technology	Emphasis on practical skills and direct workplace application	Shukla et al. (2024)
Course selection factors	Training needs assessment	Identification of knowledge and skill gaps; identification of actual needs; prioritization of needs	Emphasis on beginning the training process with actual needs	Shukla et al. (2024); Arabi and Garza (2023)
Course selection factors	Relevance to job duties	Alignment of course content with job responsibilities; applicability	Emphasis on alignment between training and job requirements	O'Neill (2025); Ardvandi et al. (2026)
Course selection factors	Management support	Managerial support; provision of opportunities to attend training and apply learning	Role of organizational conditions in facilitating the use of acquired knowledge and skills	Shukla et al. (2024)
Course selection factors	Employee motivation and interest	Willingness to learn; perceived necessity of training; active participation	Role of employee readiness and motivation in learning and application	Shukla et al. (2024)
Course quality	Instructor expertise	Specialized knowledge; practical experience; familiarity with the actual work environment	Importance of instructors' practical experience in specialized training	Arabi and Garza (2023)
Course quality	Interaction and practical exercises	Participation; discussion; problem-solving; practice involving realistic situations	Emphasis on active and applied learning	Arabi and Garza (2023)
Course quality	Up-to-date resources and real-world examples	Current regulations; practical content; realistic examples	Need to align content with actual organizational issues	Arabi and Garza (2023)
Effectiveness assessment indicators	Learning	Acquisition of knowledge, skills, and the ability to apply specialized concepts	Learning as a direct training outcome	Nielsen and Shepherd (2022)
Effectiveness assessment indicators	Learning transfer	Application of knowledge and skills in the workplace; sustained application	Experts emphasized the practical use of acquired knowledge and skills	Ardvandi et al. (2026); O'Neill (2025)
Effectiveness assessment indicators	Satisfaction	Satisfaction with content, instructor, delivery method, and course relevance	Satisfaction as one indicator of course evaluation	Nielsen and Shepherd (2022)
Effectiveness assessment indicators	Performance and organizational outcomes	Performance improvement; error reduction; increased accuracy; process improvement	Observable effects of training on job and organizational performance	Nielsen and Shepherd (2022); Ardvandi et al. (2026)
Effectiveness assessment indicators	Measurability and flexibility	Possibility of measurement; adaptability to course type and target group	Need for a model adaptable to different courses	Ardvandi et al. (2026); O'Neill (2025)

As shown in Table 1, the first theme concerns the types of training employees require to perform their specialized duties. The interview findings indicated that, from the experts' perspective, general accounting training alone is insufficient to address the complexity of employees' responsibilities within the Iranian National Tax Administration, and training content must be directly connected to specialized workplace issues and processes. In this regard, training in direct taxation, value-added tax, practical auditing, and the use of relevant software and systems received greater emphasis than other topics. An important characteristic of this theme was that experts did not focus merely on the "course title"; rather, they emphasized the practical applicability of course content. In other

words, instruction concerning laws, regulations, and accounting concepts should be linked to the cases, problems, documents, and situations that employees encounter in their actual work environment. The second theme concerned factors affecting the selection of training courses. Analysis of the interviews indicated that courses should not be selected solely on the basis of an annual training program or the availability of a particular course; instead, selection should be based on training needs assessment and the actual relevance of the course to employees' job responsibilities. Management support and employee motivation were also identified as contextual factors. From the experts' perspective, when employees understand which of their work-related problems a course can help resolve, their participation in training becomes more meaningful. Furthermore, managerial support is not limited to enabling employees to attend a course; it also involves creating opportunities to apply what they have learned in the workplace. These findings indicate that training effectiveness is, to some extent, determined before the course even begins because assigning appropriate training to the appropriate individual on the basis of genuine job needs is one of the prerequisites for achieving effectiveness. The third theme concerned the quality of training courses. Instructor expertise, interaction and practical exercises, and the use of up-to-date resources and realistic examples were identified as the principal components of this theme. The interview findings indicated that, in specialized accounting and taxation training, theoretical knowledge alone is insufficient for instructors; practical experience and familiarity with actual workplace issues are also highly important. Moreover, courses in which learners remain passive listeners were perceived by experts as having less capacity to develop practical skills. Accordingly, problem-solving, analysis of actual cases, practical exercises, and learner participation were identified as important elements of training quality. The currency of training content was also particularly important because a substantial proportion of the knowledge used by employees of the Iranian National Tax Administration depends on laws, regulations, procedures, and systems that may change over time. Therefore, course quality depends not only on the instructional method but also on the currency of the knowledge presented and its alignment with actual organizational issues. Accordingly, the quality of training delivery was positioned in the final model as a link between appropriate content and the achievement of learning. The fourth theme, namely training effectiveness assessment indicators, was most directly related to the primary objective of the study. The findings indicated that, from the experts' perspective, effectiveness extends beyond participant satisfaction or successful acquisition of course content. At the first level, learning and the acquisition of knowledge and skills are important; however, to achieve genuine effectiveness, this knowledge and these skills must be transferred to the workplace and used in the performance of job duties. Subsequently, sustained application should become observable through improved job performance and, at a higher level, organizational outcomes. Employee satisfaction was also identified as an important indicator, but not as the sole or ultimate criterion of effectiveness. The importance of placing "learning transfer" at the center of the model is also supported by recent research findings. To demonstrate how the interview findings were integrated with scientific studies, the results of data-source triangulation are presented in Table 2.

Table 2. Results of Data-Source Triangulation

Main Theme	Evidence from Expert Interviews	Evidence from Scientific Studies	Integrated Finding of the Present Study
Essential specialized courses	Need for training in direct taxation, value-added tax, practical auditing, and specialized software	Relationship of training design and skill practice with training transfer (Arabi & Garza, 2023); importance of applying knowledge and skills in the workplace (Ardvandi et al., 2026)	Training content should be specialized, practical, and aligned with employees' job duties
Course selection factors	Needs assessment, job relevance, management	Role of learner characteristics, training design, and organizational factors (Shukla et al., 2024)	Course selection should begin with actual needs and be aligned with

	support, and employee motivation		individual and organizational conditions
Course quality	Instructor expertise, interaction, practical exercises, up-to-date resources, and realistic examples	Importance of training design and skills practice in transfer (Arabi & Garza, 2023)	Quality of delivery provides the conditions through which appropriate content is transformed into learning and practical applicability
Effectiveness indicators	Learning, transfer, satisfaction, performance, and organizational outcomes	Relationship between transfer and training and organizational outcomes (Nielsen & Shepherd, 2022); diversity of transfer measurement instruments (Ardvandi et al., 2026)	Effectiveness should be assessed at multiple levels and extend beyond satisfaction and learning
Model characteristics	Measurability, flexibility, and applicability	Absence of a single framework for measuring transfer (O'Neill, 2025); diversity and context specificity of measurement instruments (Ardvandi et al., 2026)	The model should be adaptable to the type of training, target group, and organizational context

Comparison of the two data sources indicated that a substantial proportion of the experts' findings were consistent with the direction of scientific studies; however, the interviews placed greater emphasis on certain contextual and specialized characteristics of the Iranian National Tax Administration. For example, general studies of training transfer have addressed factors such as training design, learner characteristics, organizational support, and transfer to the workplace; however, the data from the present study placed greater emphasis on the necessity of mastering taxation laws, practical auditing, and software and systems related to organizational work processes. Therefore, the resulting model is not merely an adaptation of a general training evaluation model; rather, it reflects the integration of field findings with research evidence and the contextual characteristics of the organization under investigation.

To transform the extracted themes into a coherent model structure, the relationships among them were organized into three levels: "training prerequisites," "training and learning processes," and "training outcomes." The results of this organization are presented in Table 3.

Table 3. Final Organization of Themes and Components in the Training Effectiveness Assessment Model

Model Level	Dimension/Component	Constituent Elements	Role in the Model	Research Support
Training prerequisites	Training needs assessment	Identification of knowledge and skill gaps; prioritization of needs	Determining the necessity and direction of training	Shukla et al. (2024)
Training prerequisites	Job relevance and organizational support	Alignment with job duties; managerial support; opportunity to apply learning	Providing the conditions for appropriate training selection and application	Shukla et al. (2024); Nielsen and Shepherd (2022)
Training content	Specialized training	Direct taxation; value-added tax; practical auditing; accounting software	Providing the required knowledge and skills	Interview findings; Arabi and Garza (2023)
Quality of delivery	Training quality	Instructor expertise; interaction; practical exercises; up-to-date content	Facilitating learning and skill application	Arabi and Garza (2023)
Learning outcomes	Learning	Specialized knowledge and skills	Direct outcome of training	Nielsen and Shepherd (2022)
Transfer	Learning transfer	Application of learning in the workplace; sustained use	Linking learning to performance	Ardvandi et al. (2026); O'Neill (2025)
Job outcomes	Job performance	Improved task performance; reduced errors; increased accuracy and quality of work	Demonstrating the practical impact of training	Nielsen and Shepherd (2022)
Organizational outcomes	Organizational results	Process improvement; enhanced quality of	Ultimate outcome of training	Nielsen and Shepherd (2022);

		organizational performance; long-term effects		Ardvandi et al. (2026)
Overarching model characteristics	Measurability and flexibility	Capacity for measurement; adaptability to course type and target group	Ensuring the applicability of the model across different courses	O'Neill (2025); Ardvandi et al. (2026)

As shown in Table 3, the final research model does not take the form of a simple "training → learning" sequence; rather, training is situated within a context-dependent process. At the beginning of this process, training needs assessment and the alignment of training with job responsibilities determine the type of training that should be provided. Specialized content and the quality of course delivery subsequently establish the conditions necessary for learning to occur. However, learning alone does not represent the end of the process and moves closer to genuine effectiveness only when acquired knowledge and skills are transferred to the workplace. When appropriate conditions are present, learning transfer can subsequently contribute to improved job performance and, ultimately, organizational outcomes.

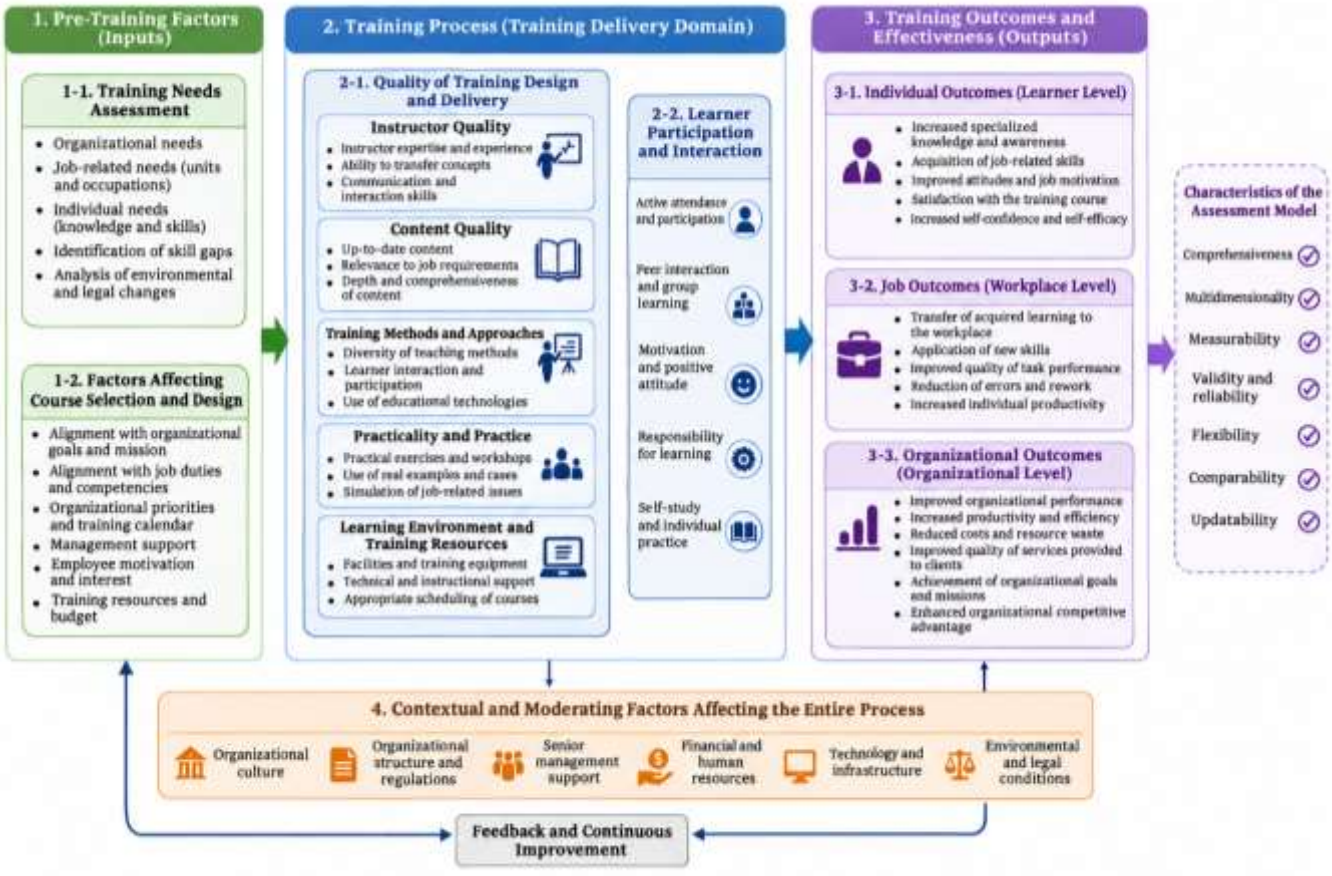


Figure 1. Final Model for Assessing the Effectiveness of Specialized Accounting Training

4. Discussion and Conclusion

The present study aimed to design a comprehensive model for assessing the effectiveness of specialized accounting training for employees of the Iranian National Tax Administration. The findings identified four main themes—essential specialized courses, course selection factors, course quality, and training effectiveness assessment indicators—which were subsequently integrated into eight dimensions consisting of training needs

assessment, job relevance and organizational support, specialized content, quality of training delivery, learning, learning transfer, job performance, and organizational outcomes. Taken together, the findings indicate that training effectiveness should not be understood as an isolated outcome measured immediately after participation in a course. Rather, it constitutes a sequential and context-dependent process beginning with the accurate identification of training requirements, continuing through appropriate course selection and high-quality delivery, and culminating in learning transfer, improved job performance, and organizational outcomes. This interpretation is consistent with research emphasizing that organizational training creates value only when it addresses actual competency deficiencies, produces meaningful learning, and ultimately affects individual and organizational performance [1, 2].

One of the most important findings concerned the necessity of specialized, occupationally relevant training. The participants emphasized direct taxation, value-added tax, practical auditing, accounting software, and organizational systems as particularly important areas of development. More importantly, experts stressed that these subjects should be taught through practical cases, actual documents, organizational problems, and realistic work situations rather than through abstract theoretical instruction. This finding can be explained by the highly specialized and changing nature of taxation work, in which employees must simultaneously understand accounting principles, tax regulations, auditing practices, organizational procedures, and digital systems. Previous research similarly demonstrates that training is more likely to produce workplace application when its content closely reflects actual occupational requirements and when learners can recognize a direct connection between training activities and their job tasks [6, 7]. The finding also supports the broader argument that contemporary accounting competencies cannot remain confined to traditional technical accounting knowledge because digital technologies, data systems, automation, and technological change are increasingly reshaping professional work [23, 24]. Consequently, specialized accounting training within a tax administration should be continuously revised in accordance with changes in taxation regulations, organizational procedures, information systems, and professional competency requirements.

The emphasis on digital and systems-related competencies is particularly significant in the context of contemporary tax administration. The increasing digitization of accounting and taxation means that professional effectiveness depends not only on knowledge of laws and accounting principles but also on employees' ability to work effectively with technological platforms, digital data, and emerging information systems. Research has shown that future accounting professionals require increasingly sophisticated technological and artificial-intelligence-related competencies [25], while digital readiness and technological competence influence individuals' ability to benefit from new accounting technologies [26]. Similarly, digital literacy and technological self-efficacy have been associated with more effective engagement with digital accounting education [27]. The present results therefore suggest that specialized training in the Iranian National Tax Administration should be treated as a dynamic rather than static system. The competencies considered sufficient at one point may become inadequate as tax legislation, digital platforms, analytical tools, and administrative processes evolve. This conclusion is also compatible with evidence concerning the digital transformation of tax administrations and the growing importance of technology-enabled processes, information integration, and data-driven service delivery [31].

A second major finding was that training effectiveness begins before employees enter the classroom. Training needs assessment and alignment between training content and job responsibilities emerged as fundamental prerequisites of effectiveness. This result suggests that the quality of training cannot compensate for inappropriate participant selection or irrelevant course content. Even a well-designed program may produce limited practical

value when employees do not need the competencies being taught or when the course is not connected with their actual responsibilities. Previous evidence supports this interpretation by demonstrating that systematic needs assessment can strengthen employee competency development by identifying discrepancies between current and desired performance and directing training resources toward genuine workplace requirements [5]. Likewise, training-transfer research emphasizes the importance of perceived job relevance and congruence between instructional design and actual task demands [6, 7]. Thus, the present model appropriately positions needs assessment at the beginning of the effectiveness chain rather than treating it merely as an administrative procedure preceding course implementation.

The findings further demonstrated that employee motivation and organizational support influence the selection, participation, and eventual effectiveness of training. Experts indicated that employees participate more meaningfully when they perceive a course as capable of addressing real occupational problems. This observation corresponds with previous research showing that mandatory, repetitive, or seemingly irrelevant in-service education can weaken employees' motivation and reduce meaningful engagement with learning activities [11]. Learner readiness, perceived usefulness, motivation, and personal responsibility for development have likewise been recognized as important antecedents of transfer [12]. In this respect, employee motivation should not be viewed as an individual characteristic independent of training design. Motivation can itself be strengthened when organizations select courses on the basis of genuine needs, clearly communicate their professional relevance, and allow employees to apply newly developed competencies in meaningful work situations.

Organizational and managerial support constituted another important component of the proposed model. The findings showed that managerial support involves more than granting permission to participate in training. Managers must also provide opportunities for employees to use acquired knowledge and skills following training. This is particularly important because learning that cannot be practiced may gradually diminish and fail to influence occupational behavior. The result is strongly supported by studies indicating that social and organizational support facilitates the transfer of learning and increases the effects of workplace development initiatives [18]. Managers can influence both participation in training and employees' opportunities to apply acquired capabilities [19], while supportive managerial attitudes and behaviors help create a climate conducive to training transfer [20]. Studies conducted in organizational contexts have similarly linked individual conditions, training design, and organizational support to learning transfer and subsequent employee performance [21, 22]. Accordingly, the present model recognizes effectiveness as a shared responsibility among learners, instructors, managers, and the organization rather than as an outcome attributable exclusively to the training department.

The third major finding concerned course quality. Instructor expertise, active interaction, practical exercises, realistic examples, and up-to-date instructional resources were identified as essential characteristics of effective specialized accounting training. This result is theoretically reasonable because accounting and taxation involve not only declarative knowledge but also judgment, interpretation, problem-solving, and application of rules to specific cases. Instructors therefore need practical familiarity with the professional environment in addition to academic knowledge. The value of active and experiential instructional methods is supported by research demonstrating that simulations, practical activities, and experience-based learning can strengthen the acquisition of complex professional competencies [14]. Trainer characteristics are also relevant because instructors who create an empowering learning environment may facilitate subsequent transfer of acquired competencies [13]. Accordingly, the present results indicate that training quality should be evaluated through both content-related and pedagogical criteria. A technically correct course delivered through passive methods may be less effective than a course in which

employees analyze cases, solve authentic problems, discuss alternative interpretations, and practice skills under conditions approximating their actual work.

The importance attributed to current and continuously updated training content is also particularly relevant to taxation. Tax regulations, administrative procedures, accounting technologies, and organizational systems are subject to change, meaning that obsolete training materials may not only reduce effectiveness but may potentially create inconsistencies between training and workplace practice. Contemporary accounting research similarly emphasizes the growing need for future-ready and digitally oriented competencies [30]. The emergence of generative artificial intelligence and other digital technologies has created additional opportunities and challenges for accounting learning and professional development [28, 29]. Therefore, the identified emphasis on content currency reinforces the need for periodic review of specialized training portfolios rather than reliance on fixed curricula that remain unchanged over extended periods.

Perhaps the most important contribution of the findings concerns the conceptualization of training effectiveness as a progression from learning to transfer, job performance, and organizational outcomes. The experts did not regard participant satisfaction as an adequate indicator of training effectiveness. Although satisfaction remains useful because it can reflect employees' perceptions of content, instructors, relevance, and delivery, it represents only one part of a broader evaluation process. This interpretation aligns with prior literature arguing that training effectiveness is multidimensional and should extend beyond immediate reactions and knowledge acquisition toward application and organizational consequences [3, 4]. An employee may report high satisfaction and perform well on a post-training assessment while nevertheless failing to use the acquired competencies in daily work. Therefore, satisfaction and learning should be interpreted as intermediate outcomes rather than definitive evidence of effectiveness.

Within this sequence, learning transfer occupies a central position because it connects educational achievement with occupational performance. The findings showed that the acquisition of knowledge and skills becomes organizationally valuable when employees subsequently apply and sustain these competencies in their work. This interpretation corresponds closely with research describing transfer as a complex process shaped by learner characteristics, instructional design, organizational conditions, and opportunities for application [4, 15]. Individual and contextual characteristics may also influence whether learning is sustained over time. Personality and team characteristics have been associated with longitudinal differences in training transfer [16], while individual characteristics may interact with supervisory support in shaping workplace application [17]. The present results therefore support the inclusion of transfer as an explicit assessment dimension rather than assuming that evidence of learning automatically indicates subsequent workplace use.

The subsequent connection between learning transfer and job performance represents another important aspect of the proposed model. Experts identified outcomes such as increased accuracy, reduced errors, improved task performance, and enhanced quality of work as meaningful evidence that training has produced practical effects. This is particularly appropriate in accounting and taxation settings, where the value of training can often be observed through improved analysis, more accurate application of regulations, better problem-solving, and fewer processing or interpretive errors. Accounting education research has likewise emphasized the need to align evaluation methods with intended learning and performance outcomes rather than relying on generic measures [32]. At the organizational level, improvements in individual performance may contribute to more efficient processes, better service quality, enhanced compliance-related work, and stronger organizational performance. Meta-analytic evidence supports a positive association between organizational training and organizational

performance, although this relationship depends considerably on training design and its alignment with organizational objectives [2].

Another important contribution of the study is the identification of measurability, flexibility, comprehensiveness, and applicability as overarching characteristics of the assessment model. These characteristics recognize that specialized courses differ in their objectives, content, target groups, duration, and expected outcomes. Consequently, the same indicators cannot necessarily be applied with equal weight to every training program. Reviews of training transfer measurement demonstrate substantial heterogeneity in instruments and assessment approaches and indicate that no single measure is optimal for all occupational and organizational contexts [4, 15]. The flexibility identified in the present study therefore does not imply methodological inconsistency; instead, it reflects the need to maintain a common conceptual structure while adapting operational indicators to specific courses and employee groups. Such adaptability is compatible with contemporary approaches to organizational training that emphasize integrated but contextually responsive models linking competency development with organizational priorities [33].

Overall, the proposed model advances a systemic interpretation of specialized accounting training effectiveness. Its central implication is that effectiveness cannot be created by one isolated component. Accurate needs assessment without high-quality delivery is insufficient; high-quality instruction without job relevance may generate learning without application; learning without organizational support may fail to transfer; and transfer that is not linked to performance indicators may remain invisible to organizational decision makers. This interpretation is consistent with evidence showing that pre-training and post-training conditions influence whether acquired competencies ultimately improve workplace performance [35]. It also corresponds with previous research emphasizing that in-service training effectiveness emerges through the interaction of needs assessment, employee motivation, instructional conditions, organizational support, and follow-up mechanisms [8, 9]. Therefore, the principal contribution of the present study lies in integrating these general training-effectiveness principles with the specific professional requirements of accounting and taxation work and organizing them into a coherent sequence extending from training prerequisites to organizational outcomes.

The present study has several limitations that should be considered when interpreting its findings. First, the research was qualitative and exploratory, and the proposed model was developed from interviews with 15 experts together with a review of relevant studies; consequently, the magnitude and statistical significance of relationships among the identified dimensions were not empirically tested. Second, purposive sampling was necessary for obtaining information-rich expert perspectives, but it limits the extent to which the participants can be considered representative of all employees, managers, instructors, and training specialists within the Iranian National Tax Administration. Third, the findings reflect the institutional and occupational context of a specific public-sector organization and may not be directly generalizable to private accounting firms, other governmental organizations, or tax administrations operating under different legal and administrative systems. Fourth, the proposed model incorporates outcomes extending from learning to organizational results, but the present study did not longitudinally observe employees before and after participation in training. Finally, because regulations, digital systems, taxation practices, and accounting technologies continue to change, some specialized competency requirements identified in the study may require periodic revision.

Future studies should quantitatively validate the proposed model using sufficiently large and diverse samples of employees, managers, trainers, and human resource development specialists. Confirmatory factor analysis and structural equation modeling could be employed to examine the construct validity of the dimensions and test the

direct and indirect relationships among needs assessment, job relevance, training quality, learning, transfer, job performance, and organizational outcomes. Longitudinal studies are particularly recommended to determine whether learning observed immediately after training is sustained and translated into workplace performance over time. Researchers could also compare different categories of specialized training, organizational units, occupational positions, and geographical regions to determine whether the relative importance of model components varies across contexts. Comparative research involving other public organizations or tax administrations in different countries could further establish the transferability of the model. Future studies should additionally investigate moderating variables such as employee motivation, managerial support, digital readiness, organizational culture, workload, opportunities for application, and technological infrastructure. Developing and validating practical measurement instruments for each dimension would also enable the model to be transformed from a conceptual framework into a standardized but adaptable evaluation system.

From a practical perspective, the Iranian National Tax Administration should use the proposed model as an integrated training-management cycle rather than applying it only as a post-course evaluation instrument. Training programs should begin with systematic identification of competency and performance gaps at organizational, occupational, and individual levels, after which employees should be assigned to courses according to actual job requirements. Specialized curricula should be regularly updated to reflect changes in direct taxation, value-added tax, auditing procedures, accounting standards, organizational software, digital services, data-processing systems, and emerging technologies. Instructors should be selected on the basis of both subject-matter expertise and practical professional experience, and training should emphasize real cases, problem-solving, simulations, document analysis, practical exercises, and active learner participation. Evaluation should be conducted at multiple points, including immediate learning, subsequent workplace application, changes in job performance, and longer-term organizational outcomes. Managers should be formally involved in the process by providing opportunities for employees to apply acquired competencies and by monitoring workplace changes after training. Finally, training evaluation data should be fed back into future needs assessment, course design, instructor selection, content revision, and resource allocation so that specialized accounting training operates as a continuous improvement system rather than a series of disconnected educational events.

Authors' Contributions

Authors equally contributed to this article.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

Acknowledgments

Authors thank all participants who participate in this study.

Conflict of Interest

The authors report no conflict of interest.

Funding/Financial Support

According to the authors, this article has no financial support.

References

[1] R. R. Zalukhu, D. Lase, and A. Telaumbanua, "The effectiveness of employee training and development: A systematic literature review from a human resource management perspective," *JMKSP (Jurnal Manajemen, Kepemimpinan, dan Supervisi Pendidikan),* vol. 10, no. 2, pp. 1027-1043, 2025, doi: 10.31851/jmksp.v10i2.19481.

[2] J. Kim, H. Chang, and B. S. Bell, "Organizational-level training and performance: A meta-analytic investigation," *Journal of Management,* vol. 52, no. 5, pp. 1772-1809, 2026, doi: 10.1177/01492063251327588.

[3] K. Nielsen and R. Shepherd, "Understanding the outcomes of training to improve employee mental health: A novel framework for training transfer and effectiveness evaluation," *Work & Stress,* vol. 36, no. 4, pp. 377-391, 2022, doi: 10.1080/02678373.2022.2028318.

[4] M. Ardondi *et al.*, "Workplace training transfer: A systematic scoping review of evaluation tools for adult learning," *Journal of Workplace Learning,* vol. 38, no. 1, pp. 1-21, 2026, doi: 10.1108/JWL-03-2025-0068.

[5] N. Robert and N. Mori, "Effects of training needs assessment in enhancing employees' skills and firm performance," *Journal of Work-Applied Management,* vol. 17, no. 1, pp. 82-98, 2025, doi: 10.1108/JWAM-05-2023-0046.

[6] A. Shukla, S. Dash, and A. Kumar, "Factors affecting transfer of online training: A systematic literature review and proposed taxonomy," *Human Resource Development Quarterly,* vol. 35, no. 3, pp. 363-390, 2024, doi: 10.1002/hrdq.21518.

[7] E. Arabi and T. Garza, "Training design enhancement through training evaluation: Effects on training transfer," *International Journal of Training and Development,* vol. 27, no. 2, pp. 191-219, 2023, doi: 10.1111/ijtd.12295.

[8] H. Bakhtiari, H. Bejani, and M. Sajjadi, "An assessment of in-service training courses at the Prevention Police Training Complex," *Police Order and Security Research,* vol. 17, no. 3, pp. 97-122, 2024.

[9] Z. Yousefi, M. N. Imani, and H. A. Jahed, "Prioritizing dimensions, components, and indicators for improving in-service training effectiveness among headquarters staff of the Ministry of Health, Treatment and Medical Education," *Health Care Management,* vol. 14, no. 4, pp. 35-50, 2023.

[10] H. Momeni Mahmoui, "Indicators and components of employee empowerment based on in-service training with a heutagogical approach: A research synthesis," *New Approach in Educational Administration,* vol. 15, no. 6, pp. 1-15, 2024.

[11] A. Rafiei and G. R. Seddigh Oruee, "Examining the lack or weakness of employee motivation for active and purposeful participation in government in-service training classes: A grounded theory model," *Human Resource Training and Development,* no. 40, pp. 113-163, 2024.

[12] P. Ghosh, "Exploring readiness of learners to transfer training: An interactionist approach," *European Journal of Training and Development,* vol. 46, no. 1/2, pp. 86-104, 2022, doi: 10.1108/EJTD-05-2020-0085.

[13] L. E. Creon and C. C. Schermuly, "A new path to training transfer: Transformational trainers and psychologically empowered training participants," *International Journal of Training and Development,* vol. 26, no. 2, pp. 228-244, 2022, doi: 10.1111/ijtd.12256.

[14] M. Akdere, Y. Jiang, and K. Acheson, "To simulate or not to simulate? Comparing the effectiveness of video-based training versus virtual reality-based simulations on interpersonal skills development," *Human Resource Development Quarterly,* vol. 34, no. 4, pp. 437-462, 2023, doi: 10.1002/hrdq.21470.

[15] A. O'Neill, "Transfer of workplace e-learning: A systematic literature review," *Social Sciences & Humanities Open,* vol. 11, p. 101407, 2025, doi: 10.1016/j.ssaho.2025.101407.

[16] M. Deckers, T. Altmann, and M. Roth, "The influence of individual personality traits and team characteristics on training transfer: A longitudinal study," *International Journal of Training and Development,* vol. 26, no. 1, pp. 69-101, 2022, doi: 10.1111/ijtd.12237.

[17] B. D. Blume, J. L. Huang, Z. Wang, and J. K. Ford, "Promoting transfer of hybrid training: Interaction of task-contingent conscientiousness and supervisor support," *Human Resource Development Quarterly,* vol. 34, pp. 265-287, 2023, doi: 10.1002/hrdq.21473.

[18] L. Mehner, S. Rothenbusch, and S. Kauffeld, "How to maximize the impact of workplace training: A mixed-method analysis of social support, training transfer and knowledge sharing," *European Journal of Work and Organizational Psychology,* vol. 34, no. 2, pp. 201-217, 2025, doi: 10.1080/1359432X.2024.2319082.

[19] A. Rajabipour Meybodi, M. Ahmadi Zahrani, M. Safi, and A. Jamdi, "Identifying managers' roles in the transfer of staff training at universities: A thematic analysis," *Marine Science Education,* vol. 11, no. 1, pp. 44-57, 2024.
[20] S. Talebi Garkani, H. R. Zeinabadi, S. Jafarinia, and A. Hassanpour, "A reflection on the attitudes, strategies, and behaviors of training transfer leaders: Findings from a qualitative study," *Public Management Perspective,* vol. 14, no. 53, 2023.
[21] S. Mirzakhani, M. Rafiei, and R. Mehdiyoun, "Individual factors, training design, and organizational support in relation to training transfer and teacher performance," *Positive Behavior in Educational Organizations,* vol. 2, no. 4, pp. 47-63, 2024.
[22] M. Erfani Khanqahi and S. Bagheri, "Factors influencing training transfer among employees of Tehran medical universities," *Education Strategies in Medical Sciences,* vol. 16, no. 2, pp. 183-189, 2023.
[23] S. Handoyo, "Evolving paradigms in accounting education: A bibliometric study on the impact of information technology," *The International Journal of Management Education,* vol. 22, no. 3, p. 100998, 2024, doi: 10.1016/j.ijme.2024.100998.
[24] A. Novak, "Digital skills of professional accountants: Insights from the literature review," *Journal of Accounting and Auditing: Research & Practice,* vol. 2025, p. 747803, 2025, doi: 10.5171/2025.747803.
[25] W. Moran, "The essential AI skills and knowledge that business accounting students should acquire," *Journal of Management and Business Education,* vol. 8, no. 2, pp. 147-167, 2025, doi: 10.35564/jmbe.2025.0009.
[26] A. M. Abdo-Salloum and H. Y. Al-Mousawi, "Accounting students' technology readiness, perceptions, and digital competence toward artificial intelligence adoption in accounting curricula," *Journal of Accounting Education,* vol. 70, p. 100951, 2025, doi: 10.1016/j.jaccedu.2025.100951.
[27] H. M. Al-Hattami, "Understanding how digital accounting education fosters innovation: The moderating roles of technological self-efficacy and digital literacy," *The International Journal of Management Education,* vol. 23, no. 2, p. 101131, 2025, doi: 10.1016/j.ijme.2025.101131.
[28] E. Blondeel *et al.*, "The effects of generative artificial intelligence (GenAI) on learning in an accounting data analytics course," *Journal of Accounting Education,* vol. 72, p. 100987, 2025, doi: 10.1016/j.jaccedu.2025.100987.
[29] M. Tharapos *et al.*, "Generative AI in accounting education: Evaluating ChatGPT's role in assessment and skill development," *Accounting & Finance,* vol. 65, no. 3, pp. 3231-3244, 2025, doi: 10.1111/acfi.70051.
[30] A. Tiron-Tudor, A. Labaditis, and D. Deliu, "Future-ready digital skills in the AI era: Bridging market demands and student expectations in the accounting profession," *Technological Forecasting and Social Change,* vol. 215, p. 124105, 2025, doi: 10.1016/j.techfore.2025.124105.
[31] Oecd, *Tax administration 2024: Comparative information on OECD and other advanced and emerging economies*. OECD Publishing, 2024.
[32] C. Joynt, "How to assess the effectiveness of accounting education interventions: Evidence from the assessment of a bridging course before introductory accounting," *Meditari Accountancy Research,* vol. 30, no. 7, pp. 237-255, 2022, doi: 10.1108/MEDAR-01-2022-1571.
[33] F. Kaki, F. Roudgarnejad, and S. F. Moghimi, "Development and validation of an organizational training model to enhance policymaking capacity," *Education, Training and Sustainable Development,* vol. 3, no. 1, pp. 1-16, 2025, doi: 10.61838/jtesd.729.
[34] H. Morgan, "Conducting a Qualitative Document Analysis," *The Qualitative Report,* vol. 27, no. 1, pp. 64-77, 2022, doi: 10.46743/2160-3715/2022.5044.
[35] J. Wittig *et al.*, "A systematic review on conditions before and after training of teamwork competencies and the effect on transfer of skills to the clinical workplace," *Simulation in Healthcare,* vol. 20, no. 2, pp. 111-117, 2025, doi: 10.1097/SIH.0000000000000809.