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Exploring the Role of Human Resource Coaching in Facilitating Knowledge Sharing and Retaining Clinical Experience: A Qualitative–Quantitative Study in Hospitals of Khuzestan Province

ABSTRACT

This study aimed to develop and quantitatively validate a context-specific model of human resource coaching for facilitating knowledge sharing and retaining clinical experience among personnel in governmental and teaching hospitals of Khuzestan Province. An applied–developmental mixed-methods study with an exploratory sequential design was conducted. In the qualitative phase, 15 managers, supervisors, training officers, human resource specialists, physicians, and experienced head nurses were selected through purposive maximum-variation sampling until theoretical saturation was reached. Data were collected through semi-structured interviews and analyzed inductively through qualitative content analysis using open, axial, and selective coding. The qualitative phase yielded 140 initial codes, 23 subcategories, and five major dimensions. These findings were used to develop an initial 51-item researcher-made questionnaire. In the quantitative phase, 405 questionnaires were collected, of which 391 valid responses were analyzed using SPSS and AMOS. Reliability was assessed using Cronbach's alpha and composite reliability, while construct validity was examined through covariance-based confirmatory factor analysis, average variance extracted, the Fornell–Larcker criterion, and HTMT. Confirmatory factor analysis reduced the initial 51-item instrument to a final 41-item, five-dimensional measurement model. All retained standardized factor loadings exceeded 0.50 and were statistically significant at $p < 0.001$. Composite reliability coefficients ranged from 0.881 to 0.906. The integrated measurement model demonstrated acceptable fit, with CMIN/DF = 1.833, CFI = 0.928, IFI = 0.928, TLI = 0.922, RMSEA = 0.046, and PCLOSE = 0.949. HTMT values ranged from 0.062 to 0.833 and remained below the conservative threshold of 0.85, supporting discriminant validity, although convergent validity was marginal for two dimensions. The findings support a five-dimensional model in which experiential learning mechanisms, human-relational requirements, organizational support, employee-level professional outcomes, and team-organizational outcomes jointly explain the role of human resource coaching in facilitating clinical knowledge sharing and preserving experiential knowledge in hospitals.

Keywords: Human Resource Coaching; Knowledge Sharing; Clinical Experience; Knowledge Retention; Experiential Learning; Hospital Management

Introduction

Healthcare organizations operate in environments characterized by high professional complexity, rapid technological change, interdisciplinary dependence, and continuous exposure to clinical uncertainty. In such settings, organizational effectiveness depends not only on formal protocols, technological infrastructure, and professional qualifications, but also on the capacity of personnel to acquire, exchange, interpret, and preserve experiential knowledge. Hospitals are particularly dependent on knowledge that is developed through repeated exposure to patients, clinical judgment, problem solving, teamwork, and adaptation to unexpected situations. Within contemporary human resource management, coaching has

increasingly been recognized as a developmental mechanism that can connect individual learning with organizational capability. Rather than being limited to corrective supervision or formal training, coaching emphasizes guided reflection, feedback, questioning, experiential learning, and the development of employees' capacity to solve problems independently. In this sense, coaching can function as a relational process through which experienced personnel support less experienced employees in interpreting work situations, recognizing patterns, improving decision making, and internalizing professional standards. Research has increasingly linked coaching to human resource empowerment, professional development, productivity, and sustainable human capital development [1-3]. This perspective is particularly relevant in hospitals, where learning frequently occurs within the workflow itself and where clinical competence depends on the integration of formal knowledge with context-sensitive experiential understanding.

The growing interest in organizational coaching reflects broader changes in the conceptualization of human resource development. Traditional training models generally emphasize structured instruction, predetermined learning content, and discrete educational episodes. Coaching, by contrast, is embedded more directly in employees' ongoing work experiences and is often personalized according to individual developmental needs. This feature enables coaching to support learning in situations where standardized training cannot fully capture contextual complexity. Studies in organizational and public-sector environments have shown that coaching can contribute to employee empowerment, motivation, self-development, engagement, and person–organization fit [2, 4, 5]. Coaching may therefore be viewed not merely as an interpersonal management technique, but as a broader human resource development architecture through which organizations cultivate capabilities, reinforce professional learning, and sustain institutional knowledge.

A central mechanism underlying the value of coaching is its relationship with workplace learning. Learning in organizations does not occur exclusively through formal courses; it also emerges from observation, participation, feedback, dialogue, shared problem solving, and reflection on experience. Peer coaching research has emphasized that workplace learning is socially constructed through interaction with colleagues and through the interpretation of practical experiences within professional communities [6]. From this perspective, coaching can create structured or semi-structured opportunities for employees to articulate what they know, explain how they interpret work situations, and expose implicit assumptions that might otherwise remain unspoken. Such interactions are particularly important for the transfer of tacit knowledge because experiential expertise is often difficult to document comprehensively. Through questioning, demonstration, feedback, and guided participation, coaching may transform individual experience into shared organizational learning.

This relationship between coaching and knowledge sharing is especially significant in healthcare institutions. Clinical practice requires healthcare workers to integrate scientific evidence with patient-specific information, situational awareness, teamwork, and accumulated experience. Although explicit clinical knowledge can be communicated through guidelines, electronic records, protocols, and continuing education, tacit clinical knowledge often develops through repeated exposure to difficult cases, informal consultation, observation of experienced colleagues, and reflection on previous successes and failures. In these circumstances, coaching may provide a mechanism for making experiential knowledge more visible and transferable. By creating opportunities for professional dialogue and reflective interaction, coaching can help experienced personnel communicate not only what should be done, but also why a particular response is appropriate, how priorities should be established, and how subtle contextual cues influence professional judgment.

The effectiveness of coaching, however, depends substantially on the competence of those performing the coaching role. Managerial coaching is itself a developmental capability that requires learning, practice, interpersonal sensitivity, and the capacity to adapt coaching behaviors to employees' needs. Recent scholarship has emphasized that managerial coaches develop through multiple forms of experience and that effective coaching cannot be reduced to a fixed set of conversational techniques [7]. Similarly, research on transformative learning has shown that coaching competencies must support reflection, perspective change, psychological safety, and learner autonomy rather than simply transmitting advice [8]. In healthcare organizations, this implies that clinically experienced employees are not automatically effective coaches; they may possess substantial professional knowledge but still require relational and developmental competencies to transfer that knowledge effectively.

The relational foundation of coaching is therefore a critical issue. Coaching typically requires trust, openness, reciprocal communication, and sufficient psychological safety for employees to disclose uncertainty, ask questions, discuss errors, and accept corrective feedback. These conditions can be difficult to establish in hierarchical organizations. The practice of managers acting as coaches may be affected by unequal power relations, because employees may perceive developmental conversations differently when the coach also has authority over evaluation, promotion, workload, or disciplinary decisions [9]. In hospitals, where occupational hierarchies can be pronounced and where clinical errors may carry serious consequences, such power asymmetries can inhibit open communication. An employee who fears judgment or reputational damage may avoid acknowledging uncertainty or requesting guidance, thereby reducing the effectiveness of coaching as a mechanism for knowledge sharing.

For this reason, human and relational requirements must be considered alongside coaching techniques themselves. Effective coaching depends on the willingness of experienced personnel to share knowledge, the readiness of learners to ask questions and receive feedback, and the quality of interpersonal relationships between those involved. Organizational studies have indicated that coaching may strengthen job engagement, employee performance, learning, commitment, and recognition when embedded in supportive human resource systems [10, 11]. Similarly, research on human resource training has highlighted the importance of identifying and prioritizing organizational and interpersonal factors that enable coaching processes to function effectively [12]. These findings suggest that coaching outcomes are unlikely to emerge simply from introducing a formal coaching program; instead, coaching must be supported by appropriate interpersonal norms, organizational structures, and motivational conditions.

The organizational context is equally important because knowledge sharing is shaped by workload, time availability, cultural expectations, managerial support, documentation practices, and the perceived value of developmental interaction. Hospitals frequently operate under conditions of time pressure, staff shortages, emotional demands, and high workload. Under such circumstances, experienced employees may possess the willingness and expertise necessary for coaching but lack sufficient time to guide colleagues systematically. Furthermore, if organizational reward systems prioritize immediate productivity over teaching, reflection, and collaboration, knowledge-sharing behaviors may be displaced by short-term operational demands. Research on coach-oriented organizations has identified both drivers and inhibitors related to organizational culture, human capital development, managerial support, and structural readiness [13]. Likewise, the development of coaching competencies among managers has been associated with organizational systems that intentionally cultivate developmental leadership rather than relying solely on individual initiative [14].

These contextual conditions are particularly relevant to the retention of organizational memory. Knowledge retention requires more than interpersonal transmission because experience may disappear when knowledgeable employees leave the organization. Effective retention therefore involves interaction between human relationships and institutional mechanisms for capturing, distributing, and preserving knowledge. Coaching can contribute to this process by stimulating employees to articulate tacit knowledge, explain the reasoning behind decisions, and transfer professional routines to colleagues. However, the continuity of such knowledge also depends on documentation, team learning, succession planning, and the development of organizational practices that prevent experience from remaining concentrated in isolated individuals. From a sustainable human resource perspective, coaching can therefore support both current employee development and longer-term organizational resilience by enabling human capital to be reproduced rather than lost [3].

The potential outcomes of coaching extend beyond knowledge transfer itself. Evidence from human resource research suggests that coaching can influence employee performance through learning, commitment, reward, recognition, engagement, and self-development mechanisms [2, 10]. In operational settings, coaching has also been associated with employee motivation and the capacity of managers to create developmental environments [4]. Research in the Lebanese banking sector similarly reported a relationship between coaching and employee performance, demonstrating the relevance of coaching as a human resource management intervention across organizational contexts [15]. Although these studies were not conducted in clinical environments, they provide evidence that coaching may influence both individual performance and broader organizational functioning through multiple mediating pathways.

At the team level, coaching may also strengthen coordination, collaborative decision making, flexibility, and social responsibility. Team coaching research has suggested that coaching can support group decision processes and organizational adaptability by enhancing human resource flexibility [16]. High-performance human resource development models based on team coaching similarly emphasize collaboration, knowledge exchange, collective capability, and developmental interaction as mechanisms for strengthening organizational performance [17]. These outcomes have clear relevance to hospitals because patient care depends on multidisciplinary coordination, rapid information exchange, and the ability of teams to adapt collectively to changing conditions. Clinical expertise that remains isolated within individual employees cannot contribute fully to organizational performance unless it is incorporated into team routines and shared professional understanding.

Nevertheless, coaching should not be conceptualized as uniformly beneficial. Recent research has drawn attention to unsuccessful workplace coaching interventions and to the conditions under which coaching may fail to produce intended outcomes [18]. Inadequate coach competence, poor coach–coachee fit, unclear expectations, insufficient organizational support, lack of psychological safety, resistance to feedback, and poorly designed interventions can all undermine coaching effectiveness. These concerns are particularly important in healthcare, where inappropriate coaching relationships may waste scarce time or reproduce unhelpful power dynamics rather than facilitate genuine learning. Accordingly, a context-sensitive understanding is required that identifies not only the benefits of coaching but also the human, relational, and organizational conditions necessary for effective knowledge transfer.

The development of talent coaching models further illustrates the need to conceptualize coaching as a system rather than a single managerial behavior. Research using qualitative and combined methodological approaches has identified interrelated dimensions involving developmental relationships, organizational support, competency development, and talent management [19]. Studies of organizational coaching with a human resource empowerment orientation likewise emphasize

multiple antecedents, processes, and consequences rather than a simple direct relationship between coaching and performance [5]. These multidimensional perspectives are useful for healthcare organizations, where coaching may simultaneously function as a learning mechanism, a relational process, a knowledge-transfer channel, and a strategy for sustaining professional capabilities.

Another relevant consideration is job crafting and employee engagement. Managers' coaching skills may encourage employees to actively reshape their work experiences and become more cognitively and emotionally involved in their roles [11]. In clinical environments, greater engagement may increase employees' willingness to seek feedback, participate in collaborative learning, and share professional experiences with colleagues. Similarly, peer and team-based coaching can strengthen shared learning because knowledge becomes embedded in social interaction rather than remaining dependent on top-down managerial instruction [6, 17]. Thus, coaching can potentially bridge formal human resource development and informal workplace learning.

Despite the expanding coaching literature, several important gaps remain. Much of the existing research has examined coaching in governmental organizations, educational systems, banking, sports organizations, petrochemical companies, or general organizational contexts [4, 5, 14, 15]. Other studies have focused primarily on empowerment, employee performance, engagement, person–organization fit, talent development, or managerial competency [1, 2, 19]. Although these findings establish a strong conceptual basis for coaching as a human resource development practice, they do not adequately explain how coaching operates as a mechanism for retaining experiential and clinical knowledge within hospital environments.

A second gap concerns the limited integration of individual, relational, and organizational levels. Existing studies often evaluate coaching as an antecedent of an isolated outcome such as job engagement, performance, motivation, or empowerment. However, knowledge retention in hospitals involves a chain of interconnected processes: experienced personnel must be willing and capable of transferring knowledge; less experienced personnel must be receptive to learning; interpersonal relationships must permit questioning and feedback; organizational structures must provide time and support; and the resulting knowledge must contribute to professional competence, team coordination, and institutional continuity. A comprehensive model therefore needs to encompass antecedent conditions, coaching processes, knowledge-sharing mechanisms, and multilevel outcomes.

A third gap relates to context. Hospital environments are distinguished by clinical risk, professional specialization, interdependence, time pressure, emotional demands, and the potentially irreversible consequences of mistakes. These characteristics create a knowledge-sharing environment that differs substantially from many commercial and administrative organizations. The retention of clinical experience is especially important because valuable knowledge may be embodied in senior physicians, nurses, supervisors, and other experienced personnel whose expertise has developed over many years of practice. If such experience is not systematically shared, staff turnover, retirement, and role transitions can create discontinuities in organizational memory. Therefore, empirical investigation within hospital settings is necessary rather than assuming that coaching models established in other sectors can be transferred without adaptation.

A fourth methodological gap concerns the need to integrate inductive exploration with quantitative validation. Coaching and knowledge-sharing processes are deeply contextual and may not be adequately represented by predetermined constructs alone. Qualitative investigation allows participants to identify the meanings, practices, barriers, and relational

dynamics that characterize coaching in their own organizational context, whereas quantitative validation can determine whether the resulting dimensions possess a stable and interpretable measurement structure. A mixed exploratory sequential design is therefore particularly suitable for developing a context-grounded model while simultaneously examining its empirical validity.

The hospitals of Khuzestan Province provide an important setting for such investigation because maintaining clinical competence and preserving experiential knowledge require continuous interaction between experienced and less experienced healthcare personnel. Understanding how human resource coaching can support these processes may offer both theoretical and practical contributions. Theoretically, it can extend coaching research by positioning coaching within the intersection of human resource development, tacit knowledge transfer, workplace learning, and organizational memory. Practically, it can provide hospital managers and human resource professionals with a framework for developing coaching systems that strengthen professional learning, reduce the loss of experiential knowledge, improve succession processes, and support continuity in healthcare delivery. The importance of sustainable human resource development and the systematic development of coaching competencies further supports the need for models that connect developmental relationships with long-term organizational capability [3, 7, 8].

Accordingly, the aim of this study was to explore and quantitatively validate a context-specific model of human resource coaching for facilitating knowledge sharing and retaining clinical experience among personnel working in governmental and teaching hospitals in Khuzestan Province.

Methodology

This study employed an applied–developmental mixed-methods design based on an exploratory sequential approach. The philosophical foundation of the study was pragmatism, which permitted the complementary integration of interpretivist and positivist perspectives across the two phases of the investigation. The interpretivist perspective guided the qualitative phase, in which the experiences and perceptions of healthcare professionals regarding human resource coaching, clinical knowledge sharing, and the retention of professional experience were explored in depth, whereas the positivist and explanatory perspective informed the quantitative phase, which was conducted to empirically examine and validate the measurement structure emerging from the qualitative findings. The research process was implemented sequentially through three interconnected stages. The first stage involved qualitative exploration to identify and conceptualize the principal dimensions, components, and codes associated with coaching mechanisms, clinical knowledge sharing, and the retention of experiential knowledge within hospital settings. In the second stage, the categories and concepts generated from the qualitative analysis were operationalized and transformed into measurable questionnaire items. The third stage involved quantitative validation of the proposed measurement model through confirmatory factor analysis (CFA), thereby providing empirical evidence for the structural validity of the dimensions identified during the qualitative phase.

The qualitative study population consisted of managers, supervisors, training officers, human resource specialists, physicians, and experienced head nurses working in governmental and teaching hospitals in Khuzestan Province, Iran. Participants were required to possess relevant professional experience and sufficient familiarity with organizational processes involving staff guidance, coaching, clinical knowledge transfer, and the preservation and sharing of professional experience. Participants were recruited using purposive sampling with a maximum-variation strategy to ensure representation across

differences in professional background, organizational position, clinical or managerial expertise, years of experience, and hospital context. Sampling and interviewing continued concurrently with data analysis until theoretical saturation was achieved. Saturation was reached at the fifteenth interview, when the analysis of the final interviews yielded no substantively new conceptual codes, categories, or dimensions. The inclusion of participants representing different occupational and organizational roles was intended to provide a multidimensional understanding of how coaching operates within hospital environments and how it may facilitate the transfer of tacit clinical knowledge between experienced and less experienced members of healthcare teams.

The population of the quantitative phase consisted of healthcare professionals and employees working in governmental and teaching hospitals affiliated with universities of medical sciences in Khuzestan Province. The required sample size was determined with consideration of established recommendations for confirmatory factor analysis and structural equation modeling, particularly the adequacy of the respondent-to-item ratio and the need for sufficient statistical power for parameter estimation. Questionnaires were distributed among eligible healthcare personnel across the participating hospitals. A total of 405 completed questionnaires were initially collected. Following data screening, 14 questionnaires were excluded because of substantial missing data, incomplete responses, or response patterns that rendered them unsuitable for statistical analysis. Consequently, 391 valid and complete questionnaires were retained and constituted the final quantitative sample. This sample size was considered adequate for covariance-based confirmatory factor analysis and for assessing both first-order and higher-order measurement structures.

Data in the qualitative phase were collected through semi-structured, in-depth interviews. An interview protocol was developed in accordance with the objectives of the study and was designed to elicit detailed accounts of participants' experiences concerning the retention of clinical expertise, formal and informal human resource coaching practices, mechanisms for transferring tacit and experiential knowledge, barriers to knowledge sharing, relationships between experienced and less experienced healthcare professionals, and organizational conditions that could facilitate or constrain the preservation of clinical knowledge. The interview questions were predominantly open-ended, allowing participants to describe their experiences in their own terms while enabling the interviewer to use probing questions when clarification, elaboration, or concrete examples were required. After obtaining informed consent, interviews were recorded and subsequently transcribed verbatim to preserve the accuracy and contextual richness of the participants' accounts. The resulting textual data constituted the primary dataset for the qualitative analysis.

The rigor and trustworthiness of the qualitative phase were addressed according to the criteria of credibility, transferability, dependability, and confirmability proposed by Lincoln and Guba. Credibility was strengthened through prolonged engagement with the research context, participant checking of interpretations when appropriate, and peer review of the analytical process with academic supervisors and subject-matter experts. Transferability was enhanced through detailed description of the hospital context, professional characteristics of the participants, sampling strategy, and circumstances under which the data were generated, thereby enabling readers to assess the applicability of the findings to comparable healthcare environments. Dependability was addressed by systematically documenting the stages of data collection, coding, category development, and analytical decision-making and by maintaining an audit trail of methodological procedures. Confirmability was strengthened through researcher reflexivity, careful documentation of interpretive decisions, and continuous efforts to distinguish interpretations grounded in participants' accounts from the researchers' prior

assumptions or expectations. These procedures were used collectively to enhance the methodological transparency and qualitative integrity of the study.

The quantitative data collection instrument was a researcher-developed questionnaire constructed directly from the concepts, codes, subcategories, and major dimensions generated during the qualitative phase. Thus, the quantitative instrument represented an explicit integration point between the qualitative and quantitative components of the exploratory sequential design. Each item was formulated to operationalize a specific aspect of human resource coaching, knowledge sharing, or the retention and transfer of clinical experience identified in the qualitative analysis. Responses were recorded using a five-point Likert scale ranging from 1, representing “strongly disagree,” to 5, representing “strongly agree.” The preliminary questionnaire contained 51 items. Following psychometric assessment and confirmatory factor analysis, items demonstrating inadequate psychometric performance, particularly weak standardized factor loadings or insufficient contribution to their intended latent construct, were removed. The final measurement instrument comprised 41 items distributed across five principal dimensions.

Face and content validity of the preliminary questionnaire were evaluated by an expert panel with relevant academic and professional expertise in human resource management, organizational behavior, healthcare management, and health service administration. Panel members examined the items with respect to semantic clarity, comprehensibility, simplicity, conceptual relevance, and consistency with the qualitative categories from which they had been derived. Modifications were subsequently made to improve wording and reduce ambiguity while preserving correspondence between the questionnaire items and the original qualitative findings. Construct validity was subsequently evaluated using covariance-based confirmatory factor analysis (CB-CFA) in AMOS. Convergent validity was examined through the magnitude and statistical significance of standardized factor loadings and calculation of the average variance extracted (AVE). Standardized factor loadings greater than 0.50 were considered satisfactory indicators of item–construct relationships, while AVE values exceeding 0.50 were considered indicative of acceptable convergent validity. Discriminant validity was assessed by examining inter-construct correlations and applying the Fornell–Larcker criterion to determine whether each latent construct shared greater variance with its own indicators than with other constructs represented in the measurement model. Reliability was assessed through two complementary indices of internal consistency: Cronbach's alpha and composite reliability. These procedures provided evidence regarding the consistency, stability, and psychometric adequacy of the final 41-item measurement instrument.

Qualitative data were analyzed using conventional qualitative content analysis with an inductive orientation. Analysis commenced immediately after the first interviews and proceeded concurrently with subsequent data collection, allowing emerging concepts to inform later interviews and facilitating the assessment of theoretical saturation. Each interview transcript was read repeatedly to obtain an overall understanding of the participant's account before meaning units relevant to the research objectives were identified. The data were progressively organized through open, axial, and selective coding. During open coding, meaningful statements and segments of text were assigned conceptual labels reflecting the participants' experiences and interpretations. Similar codes were continuously compared, refined, and grouped during axial coding to generate conceptually coherent subcategories and clarify relationships among emerging concepts. During selective coding, related subcategories were integrated into broader conceptual dimensions representing the central mechanisms through which human resource coaching could facilitate knowledge sharing and preserve clinical experience in hospital organizations.

Constant comparison was maintained throughout the analytical process to identify similarities, differences, conceptual overlap, and relationships across interviews and professional groups. The final qualitative analysis resulted in 140 initial codes, which were progressively condensed and organized into 23 subcategories and five overarching dimensions. These empirically derived dimensions subsequently provided the conceptual foundation for development of the quantitative measurement instrument.

Quantitative data were analyzed using SPSS and AMOS. Before the primary analyses, the dataset was screened for completeness, coding accuracy, missing values, and questionnaires unsuitable for statistical analysis. Descriptive statistical procedures were used to characterize the study sample and summarize the distribution of questionnaire responses. The psychometric structure of the researcher-developed instrument was then evaluated using covariance-based confirmatory factor analysis. Both first-order and second-order CFA models were examined to determine whether the observed questionnaire items adequately represented their respective dimensions and whether the five first-order dimensions could be interpreted as components of a broader higher-order construct reflecting the role of human resource coaching in facilitating clinical knowledge sharing and the retention of professional experience.

Model adequacy was evaluated using several complementary goodness-of-fit indices rather than relying exclusively on the chi-square statistic, given its sensitivity to sample size. The chi-square-to-degrees-of-freedom ratio was examined alongside incremental and comparative fit indices, including the Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), and Incremental Fit Index (IFI). Values of CFI, TLI, and IFI greater than 0.90 were interpreted as evidence of acceptable model fit. The Root Mean Square Error of Approximation (RMSEA) was additionally examined as an index of approximate model fit, with values below 0.08 considered indicative of an acceptable level of approximation error. Standardized factor loadings, their statistical significance, average variance extracted, composite reliability, Cronbach's alpha coefficients, inter-construct correlations, and discriminant validity criteria were evaluated collectively in determining the psychometric adequacy of the final measurement model. The combination of qualitative inductive analysis and quantitative covariance-based validation enabled the study to move systematically from contextually grounded clinical and organizational experiences to an empirically tested measurement structure for explaining the role of human resource coaching in knowledge sharing and the preservation of clinical experience within hospitals in Khuzestan Province.

Findings and Results

In the qualitative phase, analysis of the 15 interviews reached theoretical saturation and produced 140 initial codes. Through progressive comparison, abstraction, and integration, these codes were organized into 23 final subcategories and five overarching dimensions. The resulting structure indicated that human resource coaching in hospital settings was not limited to the direct transmission of information; rather, it represented a multilayered process involving experiential learning mechanisms, human and relational prerequisites, organizational support conditions, employee-level professional outcomes, and team- and organization-level consequences.

The first dimension, Foundations of Coaching and Experiential Learning, comprised six subcategories and reflected the mechanisms through which clinical experience was generated, communicated, observed, internalized, and refined in everyday hospital practice. These mechanisms included learning through direct participation and observation, tacit knowledge transfer, dialogue and questioning, feedback and reflection, learning from errors and critical clinical situations,

and professional role modeling. The second dimension, Human and Relational Requirements of Coaching, consisted of five subcategories emphasizing that effective coaching depended on the competence and motivation of experienced personnel, the readiness and feedback receptivity of learners, psychological safety, mutual respect, professional and emotional support, and responsiveness to generational and individual differences. The third dimension, Organizational Contexts Supporting Coaching and Knowledge Retention, consisted of three subcategories concerning workload and time constraints, organizational culture and managerial support, and mechanisms for documentation and preservation of organizational memory. The fourth dimension, Professional Outcomes of Coaching at the Employee Level, included three subcategories related to experiential judgment and problem solving, professional self-efficacy and resilience, and the development of professional identity and responsibility. Finally, the fifth dimension, Team and Organizational Outcomes of Coaching and Experience Transfer, contained six subcategories reflecting improvements in quality and continuity of care, team coordination and trust, standardization of performance and training, collective learning, human capital development and succession planning, and organizational sustainability and agility.

Table 1

Final qualitative dimensions and subcategories of the human resource coaching model

Code	Main dimension	Final subcategory
SC01	Foundations of coaching and experiential learning	Learning through work, observation, and practical accompaniment
SC02	Foundations of coaching and experiential learning	Transfer of tacit knowledge and professional know-how
SC03	Foundations of coaching and experiential learning	Dialogue, questioning, and exchange of experience
SC04	Foundations of coaching and experiential learning	Feedback, reflection, and performance correction
SC05	Foundations of coaching and experiential learning	Learning from errors, crises, and real clinical situations
SC06	Foundations of coaching and experiential learning	Role modeling and internalization of professional behavior
SC07	Human and relational requirements of coaching	Competence, motivation, and commitment of the experience provider
SC08	Human and relational requirements of coaching	Learner readiness, questioning, and receptiveness to feedback
SC09	Human and relational requirements of coaching	Trust, respect, psychological safety, and reciprocal communication
SC10	Human and relational requirements of coaching	Professional and emotional support for newcomers
SC11	Human and relational requirements of coaching	Generational and individual differences in learning
SC12	Organizational contexts supporting coaching and knowledge retention	Time constraints, workload, and burnout
SC13	Organizational contexts supporting coaching and knowledge retention	Organizational support, culture, and readiness
SC14	Organizational contexts supporting coaching and knowledge retention	Documentation, distribution, and preservation of organizational memory
SC15	Professional outcomes of coaching at the employee level	Experience-based judgment, decision making, and problem solving
SC16	Professional outcomes of coaching at the employee level	Efficiency, autonomy, resilience, and professional self-efficacy
SC17	Professional outcomes of coaching at the employee level	Professional identity, responsibility, and maturity
SC18	Team and organizational outcomes of coaching and experience transfer	Quality, safety, and continuity of care
SC19	Team and organizational outcomes of coaching and experience transfer	Coordination, trust, and team cohesion
SC20	Team and organizational outcomes of coaching and experience transfer	Standardization of performance and training quality
SC21	Team and organizational outcomes of coaching and experience transfer	Collective learning, learning culture, and continuous improvement
SC22	Team and organizational outcomes of coaching and experience transfer	Human capital, succession planning, and organizational knowledge advantage
SC23	Team and organizational outcomes of coaching and experience transfer	Sustainability, agility, and continuity of organizational performance

These qualitative results constituted the conceptual basis for the initial 51-item questionnaire. Importantly, the five dimensions were retained throughout the subsequent quantitative validation process even where individual indicators were later removed because of insufficient measurement performance. Thus, quantitative item purification did not alter the qualitative conceptual structure of the model.

Descriptive analysis was conducted using the 391 valid questionnaires. As shown in Table 2, the highest mean score was observed for Professional Outcomes of Coaching at the Employee Level (M = 3.77, SD = 0.713), followed by Team and Organizational Outcomes of Coaching and Experience Transfer (M = 3.54, SD = 0.666). The mean scores for Foundations of Coaching and Experiential Learning and Organizational Contexts Supporting Coaching and Knowledge Retention were 3.28

and 3.21, respectively. The lowest mean was observed for Human and Relational Requirements of Coaching (M = 2.85, SD = 0.476). This pattern suggests that respondents evaluated the professional and organizational consequences of coaching more positively than the existing relational conditions necessary for its optimal implementation.

Table 2

Descriptive statistics for the five main dimensions

Dimension	Code	n	Minimum	Maximum	Mean	SD	Skewness	Kurtosis
Foundations of coaching and experiential learning	L	391	1.67	4.83	3.28	0.712	−0.264	−0.837
Organizational contexts supporting coaching and knowledge retention	O	391	1.11	5.00	3.21	0.708	−0.110	−0.479
Professional outcomes of coaching at the employee level	P	391	1.00	5.00	3.77	0.713	−0.487	0.331
Human and relational requirements of coaching	R	391	1.40	3.99	2.85	0.476	−0.596	0.335
Team and organizational outcomes of coaching and experience transfer	S	391	1.50	5.00	3.54	0.666	0.239	−0.272

The skewness coefficients ranged from −0.596 to 0.239 and the kurtosis coefficients ranged from −0.837 to 0.335. These values indicated no substantial deviation from univariate normality and supported the suitability of the data for the subsequent covariance-based confirmatory factor analyses.

Internal consistency was initially examined for all 51 questionnaire items before confirmatory factor analysis. The 12 items representing Foundations of Coaching and Experiential Learning produced a Cronbach's alpha of 0.927. Corrected item-total correlations ranged from 0.569 to 0.763, while alpha coefficients if individual items were deleted ranged between 0.918 and 0.925. Because none of these values exceeded the overall alpha coefficient, all 12 items were initially retained. The nine Organizational Context items produced an alpha of 0.910, corrected item-total correlations of 0.610–0.761, and alpha-if-deleted coefficients of 0.895–0.906. Likewise, none of the nine items warranted removal at the reliability stage.

The eight Professional Outcomes items yielded a Cronbach's alpha of 0.905 and a standardized-item alpha of 0.907. Corrected item-total correlations ranged from 0.589 to 0.779, and alpha coefficients following hypothetical deletion ranged from 0.885 to 0.903. For the Human and Relational Requirements dimension, the 10 items produced an alpha of 0.882 and standardized alpha of 0.898; corrected item-total correlations ranged from 0.587 to 0.671, while alpha-if-deleted coefficients ranged from 0.868 to 0.877. The 12 Team and Organizational Outcomes items showed an alpha of 0.921 and standardized alpha of 0.922, with corrected item-total correlations between 0.629 and 0.737 and alpha-if-deleted coefficients between 0.912 and 0.917. All 391 questionnaires were included in these reliability analyses, with no case excluded because of missing data.

Table 3

Initial internal consistency of the five dimensions

Dimension	Initial items	Cronbach's α	Standardized α	Corrected item-total correlation range	Reliability assessment
Foundations of coaching and experiential learning	12	0.927	0.927	0.569–0.763	Very good
Organizational contexts supporting coaching and knowledge retention	9	0.910	0.910	0.610–0.761	Very good
Professional outcomes of coaching at the employee level	8	0.905	0.907	0.589–0.779	Very good
Human and relational requirements of coaching	10	0.882	0.898	0.587–0.671	Good
Team and organizational outcomes of coaching and experience transfer	12	0.921	0.922	0.629–0.737	Very good

Overall, Cronbach's alpha values ranged from 0.882 to 0.927 and were therefore well above conventional minimum levels. Across the complete instrument, the lowest corrected item-total correlation was 0.569 and the highest was 0.779. No individual item exhibited a weak relationship with the score of its intended dimension, and deletion of no item would have

increased the corresponding overall alpha coefficient. The close similarity between conventional and standardized alpha coefficients also indicated that differences in item dispersion did not meaningfully distort internal consistency. Therefore, all 51 initial items were regarded as sufficiently reliable for entry into the CFA stage. Item elimination was subsequently based not on alpha coefficients but on factor loadings, statistical significance, measurement quality, theoretical interpretability, and overall model fit.

Separate covariance-based CFAs were initially conducted for each dimension. For the Foundations of Coaching and Experiential Learning dimension, the original 12-item solution was refined by removing L9 and L12. The final 10-item solution produced standardized factor loadings ranging from 0.598 to 0.804, with L6 showing the strongest loading and L4 the weakest. To obtain an adequately fitting and theoretically defensible measurement solution, residual covariances were estimated between L4 and L7, L6 and L8, L10 and L11, and L5 and L11. These modifications were accepted because the respective item pairs showed conceptual overlap and similarity in wording. All freely estimated factor loadings were significant at $p < 0.001$.

For Organizational Contexts Supporting Coaching and Knowledge Retention, O2 and O3 were removed, resulting in a seven-item solution. Standardized loadings ranged between 0.586 and 0.834, with O8 producing the strongest loading and O1 the weakest. A residual covariance between O4 and O6 was introduced on theoretical and empirical grounds; the standardized residual correlation was −0.232. For Professional Outcomes of Coaching at the Employee Level, P6 and P7 were removed, resulting in six retained indicators. Standardized loadings ranged from 0.564 to 0.838, with P2 producing the largest loading and P1 the smallest. Residual covariance between P1 and P3 was permitted, with a standardized correlation of 0.210.

For Human and Relational Requirements of Coaching, R8 was removed and nine items were retained. Standardized loadings ranged from 0.581 to 0.740. R5 produced the highest loading, whereas R2 produced the lowest. Residual covariances were specified between R1 and R2 and between R2 and R4, corresponding to standardized residual correlations of 0.399 and 0.214, respectively. Finally, the initial 12-item Team and Organizational Outcomes dimension was reduced by removing S1, S3, and S10. The nine retained indicators had standardized factor loadings ranging from 0.642 to 0.791, with S8 showing the strongest and S11 the weakest loading. A residual covariance between S9 and S11 was included, with a standardized correlation of 0.307.

Table 4

Standardized factor loadings of the final first-order measurement models

Dimension	Item	Standardized loading	R^2	Result
L	L1	0.735	0.540	Retained
L	L2	0.692	0.479	Retained
L	L3	0.698	0.487	Retained
L	L4	0.598	0.358	Retained
L	L5	0.635	0.403	Retained
L	L6	0.804	0.647	Retained
L	L7	0.657	0.431	Retained
L	L8	0.769	0.591	Retained
L	L10	0.738	0.545	Retained
L	L11	0.685	0.469	Retained
O	O1	0.586	0.343	Retained
O	O4	0.737	0.544	Retained
O	O5	0.750	0.563	Retained
O	O6	0.670	0.448	Retained
O	O7	0.817	0.667	Retained
O	O8	0.834	0.696	Retained

O	O9	0.766	0.587	Retained
P	P1	0.564	0.318	Retained
P	P2	0.838	0.702	Retained
P	P3	0.832	0.693	Retained
P	P4	0.820	0.673	Retained
P	P5	0.753	0.566	Retained
P	P8	0.624	0.389	Retained
R	R1	0.659	0.434	Retained
R	R2	0.581	0.337	Retained
R	R3	0.624	0.390	Retained
R	R4	0.686	0.471	Retained
R	R5	0.740	0.547	Retained
R	R6	0.629	0.396	Retained
R	R7	0.730	0.533	Retained
R	R9	0.725	0.526	Retained
R	R10	0.707	0.500	Retained
S	S2	0.691	0.477	Retained
S	S4	0.732	0.536	Retained
S	S5	0.683	0.466	Retained
S	S6	0.715	0.511	Retained
S	S7	0.723	0.522	Retained
S	S8	0.791	0.626	Retained
S	S9	0.644	0.415	Retained
S	S11	0.642	0.413	Retained
S	S12	0.733	0.538	Retained

For O9, P8, R1, and S2, the corresponding unstandardized coefficient was fixed at 1.00 for latent-variable scaling; consequently, a critical ratio and p value were not separately estimated for those reference indicators. For the freely estimated indicators, critical ratios exceeded 1.96 and relationships with the corresponding latent variables were statistically significant at $p < 0.001$.

The fit indices of the five separately estimated models are presented jointly in Table 5. For the L model, $\chi^2 = 78.993$ with 31 degrees of freedom, yielding CMIN/DF = 2.548. NFI, RFI, IFI, TLI, and CFI were 0.964, 0.947, 0.978, 0.967, and 0.978, respectively, and RMSEA was 0.063 with a 90% confidence interval of 0.046–0.080. PCLOSE was 0.101, PNFI was 0.664, PCFI was 0.673, and the Hoelter index at the 0.05 level was 223. Collectively, these indices confirmed satisfactory model fit.

The O model produced $\chi^2 = 40.908$, df = 13, CMIN/DF = 3.147, NFI = 0.970, RFI = 0.952, IFI = 0.980, TLI = 0.967, CFI = 0.980, RMSEA = 0.074, PCLOSE = 0.055, and Hoelter = 214. Although the chi-square statistic was significant, the remaining indices supported acceptable to good fit. The P model generated $\chi^2 = 22.680$ with df = 8 and p = 0.004. Its CMIN/DF was 2.835, NFI = 0.981, RFI = 0.964, IFI = 0.988, TLI = 0.977, CFI = 0.987, RMSEA = 0.069, PCLOSE = 0.154, and Hoelter = 267, demonstrating good fit.

The R model yielded $\chi^2 = 73.451$ with 25 degrees of freedom, CMIN/DF = 2.938, NFI = 0.952, RFI = 0.930, IFI = 0.968, TLI = 0.953, CFI = 0.967, and RMSEA = 0.070 with a 90% confidence interval of 0.052–0.089. PCLOSE was 0.034 and the Hoelter value was 200. Although the close-fit hypothesis was not supported by PCLOSE, the comparative indices and RMSEA supported an acceptable overall measurement model. The S model produced $\chi^2 = 81.245$, df = 26, CMIN/DF = 3.125, NFI = 0.952, RFI = 0.933, IFI = 0.967, TLI = 0.954, CFI = 0.967, and RMSEA = 0.074, with a 90% confidence interval of 0.056–0.092. PCLOSE was 0.015 and Hoelter was 187. Thus, although the test of close fit was not supported and Hoelter was slightly below 200, the principal comparative fit measures and RMSEA indicated acceptable overall fit.

Table 5

Comparative fit indices for the five first-order CFA models

Index	L	O	P	R	S
χ^2 (CMIN)	78.993	40.908	22.680	73.451	81.245
df	31	13	8	25	26
CMIN/DF	2.548	3.147	2.835	2.938	3.125
NFI	0.964	0.970	0.981	0.952	0.952
RFI	0.947	0.952	0.964	0.930	0.933
IFI	0.978	0.980	0.988	0.968	0.967
TLI	0.967	0.967	0.977	0.953	0.954
CFI	0.978	0.980	0.987	0.967	0.967
RMSEA	0.063	0.074	0.069	0.070	0.074
RMSEA 90% CI	0.046–0.080	—	—	0.052–0.089	0.056–0.092
PCLOSE	0.101	0.055	0.154	0.034	0.015
Hoelter 0.05	223	214	267	200	187

The statistical significance of chi-square in several models was interpreted cautiously because of its sensitivity to sample size. In the present dataset of 391 respondents, the broader constellation of fit indices was therefore used as the primary basis for evaluation. The five individual measurement models demonstrated acceptable to very good fit after theoretically justifiable refinement.

Composite reliability and average variance extracted were calculated from the standardized factor loadings of the retained indicators. As shown in Table 6, CR exceeded 0.70 for all five dimensions. The L construct produced CR = 0.906 and AVE = 0.492. Although the AVE was slightly below 0.50, it was extremely close to the conventional threshold and occurred in the presence of strong composite reliability and satisfactory factor loadings; convergent validity was therefore regarded as marginal but acceptable. The O construct produced CR = 0.894 in the separate CFA calculation and an AVE of approximately 0.550, supporting both reliability and convergent validity. The P construct showed CR = 0.881 and AVE = 0.557. The R construct produced CR = 0.884 and AVE = 0.459. Consequently, composite reliability was strong, whereas convergent validity was considered marginal and was interpreted cautiously. The S construct yielded CR = 0.900 and AVE = 0.500, satisfying the criterion at its threshold.

Small differences between the values obtained from separate models and those recalculated using standardized loadings in the integrated model reflected the change in parameter estimates when the five constructs were estimated simultaneously. In the integrated model, CR values were 0.906, 0.893, 0.881, 0.884, and 0.899 for L, O, P, R, and S, respectively, with corresponding AVE values of 0.492, 0.547, 0.558, 0.459, and 0.500.

Table 6

Composite reliability, convergent validity, and measurement-model item retention

Dimension	Initial items	Deleted items	Final items	Final n	CR	AVE	√AVE	Evaluation
L	L1–L12	L9, L12	L1–L8, L10, L11	10	0.906	0.492	0.701	CR good; AVE marginal
O	O1–O9	O2, O3	O1, O4–O9	7	0.893	0.547	0.740	Good
P	P1–P8	P6, P7	P1–P5, P8	6	0.881	0.558	0.747	Good
R	R1–R10	R8	R1–R7, R9, R10	9	0.884	0.459	0.678	CR good; AVE below 0.50
S	S1–S12	S1, S3, S10	S2, S4–S9, S11, S12	9	0.899	0.500	0.707	Acceptable at threshold
Total	51 items	10 items	41 items	41	—	—	—	Final five-dimensional model

Thus, 10 indicators—L9, L12, O2, O3, P6, P7, R8, S1, S3, and S10—were removed during the measurement-model purification process. The final instrument contained 41 items. These deletions did not result in removal of any of the five

dimensions generated by the qualitative phase. Rather, they indicated that the excluded indicators did not perform sufficiently well as measurement indicators in the present quantitative sample. The retained indicators displayed significant and generally substantial relationships with their intended latent variables.

After the individual measurement models had been supported, the five dimensions and their 41 retained items were entered simultaneously into an integrated correlated-factor measurement model estimated by maximum likelihood. Model estimation converged successfully. In the integrated model, all standardized factor loadings remained above 0.50 and ranged from approximately 0.570 to 0.850. For L, standardized loadings ranged from 0.607 to 0.782, with L1 having the strongest and L4 the weakest loading. For O, loadings ranged from 0.583 to 0.850, with O8 and O1 representing the strongest and weakest indicators, respectively. P loadings ranged from 0.570 to 0.835, with P2 the strongest and P1 the weakest. For R, the range was 0.581–0.736, with R5 the strongest and R2 the weakest. S loadings ranged from 0.633 to 0.794, with S8 the strongest and S11 the weakest. All freely estimated loadings were significant at $p < 0.001$, and no additional item required removal because of an insufficient factor loading.

The integrated measurement model yielded $\chi^2 = 1393.073$ with 760 degrees of freedom and CMIN/DF = 1.833. CFI and IFI were both 0.928 and TLI was 0.922. RMSEA was 0.046, with a 90% confidence interval of 0.042–0.050, and PCLOSE was 0.949. Parsimony-adjusted fit indices were also satisfactory, with PNFI = 0.792 and PCFI = 0.860. The Hoelter index at the 0.05 level was 232. NFI = 0.854 and RFI = 0.843 were lower than the preferred 0.90 criterion; however, the combination of CMIN/DF, CFI, IFI, TLI, RMSEA, PCLOSE, and parsimony indices provided substantial evidence supporting acceptable model fit. Accordingly, the relatively weaker NFI and RFI coefficients were not regarded as sufficient grounds for rejecting the measurement model.

Table 7

Integrated five-factor measurement model: loading ranges and goodness-of-fit indices

Component	Indicator	Value	Evaluation
L loading range	Standardized loading	0.607–0.782	Acceptable
O loading range	Standardized loading	0.583–0.850	Acceptable
P loading range	Standardized loading	0.570–0.835	Acceptable
R loading range	Standardized loading	0.581–0.736	Acceptable
S loading range	Standardized loading	0.633–0.794	Acceptable
Overall fit	χ^2	1393.073	—
Overall fit	df	760	—
Overall fit	CMIN/DF	1.833	Good
Overall fit	CFI	0.928	Good
Overall fit	IFI	0.928	Good
Overall fit	TLI	0.922	Good
Overall fit	NFI	0.854	Below preferred level
Overall fit	RFI	0.843	Below preferred level
Overall fit	RMSEA	0.046	Good
Overall fit	RMSEA 90% CI	0.042–0.050	Good
Overall fit	PCLOSE	0.949	Good
Overall fit	PNFI	0.792	Good
Overall fit	PCFI	0.860	Good
Overall fit	Hoelter 0.05	232	Good

These results provided empirical support for the proposed five-dimensional structure. The very low RMSEA, favorable CMIN/DF ratio, and CFI, IFI, and TLI values exceeding 0.90 indicated that the covariance structure implied by the model corresponded adequately with the empirical data. The PCLOSE value further supported a close-fitting model.

Discriminant validity was evaluated using both the Fornell–Larcker logic and the heterotrait–monotrait ratio of correlations. The HTMT values ranged from 0.062 to 0.833. All values were below the conservative criterion of 0.85 and the more permissive threshold of 0.90. The highest HTMT coefficient occurred between Foundations of Coaching and Experiential Learning and Organizational Contexts Supporting Coaching and Knowledge Retention (HTMT = 0.833), followed by the relationship between Professional Outcomes and Team and Organizational Outcomes (HTMT = 0.588). The remaining coefficients were considerably smaller.

Table 8

Discriminant validity based on HTMT

Construct	L	O	P	R	S
L	1.000				
O	0.833	1.000			
P	0.086	0.069	1.000		
R	0.336	0.282	0.069	1.000	
S	0.062	0.071	0.588	0.098	1.000

According to the HTMT criterion, discriminant validity was supported for all five constructs. Nevertheless, the value of 0.833 between L and O was relatively close to the conservative threshold of 0.85 and therefore indicated substantial conceptual proximity between the two contextual dimensions. This finding was consistent with the Fornell–Larcker assessment, which was not fully satisfied for L and O. Accordingly, the total evidence supports empirical distinguishability among the five constructs, but the distinction between Foundations of Coaching and Experiential Learning and Organizational Contexts Supporting Coaching and Knowledge Retention should be regarded as comparatively weak and interpreted cautiously rather than as absolute separation.

Taken together, the separate and integrated CFA results provided initial empirical support for the qualitative model. All five qualitatively derived dimensions were retained in the final quantitative structure. The original questionnaire contained 51 items, of which 10 were removed during factorial refinement, yielding a final five-dimensional, 41-item measurement model. All retained indicators exhibited standardized factor loadings above 0.50, and all freely estimated loadings were statistically significant at $p < 0.001$. The individual CFA models demonstrated acceptable to strong fit following theoretically justified modifications, and the integrated model showed particularly favorable values for CMIN/DF, CFI, IFI, TLI, RMSEA, PCLOSE, PNFI, PCFI, and the Hoelter index.

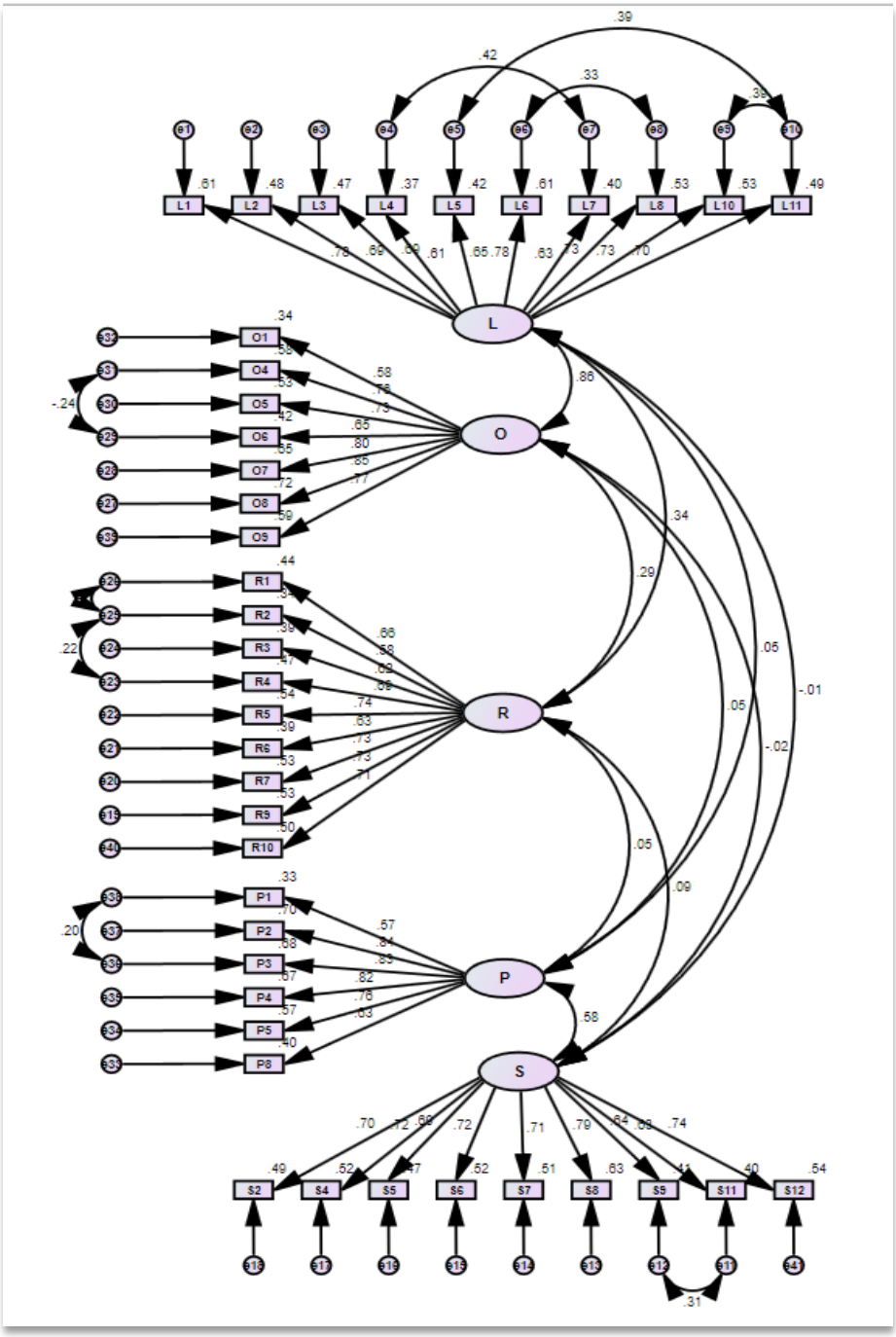
Composite reliability exceeded 0.70 across all five dimensions, supporting satisfactory internal consistency at the construct level. Convergent validity was unequivocally supported for the O and P dimensions and met the conventional threshold for S. For L, AVE was 0.492 and therefore very close to the criterion of 0.50; in conjunction with CR = 0.906 and adequate factor loadings, this was interpreted as marginal but acceptable evidence. The R dimension showed AVE = 0.459 despite a strong CR of 0.884. Consequently, convergent validity for this construct was weaker and should be interpreted cautiously. Discriminant validity was supported by HTMT because all coefficients were below 0.85, although the L–O coefficient of 0.833 approached this threshold and the Fornell–Larcker criterion was not fully satisfied for these two dimensions.

The quantitative research question was therefore answered affirmatively but with appropriate qualification. The pattern extracted from the qualitative phase demonstrated acceptable preliminary construct validity among healthcare personnel in the hospitals studied. The final model comprising five dimensions and 41 indicators provides a quantitatively supported framework for assessing human resource coaching as a mechanism for facilitating knowledge sharing and preserving clinical

experience in hospitals in Khuzestan Province. At the same time, the marginal AVE values for some constructs and the relatively strong overlap between the two contextual dimensions indicate that the present validation should be regarded as initial and sample-dependent. Replication with an independent sample is therefore necessary before treating the measurement structure as fully established.

Figure 1

Final integrated five-dimensional measurement model of human resource coaching for facilitating knowledge sharing and retaining clinical experience, with standardized coefficients.



Discussion and Conclusion

The present study sought to develop and quantitatively validate a context-specific model explaining the role of human resource coaching in facilitating knowledge sharing and retaining clinical experience in hospitals of Khuzestan Province. The qualitative findings identified five interconnected dimensions: foundations of coaching and experiential learning, human and relational requirements of coaching, organizational contexts supporting coaching and knowledge retention, professional outcomes of coaching at the employee level, and team and organizational outcomes of coaching and experience transfer. These dimensions were subsequently operationalized in a researcher-developed questionnaire and examined through confirmatory factor analysis. The quantitative phase supported the overall five-dimensional structure after refinement of the initial 51-item instrument to a final 41-item measurement model. Collectively, the findings suggest that human resource coaching in hospitals should not be understood merely as an interpersonal supervisory technique; rather, it constitutes a multilevel organizational process through which experiential knowledge is produced, shared, interpreted, embedded, and retained.

The first major finding concerned the importance of foundations of coaching and experiential learning. The qualitative phase showed that learning through direct work experience, observation, practical accompaniment, questioning, feedback, reflection, learning from errors and crises, and role modeling formed the core mechanisms through which clinical knowledge was transmitted. This result is consistent with the social-constructivist view of workplace learning, according to which professional learning develops through interaction, participation, and joint meaning-making rather than through formal instruction alone [6]. In hospital environments, this finding is particularly meaningful because many clinical competencies are difficult to communicate through written protocols alone. Experienced staff often possess tacit knowledge concerning how to interpret ambiguous situations, prioritize competing demands, anticipate complications, or adapt formal procedures to complex clinical realities. Coaching creates a relational space in which such tacit knowledge can be demonstrated, questioned, reflected upon, and gradually internalized. This interpretation also aligns with research emphasizing managerial coach learning and development as a process grounded in experience and reflective practice rather than simply the mechanical application of predefined techniques [7]. The high internal consistency of this dimension and its acceptable factor structure further indicate that experiential learning constitutes a coherent component of the broader coaching model.

The second major finding concerned human and relational requirements. Trust, respect, psychological safety, reciprocal communication, the competence and commitment of the coach, learner readiness, feedback receptivity, and sensitivity to generational and individual differences were identified as essential conditions for effective coaching. This result supports previous studies showing that the success of coaching depends strongly on the relational context in which it takes place. Manager-as-coach practices may be constrained by unequal power relations, especially when the individual providing developmental support also holds evaluative or administrative authority over the employee [9]. The present findings therefore reinforce the argument that coaching cannot be effective when employees fear negative judgment, reputational damage, or punitive consequences for acknowledging uncertainty. In clinical settings, psychological safety may be even more important because questions, mistakes, and hesitation are frequently connected to patient safety and professional identity. The present finding is also compatible with research on transformative coaching competencies, which emphasizes the coach's ability to facilitate reflection, learner autonomy, openness, and developmental dialogue [8]. The relatively lower mean observed for this dimension compared with the other dimensions may indicate that although respondents recognized the

value of coaching outcomes, the relational infrastructure required for coaching may not yet be equally developed across the hospitals studied.

The psychometric results associated with the human and relational dimension also deserve careful interpretation. Although composite reliability was strong, the average variance extracted was 0.459, slightly below the conventional threshold of 0.50. This suggests that the construct was reliable but somewhat heterogeneous. Such heterogeneity is conceptually plausible because relational coaching encompasses several distinct but interconnected elements, including trust, motivation, psychological safety, learner readiness, emotional support, and interpersonal differences. Previous studies have similarly emphasized that coaching competencies are multidimensional and cannot be reduced to one relational behavior [8, 14]. Therefore, the lower AVE may reflect substantive breadth rather than simple measurement weakness, although the construct should nevertheless be reassessed in future independent samples.

The third dimension concerned organizational contexts supporting coaching and knowledge retention. Participants emphasized workload, time pressure, burnout, organizational support, culture, readiness, documentation, knowledge distribution, and preservation of organizational memory. These findings demonstrate that coaching is unlikely to succeed as an isolated interpersonal practice without organizational conditions that allow staff to invest time and attention in developmental interaction. This result is consistent with studies examining coach-oriented organizations, which have identified managerial support, human capital development practices, organizational culture, and structural readiness as important facilitators of coaching [13]. Likewise, research on coaching in governmental and organizational contexts has shown that organizational systems and managerial commitment substantially shape the effectiveness of coaching interventions [1, 5]. In hospitals, high workload and staffing pressures may directly compete with knowledge-sharing activities; even highly motivated experienced staff may be unable to coach junior employees when clinical demands consume their available time. Therefore, the present findings extend previous coaching research by indicating that the organizational context must support not only the coaching relationship itself but also the systematic retention of the knowledge exchanged within that relationship.

The relatively strong empirical association between the experiential-learning dimension and the organizational-context dimension is also noteworthy. Although HTMT remained below the strict 0.85 threshold, the value of 0.833 between these two dimensions approached that boundary, and the Fornell-Larcker criterion was not fully satisfied. This suggests that in practice, learning mechanisms and organizational support may be closely intertwined. Experiential learning cannot occur effectively when employees lack time, access, support, or opportunities for interaction, while organizational support acquires practical meaning largely through the learning processes it enables. This conceptual proximity is consistent with studies that regard coaching as part of an integrated human resource development system rather than as a stand-alone interpersonal behavior [3, 19]. Thus, although the two dimensions remained empirically distinguishable, their relative overlap appears theoretically meaningful.

The fourth dimension comprised professional outcomes at the employee level, including experiential judgment, decision making, problem solving, professional efficiency, autonomy, resilience, self-efficacy, responsibility, and professional maturity. This dimension recorded the highest descriptive mean among the five dimensions, suggesting that respondents most strongly recognized the individual professional benefits of coaching. This finding is consistent with earlier studies linking coaching to employee performance, learning, commitment, engagement, self-development, and productivity [2, 10]. Research in the

banking sector has likewise demonstrated that coaching can contribute to employee performance by strengthening developmental support and work-related capability [15]. Similarly, managers' coaching skills have been associated with increased employee engagement through adaptive work behaviors such as job crafting [11]. In the hospital context, these findings suggest that coaching may improve not merely technical task completion but also the professional reasoning required to manage uncertainty, exercise judgment, and act autonomously within appropriate clinical boundaries.

The professional-outcome dimension also demonstrated strong psychometric properties, with satisfactory composite reliability, AVE above 0.50, and strong standardized factor loadings. This provides empirical support for the proposition that coaching-related professional outcomes form a coherent construct. The result also corresponds with evidence that coaching can strengthen motivation and human resource capability in operational environments [4]. In clinical settings, the accumulation of experiential knowledge may improve employees' ability to recognize patterns, make timely decisions, and respond adaptively to complex situations. Thus, the professional effects identified here may represent the individual-level pathway through which coaching ultimately contributes to broader organizational performance.

The fifth dimension concerned team and organizational outcomes, including quality and continuity of care, team coordination, trust, performance standardization, educational quality, collective learning, succession planning, human capital development, organizational agility, and continuity of performance. This dimension had the second-highest descriptive mean, indicating that respondents also perceived coaching as having consequences beyond the individual employee. The finding is consistent with research showing that team coaching can contribute to group decision making, social responsibility, and human resource flexibility [16]. It also aligns with studies emphasizing team coaching as a mechanism for high-performance human resource development and organizational learning [17]. In hospitals, where care is inherently multidisciplinary, the capacity to transfer experience across professional boundaries can contribute to coordination, reduce duplication, support more consistent decision making, and preserve continuity when experienced staff leave or change roles.

The association between professional outcomes and team and organizational outcomes was also reflected in the HTMT analysis, where the relationship between these constructs was stronger than most other cross-construct relationships, although still clearly below problematic levels. This pattern is theoretically reasonable because improved individual judgment, self-efficacy, and professional maturity can accumulate into stronger team performance, better collaboration, and greater organizational capability. Coaching therefore appears to generate effects that propagate from the individual level to the collective level. This interpretation is consistent with evidence that coaching can influence organizational outcomes through intervening mechanisms such as employee learning, commitment, flexibility, and engagement [10, 16]. Accordingly, the present findings support a multilevel understanding of coaching rather than a model confined to individual skill development.

Another important result was the strong overall reliability of the initial instrument. Cronbach's alpha coefficients for the five dimensions ranged from 0.882 to 0.927, and no item showed an unacceptable corrected item-total correlation. These findings indicate that the initial qualitative-to-quantitative translation was methodologically successful. Nevertheless, 10 items were removed during confirmatory factor analysis because reliability alone does not ensure factorial adequacy. The final 41-item model produced acceptable to strong standardized loadings and satisfactory fit indices. The integrated model yielded CMIN/DF = 1.833, CFI = 0.928, IFI = 0.928, TLI = 0.922, and RMSEA = 0.046. Although NFI and RFI fell below 0.90, the overall constellation of fit indices strongly supported the adequacy of the model. This pattern is consistent with the multidimensional nature of coaching identified in previous model-development studies [3, 5, 19].

The convergent validity results were generally supportive but not uniformly strong. The organizational-context and professional-outcome dimensions exceeded the conventional AVE criterion, while team and organizational outcomes met the threshold exactly. The experiential-learning dimension was marginal at 0.492, and the human-relational dimension remained below the conventional threshold at 0.459. These findings suggest that the five-dimensional model is empirically defensible but still developing. Such a result is not unexpected for a newly constructed context-specific instrument derived from qualitative data. Previous research has shown that coaching itself encompasses several interdependent competencies, behaviors, relationships, and organizational conditions [7, 18]. The present study therefore provides initial rather than definitive validation.

The results also highlight the importance of recognizing unsuccessful or ineffective coaching conditions. Coaching is sometimes treated as inherently beneficial, yet recent work has shown that workplace coaching interventions may fail because of poor coach competence, inadequate fit between participants, insufficient organizational support, inappropriate expectations, or weak implementation [18]. The present findings support this more conditional interpretation. Effective knowledge sharing did not emerge as the result of coaching presence alone; it depended on interpersonal readiness, psychological safety, organizational support, sufficient time, appropriate learning mechanisms, and mechanisms for retaining knowledge after it had been shared. The model therefore provides a more realistic account of coaching as a system requiring alignment among individual, relational, and organizational components.

The findings also support the growing literature on sustainable human resource development. Coaching that enables experienced employees to transmit clinical knowledge to others can reduce the dependence of hospitals on isolated individuals and help convert individual expertise into organizational capability. This is particularly relevant to succession planning and the preservation of institutional memory. Recent research emphasizing coaching for sustainable human resources similarly positions coaching as a mechanism for developing managerial and organizational capability over time rather than merely addressing immediate performance deficiencies [3]. The present findings extend this perspective to healthcare by demonstrating that sustainable coaching may involve both the development of current personnel and the preservation of knowledge needed by future employees.

In summary, the findings support a five-dimensional explanation of human resource coaching in hospital settings. Coaching appears to operate through experiential learning processes, but its effectiveness is conditioned by human and relational readiness and by organizational support structures. When these conditions are present, coaching may contribute to stronger professional judgment, autonomy, resilience, and maturity at the individual level and to improved coordination, learning, continuity, human capital development, and organizational sustainability at the collective level. The quantitative validation largely confirmed this structure, although the marginal convergent validity of some dimensions and the relative overlap between the two contextual constructs indicate that the model should be interpreted as an empirically supported initial framework rather than as a fully finalized measurement system.

Several limitations should be considered when interpreting the findings. First, the quantitative phase was cross-sectional and therefore does not permit causal conclusions about whether coaching directly produces improvements in knowledge sharing, professional capability, or organizational outcomes. Second, the study was conducted among personnel of governmental and teaching hospitals in Khuzestan Province, which may limit the generalizability of the findings to private hospitals, other healthcare systems, or regions with different organizational and cultural characteristics. Third, the

quantitative data were based on self-report responses and may therefore have been influenced by common-method variance, social desirability, or differences in respondents' interpretation of coaching practices. Fourth, although the qualitative phase achieved theoretical saturation, the experiences represented in 15 interviews may not encompass all occupational groups or specialized clinical environments. Finally, some psychometric indicators, particularly the AVE values for the experiential-learning and human-relational dimensions and the relatively strong association between the two contextual dimensions, indicate that the measurement model should be considered preliminary and requires further independent validation.

Future research should replicate the five-dimensional model using independent samples from different provinces, private and public hospitals, specialized medical centers, and other healthcare systems to assess its stability and generalizability. Longitudinal studies should examine whether changes in coaching practices predict subsequent improvements in knowledge sharing, clinical learning, staff retention, patient-care continuity, and organizational memory. Multilevel designs could distinguish individual-, team-, ward-, and hospital-level effects and determine whether coaching climates differ systematically across units. Future studies could also compare professional groups such as physicians, nurses, allied health personnel, supervisors, and human resource staff. Additional psychometric research should reassess the weaker convergent validity of the human-relational dimension, test alternative factor structures, and examine measurement invariance across demographic and occupational groups. Experimental or quasi-experimental studies could further evaluate whether structured coaching interventions produce measurable improvements beyond routine informal mentoring and workplace learning.

Hospital managers should treat coaching as an integrated human resource development system rather than an occasional supervisory activity. Experienced clinicians and supervisors selected for coaching roles should receive training in questioning, feedback, reflective dialogue, psychological safety, conflict management, and facilitation of experiential learning. Hospitals should create protected time for coaching and reduce structural barriers that prevent experienced staff from transferring knowledge during routine work. Human resource units should link coaching with orientation, succession planning, competency development, and knowledge-management systems so that experiential knowledge is not lost when senior employees retire or leave the organization. Formal mechanisms for documenting critical lessons, clinical experiences, and recurring problem-solving strategies should complement interpersonal coaching. Managers should also monitor the quality of coaching relationships, ensure that junior personnel can ask questions without fear, and recognize knowledge sharing as a valued component of professional performance. Through these measures, coaching can become a sustained mechanism for preserving clinical experience, strengthening workforce capability, and supporting continuity and quality of care.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Written consent was obtained from all participants in the study.

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.

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