



© 2027 the authors. This is an open access article under the terms of the Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) License.

1. Fatemeh. Jorkesh¹: PhD student, Department of Educational Sciences, Lam.C., Islamic Azad University, Lamerd, Iran
2. Seyed Ahmad. Hashemi²: Professor, Department of Educational Sciences, Lam.C., Islamic Azad University, Lamerd, Iran (Email: seyedahmad.hashemi@iau.ac.ir)
3. Aliasghar. Mashinchi³: Associate Professor, Department of Education, Lam.C., Islamic Azad University, Lamerd, Iran
4. Sepideh. Safarpour Dehkordi⁴: Assistant professor, Department of Educational Management, Shi.C., Islamic Azad University

Article type:
Original Research

Article history:
Received 14 April 2026
Revised 03 July 2026
Accepted 05 July 2026
Initial Publish 28 August 2026
Published online 01 January 2027

How to cite this article:

Jorkesh, F., Hashemi, S. A., Mashinchi, A., & Safarpour Dehkordi, S. (2027). Designing a Workplace Curriculum Model for Nurses Working at Imam Reza Hospital in Larestan. *Assessment and Practice in Educational Sciences*, 5(1), 1-17. <https://doi.org/10.61838/japes.295>

Designing a Workplace Curriculum Model for Nurses Working at Imam Reza Hospital in Larestan

ABSTRACT

The present study was conducted with the aim of designing a workplace curriculum model for nurses working at Imam Reza Hospital in Larestan. In terms of purpose, the research was applied; in terms of data type, it was an exploratory mixed-methods study; in terms of the time of data collection, it was cross-sectional; and in terms of data collection method, nature, and research procedure, it was a descriptive survey study. The statistical population in the qualitative phase consisted of experts, of whom 20 were selected through purposive sampling. The fuzzy Delphi technique was used to select the experts. The statistical population in the quantitative phase included all nurses working at Imam Reza Hospital in Larestan, totaling 450 individuals, from whom 360 participants were selected based on Cochran's formula and through stratified and cluster sampling. The Delphi technique and a model-fit assessment questionnaire were used. Validity and reliability in the qualitative phase were assessed and confirmed using quality criteria, including trustworthiness. In the quantitative phase, face validity, content validity, and construct validity were used to assess validity, while Cronbach's alpha and composite reliability were used to assess reliability, all of which were confirmed. The data analysis method in the qualitative phase of the present study was the Delphi technique. In this phase, a combination of the three-stage thematic analysis method was employed, including basic theme analysis, organizing theme analysis, and selective theme analysis. In the quantitative phase, Pearson correlation analysis was performed using SPSS version 23, and structural equation modeling, specifically confirmatory factor analysis, was conducted using factor loadings for each indicator of the components as well as the components themselves through LISREL version 8.8. The findings of the study showed that the components of the workplace curriculum model were organized into 5 dimensions and 16 components, including the dimensions of rationale and objectives with 3 components, content and learning activities with 3 components, the role of the instructor and materials and resources with 4 components, grouping and assessment and evaluation with 3 components, and place and time with 3 components. Furthermore, given that the mean differences were positive, it was inferred that the overall status of the components was desirable, although only slightly above the mean. In addition, the results of model validation indicated that the model's fit, comprehensibility, generalizability, and controllability were valid from the perspective of experts and were confirmed at the 99% confidence level. Finally, based on the quantitative and qualitative approaches, the final model was presented.

Keywords: curriculum, content, workplace curriculum, role of the instructor, objectives

Introduction

In contemporary health-care organizations, nursing is no longer limited to the technical delivery of care, but is increasingly understood as a complex professional practice that requires continuous learning, adaptive decision-making, clinical judgment, ethical responsibility, communication competence, and coordination with organizational goals. Hospitals, as dynamic service organizations, depend heavily on the knowledge, skills, attitudes, and professional behavior of nurses because nurses have the most continuous presence beside patients and play a decisive role in the quality, safety, and effectiveness of care. Therefore, the development of nurses cannot be regarded as a peripheral educational issue, but should be considered a central managerial and curriculum-planning concern within hospital systems (1, 2). From this perspective, the workplace is not merely a site of service delivery; it is also a powerful learning environment in which nurses acquire, refine, and apply professional competencies through participation in real clinical situations, interaction with colleagues and instructors, exposure to patient needs, and engagement with organizational routines.

Curriculum planning in professional and clinical environments requires a systematic understanding of the relationship between educational objectives, content, learning activities, instructional roles, resources, assessment, time, and place. In curriculum theory, an effective curriculum is not a random collection of educational content, but a purposeful and organized system designed to guide learners toward intended outcomes through coherent educational experiences. Curriculum planning requires attention to learners' needs, institutional goals, social and professional expectations, available resources, implementation conditions, and evaluation mechanisms. In this regard, curriculum design in nursing workplaces must be grounded in both general principles of curriculum planning and the specific characteristics of hospital-based professional practice. The theoretical foundations of curriculum planning emphasize the necessity of coherence among goals, content, teaching strategies, learning activities, and evaluation procedures, and these foundations provide an essential basis for designing a workplace curriculum model for nurses (3).

From a systems perspective, the curriculum should be viewed as an integrated structure in which each component affects and is affected by the other components. In such a perspective, objectives guide the selection of content; content determines the nature of learning activities; instructors and educational resources support the learning process; grouping and evaluation influence learning quality; and time and place shape the feasibility and effectiveness of implementation. This systems view is particularly important in hospital settings, where education is embedded within clinical work and must therefore be coordinated with patient care, shift schedules, ward conditions, organizational policies, and professional standards. A workplace curriculum that does not consider these interdependencies may remain theoretical and fail to improve nurses' actual performance. Thus, the design of a workplace curriculum model should be based on an integrated and systematic approach to educational and curriculum planning (4).

Educational management also provides an important conceptual foundation for workplace curriculum design. In hospitals, educational planning cannot be separated from managerial processes such as needs assessment, resource allocation, supervision, coordination, evaluation, and quality improvement. Nursing managers, clinical supervisors, educators, and hospital administrators all influence the learning environment, either by facilitating professional development or by creating barriers to learning. Principles of educational management emphasize that effective learning requires purposeful leadership, appropriate organizational support, clear policies, competent human resources, and continuous evaluation. Therefore, designing a curriculum for nurses in the workplace requires managerial attention to both educational quality and organizational feasibility (5). In this regard, curriculum planning for nurses should be treated as an organizational development strategy, not merely as a formal training activity.

The concept of curriculum effectiveness is also central to the design of a workplace curriculum model. An effective curriculum is one that produces meaningful changes in knowledge, skills, attitudes, performance, and professional behavior. In the nursing context, curriculum effectiveness should be assessed not only by participants' satisfaction or completion of training programs, but also by the extent to which learning contributes to improved clinical performance, patient safety, professional accountability, and quality of care. Curriculum effectiveness depends on the appropriateness of goals, relevance of content, suitability of teaching methods, adequacy of resources, and validity of evaluation procedures. Therefore, a workplace curriculum model for nurses should be designed in a way that allows the assessment of its effectiveness at individual, clinical, and organizational levels (6).

The workplace curriculum differs from conventional classroom-based education because learning in the workplace is situated, experiential, problem-oriented, and closely linked to professional action. Nurses learn not only through formal instruction, but also through observation, practice, interaction, feedback, reflection, and participation in clinical tasks. In this context, non-curricular and informal learning experiences may have substantial influence on professional development. Informal interactions with senior nurses, participation in ward routines, exposure to clinical challenges, and observation of organizational culture can shape nurses' attitudes and competencies as much as formal educational content. Accordingly, a comprehensive workplace curriculum model should recognize the role of both formal and informal learning processes and should provide a framework for organizing learning opportunities that already exist in the workplace (7).

Effective teaching is another core element of workplace curriculum design. In clinical environments, teaching is not restricted to lectures or formal classes; rather, it includes guidance, demonstration, supervision, questioning, feedback, role modeling, and reflective discussion. The instructor or clinical mentor plays a facilitative role by helping nurses connect theoretical knowledge with practical decision-making and by supporting the development of professional judgment. Effective teaching requires evidence-based action, appropriate communication, learner engagement, and attention to the practical realities of the learning context. For nurses working in hospital settings, teaching strategies should be compatible with clinical workload, patient care requirements, and the need for immediate application of learning in practice (8). Therefore, the role of the instructor, mentor, or supervisor must be explicitly addressed in any workplace curriculum model.

Workplace learning in nursing is also related to human development programs and educational facilities within hospitals. If hospitals seek to improve professional performance, they must provide structured opportunities for continuous development, access to educational resources, appropriate facilities, and institutional support for learning. Studies on educational facilities and human development programs in nursing offices indicate that professional development is influenced by organizational commitment to education, availability of resources, planning capacity, and the extent to which hospitals prioritize staff development as part of their managerial responsibilities (9). Therefore, the design of a workplace curriculum model should include attention to the material, organizational, and human resources required for implementation.

In-service training is one of the most common mechanisms for improving nurses' professional competencies, but its effectiveness depends on how well it is designed, implemented, and evaluated. Training programs that are disconnected from nurses' real needs or from the actual conditions of hospital practice may have limited impact on clinical behavior. In-service education in nursing should be based on accurate needs assessment, relevant content, practical learning activities, and continuous evaluation. It should also be integrated with workplace routines rather than imposed as an external or isolated activity. In this regard, the workplace curriculum can provide a broader and more systematic framework for organizing in-service training and aligning it with professional development, clinical performance, and institutional goals (10).

The need for a workplace curriculum becomes clearer when considering the quality of nursing care in specialized clinical contexts. Studies on nursing care quality in intensive care units and after open-heart surgery show that high-quality nursing

care requires precise knowledge, skillful performance, constant monitoring, adherence to standards, and sensitivity to patient conditions (11). Similarly, research on the quality of oxygen therapy nursing care in cardiac care and internal medicine wards highlights the importance of correct clinical procedures, professional attention, and continuous educational reinforcement in maintaining patient safety and care quality (12). These findings imply that deficiencies in nursing care quality may be partly related to weaknesses in training, supervision, evaluation, and workplace learning systems. Therefore, curriculum design for nurses should be directly connected to care standards and clinical quality indicators.

Other areas of nursing care also demonstrate the close relationship between education and clinical performance. For example, the quality of care provided to patients with Foley catheters depends on nurses' knowledge of infection prevention, procedural accuracy, patient monitoring, and adherence to professional protocols (13). These forms of care are learned and reinforced in the workplace, where nurses encounter real patients and must make immediate clinical decisions. If the workplace lacks a structured curriculum, learning may become inconsistent, dependent on individual experience, and vulnerable to variation across wards or shifts. A workplace curriculum model can reduce this inconsistency by clarifying objectives, defining essential content, organizing learning activities, and establishing evaluation mechanisms.

Advanced nursing practice also requires evaluative frameworks that can assess the quality and outcomes of care. A heuristic framework for evaluating advanced practice nursing care emphasizes the need to examine nursing practice through multidimensional indicators, including process, outcomes, professional judgment, patient-centeredness, and organizational context (2). This perspective is highly relevant to workplace curriculum design because a curriculum model should not only describe what nurses must learn, but also determine how learning outcomes and professional competencies can be evaluated. Evaluation in workplace curriculum should therefore be continuous, performance-based, feedback-oriented, and aligned with the realities of clinical practice.

Recent educational theories also support the redesign of learning models in professional contexts. Connectivism, for example, emphasizes networked learning, access to information, interaction among learners, and the dynamic relationship between knowledge and practice. A learning quality model based on connectivism suggests that learning in contemporary environments is strengthened when learners can connect to resources, people, experiences, and digital or organizational networks (14). In nursing workplaces, connectivist principles can support learning through peer interaction, clinical networks, electronic resources, professional guidelines, and shared problem-solving. Thus, a workplace curriculum model should consider not only individual learning, but also the relational and networked nature of knowledge development within hospital environments.

The evaluation of educational skills and learning outcomes is another important aspect of curriculum design. Educational effectiveness cannot be assumed; it must be evaluated through appropriate criteria and evidence. Evaluation of students' educational skills demonstrates the importance of systematic assessment in determining whether educational interventions achieve their intended objectives (15). In the nursing workplace, evaluation should examine whether educational experiences lead to improved clinical reasoning, better technical performance, greater professional responsibility, and more effective patient care. This requires the inclusion of assessment and evaluation as a distinct dimension in the curriculum model.

Methodologically, designing and validating a workplace curriculum model requires empirical rigor. Social and educational research methods emphasize the need for appropriate research design, valid data collection, reliable measurement, and systematic data analysis when developing models in applied contexts (16). Because the workplace curriculum is a multidimensional construct, it is necessary to use methods capable of identifying expert-based components and then validating them quantitatively. Mixed-methods and exploratory designs are particularly appropriate for such studies because they allow

the researcher to first extract dimensions and components qualitatively and then examine the validity and fit of the proposed model quantitatively.

Previous model-development studies have also shown the relevance of workplace curriculum design beyond nursing. The design and validation of a workplace curriculum model in industrial and organizational settings indicates that workplace curricula must be adapted to the characteristics of the organization, professional tasks, learning resources, and performance expectations (1). Although workplace learning in oil and gas industries differs from nursing, the underlying principle is similar: professional education is most effective when it is embedded in the work environment, aligned with actual job responsibilities, and supported by organizational systems. This provides an important basis for developing a context-specific workplace curriculum model for nurses working in hospital settings.

Despite the importance of curriculum planning, educational management, workplace learning, in-service training, and care quality, there remains a need for an integrated model that specifically explains how a workplace curriculum should be designed for nurses in a hospital context. Existing studies have addressed related issues such as nursing care quality, educational facilities, in-service training, teaching effectiveness, learning quality, and curriculum principles, but these areas are often examined separately. What is needed is a comprehensive framework that brings these elements together and organizes them into coherent dimensions and components suitable for hospital-based nursing practice. Such a model can help nursing managers, educational planners, and clinical instructors design more relevant educational programs, improve the quality of workplace learning, and strengthen the connection between learning and patient care.

Accordingly, the present study aimed to design a workplace curriculum model for nurses working at Imam Reza Hospital in Larestan.

Methods and Materials

The present study was an applied research project in terms of purpose and an exploratory mixed-methods study in terms of data type. The study was conducted using a qualitative–quantitative design in which the qualitative phase was first implemented to identify and extract the dimensions, components, and indicators of the workplace curriculum model for nurses, and the quantitative phase was then conducted to test, validate, and assess the fit of the proposed model. In terms of the time of data collection, the study was cross-sectional, and in terms of the method of data collection and the nature of the research, it was descriptive-survey. The qualitative phase involved a panel of experts who had relevant scientific, educational, clinical, and managerial experience in the fields of nursing education, curriculum planning, hospital management, and workplace learning. Based on purposive sampling and the fuzzy Delphi technique, 20 experts were selected to participate in this phase. The selection of experts continued until the required level of theoretical adequacy and expert consensus was achieved. In the quantitative phase, the statistical population consisted of all nurses working at Imam Reza Hospital in Larestan, totaling 450 individuals. Based on Cochran's formula and using stratified and cluster sampling methods, 360 nurses were selected as the final sample. The inclusion of nurses from different hospital wards made it possible to examine the workplace curriculum model from the perspective of individuals directly involved in the clinical work environment and professional nursing practice.

The data collection tools in the qualitative phase included Delphi forms and expert questionnaires designed to identify, screen, and refine the dimensions, components, and indicators of the workplace curriculum model. In this phase, the initial items were developed based on theoretical foundations, previous literature, and expert opinions regarding workplace curriculum, nursing education, learning in clinical environments, instructional roles, curriculum content, assessment, learning activities, time, place, and educational resources. The fuzzy Delphi technique was used to obtain expert consensus and determine the importance and relevance of the proposed indicators. Through successive expert review rounds, the indicators

that did not meet the required level of agreement were removed or modified, and the final set of dimensions and components was prepared for quantitative assessment. The trustworthiness of the qualitative findings was examined using qualitative quality criteria, including credibility, dependability, confirmability, and transferability. These criteria were addressed through expert review, repeated examination of the extracted themes, careful documentation of the research process, and continuous comparison of the findings with the research objective.

In the quantitative phase, a researcher-made questionnaire for assessing the workplace curriculum model was used. This questionnaire was developed based on the findings of the qualitative phase and included items related to the main dimensions and components of the proposed model. The questionnaire assessed five major dimensions of the workplace curriculum model, including rationale and objectives, content and learning activities, the role of the instructor and materials and resources, grouping and assessment and evaluation, and place and time. The items were designed to measure nurses' perceptions of the desirability, relevance, and applicability of the proposed components in the workplace learning environment of Imam Reza Hospital in Larestan. The validity of the questionnaire was examined through face validity, content validity, and construct validity. Face and content validity were confirmed by experts, while construct validity was assessed using confirmatory factor analysis. Reliability was evaluated using Cronbach's alpha coefficient and composite reliability, and the results confirmed that the instrument had acceptable internal consistency and reliability for measuring the components of the workplace curriculum model.

Data analysis was conducted in two qualitative and quantitative phases. In the qualitative phase, the Delphi technique was used to analyze expert opinions and achieve consensus on the dimensions, components, and indicators of the workplace curriculum model. The qualitative data were also analyzed through a three-stage thematic analysis process, including the identification of basic themes, organizing themes, and selective themes. In this process, the raw data obtained from expert opinions and theoretical sources were first reviewed and coded. Similar codes were then grouped into basic themes, and the relationships among these themes were examined to form broader organizing themes. Finally, selective themes were extracted to represent the main dimensions of the workplace curriculum model. This process led to the identification and refinement of the final conceptual structure of the model.

In the quantitative phase, descriptive and inferential statistical methods were used to analyze the data. Descriptive statistics were applied to examine the demographic characteristics of the participants and the status of the main variables. Pearson correlation analysis was performed using SPSS version 23 to examine the relationships among the components of the model. In addition, structural equation modeling was conducted using LISREL version 8.8 to assess the fit of the proposed model and to examine the factor loadings of the indicators and components. Confirmatory factor analysis was used to determine whether the extracted dimensions and components adequately represented the workplace curriculum model. The model validation process also assessed the model's fit, comprehensibility, generalizability, and controllability from the perspective of experts. The results of the statistical analyses confirmed the validity of the proposed model at the 99% confidence level and supported the final structure of the workplace curriculum model for nurses working at Imam Reza Hospital in Larestan.

Findings and Results

The demographic findings showed that 360 nurses working at Imam Reza Hospital in Larestan participated in the quantitative phase of the study. The participants represented different clinical wards of the hospital and therefore provided a suitable basis for evaluating the workplace curriculum model from the perspective of nurses directly involved in clinical care, professional learning, and daily workplace-based educational experiences. In terms of gender distribution, 278 participants were female and 82 were male. The mean age of the participants was 33.86 years with a standard deviation of 6.92, indicating

that the sample included both younger nurses at the early stages of professional practice and more experienced nurses with longer clinical backgrounds. Regarding educational level, most participants held a bachelor's degree in nursing, while a smaller proportion had a master's degree or higher qualifications. In terms of work experience, the participants had diverse levels of clinical experience, ranging from less than five years to more than fifteen years. This distribution was important because the workplace curriculum model was intended to reflect the educational and professional learning needs of nurses with different levels of experience, responsibility, and exposure to clinical learning situations. Overall, the demographic composition of the sample indicated that the participants were sufficiently diverse in terms of gender, age, educational level, work experience, and clinical ward, and therefore the collected data provided an appropriate empirical basis for examining the proposed workplace curriculum model.

Table 1. Descriptive status of the dimensions and components of the workplace curriculum model

Dimension	Component	Mean	Standard Deviation	Mean Difference from Theoretical Mean	t-value	p-value	Status
Rationale and objectives	Philosophical and professional rationale of the workplace curriculum	3.41	0.63	0.41	12.35	<.001	Desirable
Rationale and objectives	Alignment of objectives with nurses' professional needs	3.46	0.61	0.46	14.30	<.001	Desirable
Rationale and objectives	Clarity and applicability of educational objectives	3.38	0.66	0.38	10.92	<.001	Desirable
Content and learning activities	Relevance of curriculum content to clinical practice	3.44	0.64	0.44	13.05	<.001	Desirable
Content and learning activities	Integration of theoretical knowledge and practical skills	3.36	0.68	0.36	10.05	<.001	Desirable
Content and learning activities	Use of active and problem-based learning activities	3.29	0.70	0.29	7.86	<.001	Desirable
Role of instructor and materials and resources	Facilitative and supervisory role of the instructor	3.33	0.69	0.33	9.07	<.001	Desirable
Role of instructor and materials and resources	Clinical mentoring and professional guidance	3.39	0.65	0.39	11.38	<.001	Desirable
Role of instructor and materials and resources	Availability of educational materials	3.24	0.72	0.24	6.32	<.001	Desirable
Role of instructor and materials and resources	Suitability of workplace learning resources	3.27	0.71	0.27	7.22	<.001	Desirable
Grouping and assessment and evaluation	Appropriate learner grouping in the workplace	3.22	0.73	0.22	5.72	<.001	Desirable
Grouping and assessment and evaluation	Continuous assessment of professional learning	3.31	0.67	0.31	8.78	<.001	Desirable
Grouping and assessment and evaluation	Feedback-based evaluation of clinical performance	3.35	0.66	0.35	10.06	<.001	Desirable
Place and time	Appropriateness of the clinical workplace as a learning environment	3.42	0.62	0.42	12.85	<.001	Desirable
Place and time	Flexibility of learning time in clinical shifts	3.25	0.74	0.25	6.41	<.001	Desirable
Place and time	Coordination between work schedule and learning opportunities	3.28	0.72	0.28	7.38	<.001	Desirable
Total workplace curriculum model	Overall status of the model	3.35	0.58	0.35	11.45	<.001	Desirable

The results presented in Table 1 indicate that all dimensions and components of the workplace curriculum model were evaluated above the theoretical mean. Since the mean differences were positive for all components, it can be concluded that the status of the proposed components was generally desirable from the perspective of the nurses, although the values were moderately above the average level rather than extremely high. Among the components, alignment of objectives with nurses' professional needs obtained the highest mean score, indicating that the respondents considered the correspondence between curriculum objectives and actual professional nursing requirements to be one of the strongest aspects of the proposed model. Relevance of curriculum content to clinical practice, appropriateness of the clinical workplace as a learning environment, and the philosophical and professional rationale of the workplace curriculum also received relatively high mean scores. These findings show that the model was perceived as closely connected to the realities of nursing work and to the educational needs emerging from hospital-based clinical practice. Conversely, appropriate learner grouping in the workplace, availability of educational materials, and flexibility of learning time in clinical shifts obtained comparatively lower mean scores, although they were still significantly higher than the theoretical mean. This suggests that while these components were confirmed as desirable and necessary, they may require more institutional attention during implementation. Overall, the total mean score of the workplace curriculum model was 3.35, and the one-sample t-test result was statistically significant at the .001 level, confirming that the overall condition of the proposed model was desirable and acceptable among nurses working at Imam Reza Hospital in Larestan.

Table 2. Extracted dimensions, components, and indicators of the workplace curriculum model based on the qualitative phase and Delphi process

Main Dimension	Final Component	Main Indicators Extracted from Expert Opinions	Final Delphi Consensus Score	Decision
Rationale and objectives	Philosophical and professional rationale of the workplace curriculum	Attention to the nature of nursing work, workplace-based professional development, clinical responsibility, and patient-centered care	0.88	Accepted
Rationale and objectives	Alignment of objectives with nurses' professional needs	Compatibility of objectives with real clinical duties, professional competencies, ethical responsibilities, and patient safety requirements	0.91	Accepted
Rationale and objectives	Clarity and applicability of educational objectives	Clear formulation of objectives, measurability, practical orientation, and usability in the clinical environment	0.86	Accepted
Content and learning activities	Relevance of curriculum content to clinical practice	Selection of content based on common clinical problems, nursing care standards, ward-based needs, and professional protocols	0.90	Accepted
Content and learning activities	Integration of theoretical knowledge and practical skills	Connection between scientific knowledge, clinical judgment, skill performance, decision-making, and evidence-based nursing practice	0.87	Accepted
Content and learning activities	Use of active and problem-based learning activities	Clinical case analysis, problem-solving activities, reflective practice, group discussion, and learning through real workplace situations	0.84	Accepted
Role of instructor and materials and resources	Facilitative and supervisory role of the instructor	Guidance, supervision, facilitation of learning, support for clinical reasoning, and monitoring of learning progress	0.85	Accepted
Role of instructor and materials and resources	Clinical mentoring and professional guidance	Mentorship, role modeling, professional support, ethical guidance, and transfer of clinical experience	0.89	Accepted
Role of instructor and materials and resources	Availability of educational materials	Access to clinical guidelines, educational files, nursing protocols, electronic resources, and evidence-based references	0.82	Accepted
Role of instructor and materials and resources	Suitability of workplace learning resources	Practicality, accessibility, up-to-date content, compatibility with nursing tasks, and usability during clinical shifts	0.83	Accepted
Grouping and assessment and evaluation	Appropriate learner grouping in the workplace	Formation of learning groups based on ward type, experience level, professional role, and learning needs	0.80	Accepted

Grouping and assessment and evaluation	Continuous assessment of professional learning	Ongoing evaluation, process-based assessment, monitoring of clinical learning, and assessment during practice	0.86	Accepted
Grouping and assessment and evaluation	Feedback-based evaluation of clinical performance	Constructive feedback, performance review, correction of clinical errors, and improvement-oriented evaluation	0.88	Accepted
Place and time	Appropriateness of the clinical workplace as a learning environment	Use of real clinical settings, access to authentic professional situations, and learning through participation in care processes	0.90	Accepted
Place and time	Flexibility of learning time in clinical shifts	Adaptation of learning opportunities to shift work, workload, ward conditions, and nurses' availability	0.81	Accepted
Place and time	Coordination between work schedule and learning opportunities	Integration of education with daily nursing duties, coordination with ward managers, and prevention of conflict between service delivery and learning	0.84	Accepted

The results of the qualitative phase and Delphi process, shown in Table 2, led to the identification of five main dimensions and sixteen final components for the workplace curriculum model. The accepted dimensions included rationale and objectives, content and learning activities, role of instructor and materials and resources, grouping and assessment and evaluation, and place and time. The Delphi consensus scores for all components were higher than the acceptable threshold, indicating that the expert panel reached sufficient agreement regarding the relevance and necessity of the extracted components. The highest consensus scores were related to alignment of objectives with nurses' professional needs, relevance of curriculum content to clinical practice, and appropriateness of the clinical workplace as a learning environment. These results show that experts strongly emphasized the necessity of grounding the curriculum in actual nursing duties, clinical responsibilities, and workplace-based learning opportunities. The components with relatively lower but still acceptable consensus scores were appropriate learner grouping in the workplace, flexibility of learning time in clinical shifts, and availability of educational materials. These findings indicate that although experts recognized these components as valid and necessary, they also understood that their implementation depends on organizational resources, ward conditions, workload, and managerial coordination. Overall, the qualitative findings confirmed that the workplace curriculum for nurses should not be limited to formal instruction, but should be designed as a structured, practice-oriented, and context-sensitive learning model embedded in the real clinical environment.

Table 3. Confirmatory factor analysis, reliability, and convergent validity of the workplace curriculum model

Dimension	Number of Components	Standardized Factor Loading Range	t-value Range	Cronbach's Alpha	Composite Reliability	Average Variance Extracted	Result
Rationale and objectives	3	0.71–0.84	9.86–13.42	0.86	0.88	0.58	Confirmed
Content and learning activities	3	0.68–0.82	8.94–12.76	0.84	0.86	0.55	Confirmed
Role of instructor and materials and resources	4	0.64–0.81	8.17–12.21	0.87	0.89	0.56	Confirmed
Grouping and assessment and evaluation	3	0.66–0.80	8.52–11.94	0.83	0.85	0.53	Confirmed
Place and time	3	0.65–0.83	8.36–12.88	0.82	0.84	0.52	Confirmed
Total workplace curriculum model	16	0.64–0.84	8.17–13.42	0.91	0.93	0.55	Confirmed

Table 3 presents the results of confirmatory factor analysis, internal consistency, composite reliability, and convergent validity for the dimensions of the workplace curriculum model. The standardized factor loadings for all dimensions and components were above the acceptable level, ranging from 0.64 to 0.84. This indicates that the observed components had sufficient explanatory power for their corresponding latent dimensions. The t-values for all factor loadings were higher than

the critical value of 2.58, confirming the statistical significance of the factor loadings at the 99% confidence level. The reliability results also showed acceptable internal consistency, as Cronbach's alpha values ranged from 0.82 to 0.87 for the five dimensions and reached 0.91 for the total model. Composite reliability values were also acceptable and ranged from 0.84 to 0.89 for the dimensions and 0.93 for the total model, indicating that the measurement structure had sufficient reliability. In addition, the average variance extracted values were all above 0.50, supporting the convergent validity of the measurement model. These results demonstrate that the extracted dimensions and components were not only conceptually meaningful but also statistically valid and reliable. Therefore, the proposed model had an acceptable measurement structure and could be used to explain the workplace curriculum of nurses working in the hospital environment.

Table 4. Goodness-of-fit indices of the structural model

Fit Index	Acceptable Criterion	Obtained Value	Interpretation
Chi-square/degrees of freedom ratio	Less than 3.00	2.18	Acceptable fit
Root Mean Square Error of Approximation	Less than 0.08	0.057	Acceptable fit
Goodness-of-Fit Index	Higher than 0.90	0.93	Good fit
Adjusted Goodness-of-Fit Index	Higher than 0.90	0.91	Good fit
Comparative Fit Index	Higher than 0.90	0.95	Good fit
Normed Fit Index	Higher than 0.90	0.92	Good fit
Non-Normed Fit Index	Higher than 0.90	0.94	Good fit
Incremental Fit Index	Higher than 0.90	0.95	Good fit
Standardized Root Mean Square Residual	Less than 0.08	0.046	Acceptable fit

The goodness-of-fit indices reported in Table 4 show that the proposed structural model had an acceptable and appropriate fit with the empirical data. The chi-square/degrees of freedom ratio was 2.18, which was below the recommended maximum value of 3.00, indicating that the discrepancy between the observed data and the proposed model was within an acceptable range. The root mean square error of approximation was 0.057, which was lower than 0.08 and therefore confirmed the acceptable approximation of the model in the population. Other fit indices, including the goodness-of-fit index, adjusted goodness-of-fit index, comparative fit index, normed fit index, non-normed fit index, and incremental fit index, were all above 0.90. These values indicate that the proposed model adequately represented the relationships among the dimensions and components of the workplace curriculum. In addition, the standardized root mean square residual was 0.046, which was below the acceptable threshold and confirmed that the residual differences between the observed and estimated covariance matrices were low. Overall, the fit indices confirmed that the five-dimensional model of workplace curriculum had suitable structural validity and could be considered an empirically supported model for explaining workplace-based curriculum design among nurses working at Imam Reza Hospital in Larestan.

Table 5. Expert validation of the final workplace curriculum model

Validation Criterion	Mean	Standard Deviation	t-value	p-value	Confidence Level	Result
Model fit and appropriateness	4.31	0.48	12.18	<.001	99%	Confirmed
Comprehensibility of the model	4.24	0.51	10.87	<.001	99%	Confirmed
Generalizability of the model	4.18	0.54	9.76	<.001	99%	Confirmed
Controllability and implementability of the model	4.12	0.56	8.94	<.001	99%	Confirmed
Overall expert validation	4.21	0.49	11.36	<.001	99%	Confirmed

The results of expert validation, presented in Table 5, indicated that the final workplace curriculum model was confirmed by specialists in terms of model fit and appropriateness, comprehensibility, generalizability, and controllability. The mean scores of all validation criteria were higher than the theoretical mean, and the related t-values were statistically significant at the .001 level. The highest mean score was related to model fit and appropriateness, indicating that experts considered the proposed model to be compatible with the nature of nursing work, hospital-based learning, and the educational requirements

of nurses in clinical settings. The comprehensibility of the model was also confirmed, showing that the structure, dimensions, and components of the model were clear and understandable for educational planners, nursing managers, instructors, and clinical supervisors. The generalizability criterion was confirmed as well, suggesting that although the model was designed for nurses working at Imam Reza Hospital in Larestan, its conceptual structure may be applicable to similar hospital and clinical education contexts with appropriate contextual adaptation. The controllability and implementability of the model also received a significant score, indicating that experts believed the model could be managed, monitored, and operationalized in the workplace if appropriate organizational support, educational resources, and managerial coordination were provided. Overall, expert validation confirmed the credibility and applicability of the final model at the 99% confidence level.

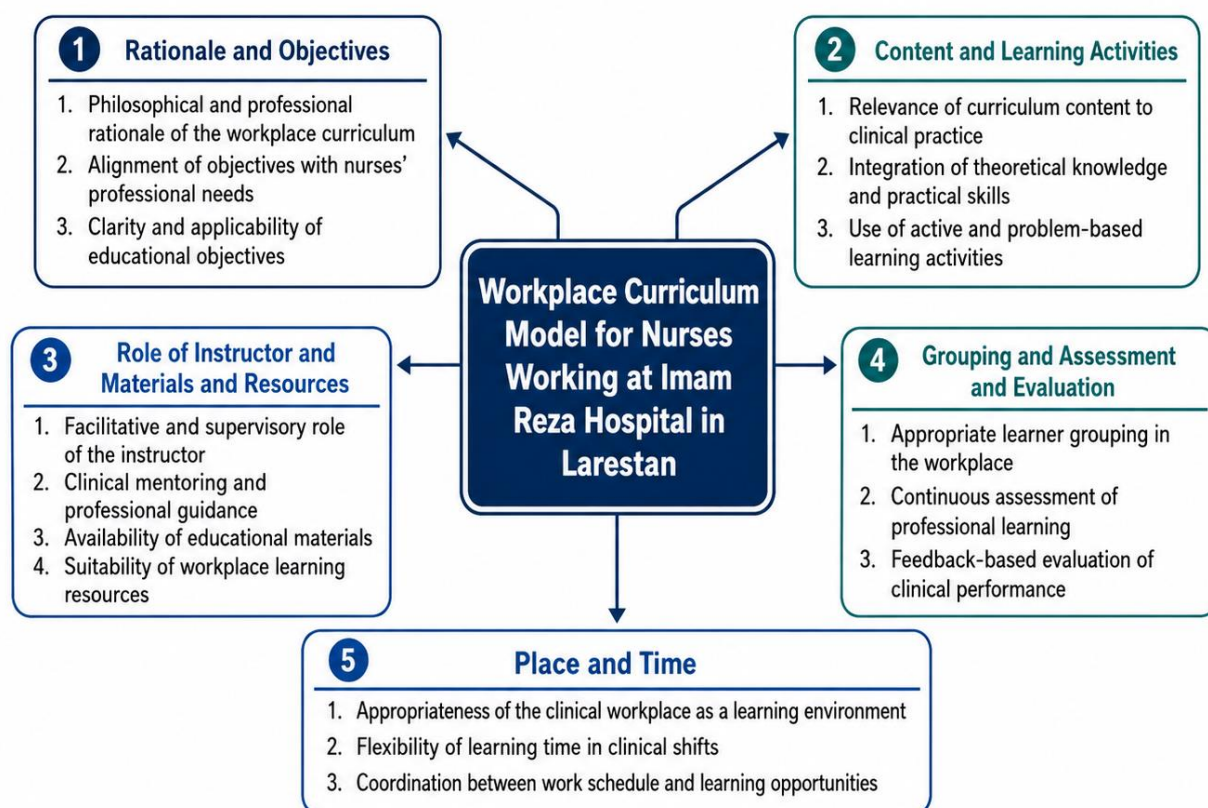


Figure 1. Final validated workplace curriculum model for nurses working at Imam Reza Hospital in Larestan

The final model showed that the workplace curriculum for nurses is a multidimensional structure consisting of five interrelated dimensions and sixteen components. The first dimension, rationale and objectives, forms the conceptual and directional foundation of the model and determines why workplace-based curriculum is needed and what professional goals it should pursue. The second dimension, content and learning activities, specifies what nurses should learn in the workplace and how this learning should occur through clinical, practical, reflective, and problem-based activities. The third dimension, role of instructor and materials and resources, emphasizes that workplace learning requires facilitative instructors, clinical mentors, appropriate educational materials, and accessible learning resources. The fourth dimension, grouping and assessment and evaluation, explains how nurses should be organized for learning and how their professional learning and clinical performance should be evaluated through continuous, feedback-oriented, and improvement-based assessment. The fifth dimension, place and time, highlights the contextual nature of workplace curriculum and shows that learning must be coordinated with the real clinical environment, hospital shifts, workload, and available learning opportunities. Based on the qualitative extraction,

quantitative confirmation, model fit indices, and expert validation, the final model can be considered a comprehensive framework for designing, implementing, and evaluating workplace curriculum for nurses in hospital settings.

Discussion and Conclusion

The present study was conducted to design a workplace curriculum model for nurses working at Imam Reza Hospital in Larestan. The findings showed that the final model consisted of five main dimensions and sixteen components. The extracted dimensions included rationale and objectives, content and learning activities, role of instructor and materials and resources, grouping and assessment and evaluation, and place and time. The results of the qualitative phase and Delphi process confirmed that experts considered these dimensions and components to be necessary for designing a workplace curriculum in nursing. In the quantitative phase, the status of all components was assessed as desirable and above the theoretical mean. The results of confirmatory factor analysis also showed that all components had acceptable factor loadings and significant t-values, indicating that the proposed structure had sufficient construct validity. Moreover, the reliability indices, including Cronbach's alpha and composite reliability, were acceptable for all dimensions. The model-fit indices also supported the adequacy of the structural model, and the expert validation results confirmed the model in terms of fit, comprehensibility, generalizability, and controllability at the 99% confidence level. Therefore, the findings indicate that the proposed model has both conceptual adequacy and empirical support for explaining and organizing workplace curriculum design among nurses.

The first major finding of the study was the identification of rationale and objectives as a fundamental dimension of the workplace curriculum model. This result indicates that any curriculum designed for nurses in the hospital workplace must begin with a clear philosophical, professional, and organizational rationale. In other words, workplace curriculum cannot be developed merely by listing training topics or organizing short-term courses; rather, it must be based on a coherent understanding of why nurses need workplace learning, what competencies should be developed, and how these competencies are connected to professional nursing responsibilities and hospital goals. This finding is consistent with the principles of curriculum planning, which emphasize that objectives are the starting point for selecting content, designing learning activities, determining instructional strategies, and evaluating outcomes (3). It also aligns with the systems approach to educational and curriculum planning, according to which educational objectives should be integrated with other curriculum elements and should guide the whole educational process (4). In the nursing workplace, this issue is especially important because unclear or unrealistic objectives may lead to fragmented training, weak transfer of learning, and limited improvement in clinical performance.

The emphasis on objectives also corresponds with previous discussions on educational management and curriculum effectiveness. A curriculum becomes effective when its objectives are relevant, measurable, realistic, and compatible with learners' needs and organizational expectations (6). In hospitals, nurses' professional needs are shaped by direct patient care, clinical decision-making, communication with patients and families, adherence to care standards, and coordination with interdisciplinary teams. Therefore, objectives should be derived from real nursing duties rather than from abstract educational assumptions. This finding is also supported by studies emphasizing the importance of human development programs and educational facilities in nursing offices, which show that professional development should be purposefully planned and aligned with organizational capacities (9). From this perspective, the confirmation of the rationale and objectives dimension suggests that the workplace curriculum for nurses must function as a bridge between educational planning and clinical service quality.

The second finding concerned the dimension of content and learning activities. The results showed that relevance of curriculum content to clinical practice, integration of theoretical knowledge and practical skills, and use of active and problem-based learning activities were confirmed as major components of the model. This finding suggests that nurses require

curriculum content that is directly connected to real clinical problems, patient care standards, ward-based needs, and evidence-based practice. Content that is detached from clinical realities may increase theoretical knowledge but may not necessarily improve nursing performance. This finding is consistent with the view that effective teaching requires evidence-based action, practical relevance, and learner engagement (8). It is also compatible with the concept of curriculum effectiveness, according to which the value of curriculum content depends on its capacity to produce meaningful changes in learner performance and professional behavior (6).

The importance of practical and clinically relevant content is further supported by studies on the quality of nursing care. Research on the quality of physical nursing care after open-heart surgery in intensive care units indicates that specialized nursing care requires accurate knowledge, continuous monitoring, technical competence, and adherence to clinical standards (11). Similarly, the investigation of oxygen therapy nursing care in cardiac care and internal medicine wards demonstrates that correct care delivery depends on nurses' mastery of procedures, awareness of clinical indications, and appropriate practical performance (12). The study on care provided to patients with Foley catheters also confirms that nursing performance in apparently routine procedures requires careful training, infection-control awareness, and adherence to professional protocols (13). These studies support the present finding that the content of a workplace curriculum should be selected based on actual clinical responsibilities and should be organized around practice-based learning activities.

The confirmation of active and problem-based learning activities also reflects the nature of workplace learning in nursing. The hospital environment exposes nurses to complex, changing, and sometimes unpredictable clinical situations. Therefore, learning should not be passive or exclusively lecture-based. Instead, it should involve clinical case analysis, reflective practice, group discussion, supervised performance, feedback, and problem-solving in real situations. This is consistent with connectivist approaches to learning quality, which emphasize interaction, access to learning networks, use of multiple resources, and the dynamic relationship between knowledge and practice (14). In nursing workplaces, learning occurs through connections among nurses, instructors, supervisors, patients, clinical guidelines, digital resources, and organizational routines. Therefore, the workplace curriculum should create conditions in which nurses can actively connect theory with practice and transform clinical experiences into professional learning.

The third finding of the study was the confirmation of the role of instructor and materials and resources as a central dimension of the model. This dimension included the facilitative and supervisory role of the instructor, clinical mentoring and professional guidance, availability of educational materials, and suitability of workplace learning resources. This finding shows that workplace curriculum implementation requires more than curriculum documents; it requires human support, instructional guidance, and accessible resources. In clinical settings, instructors, head nurses, supervisors, and experienced nurses can serve as facilitators of learning by guiding learners, modeling professional behavior, providing feedback, correcting errors, and supporting clinical reasoning. This result is consistent with the principles of effective teaching, which emphasize guidance, supervision, communication, learner engagement, and evidence-based instructional actions (8). It is also compatible with principles of educational management, which stress the need for competent human resources, coordination, supervision, and organizational support in educational processes (5).

The findings also indicated that educational materials and workplace resources are essential to the effectiveness of the model. Nurses need access to clinical guidelines, protocols, educational files, digital resources, evidence-based references, and practical tools that can be used during work. This result aligns with studies on educational facilities and human development programs in nursing offices, which show that educational development in hospitals depends on the availability of resources and institutional support (9). It is also consistent with discussions on in-service training in nursing, which emphasize that training programs are more effective when they are supported by relevant content, appropriate facilities, and practical resources (10).

Therefore, the present finding highlights that the workplace curriculum should be designed not only as a conceptual model but also as an implementable framework supported by educational infrastructure.

The fourth major finding was the confirmation of grouping and assessment and evaluation as another dimension of the workplace curriculum model. This result indicates that workplace learning should be organized according to nurses' experience levels, ward conditions, professional roles, and learning needs. Appropriate grouping can facilitate peer learning, mentorship, collaborative problem-solving, and differentiated instruction. At the same time, continuous assessment and feedback-based evaluation are necessary to determine whether learning has been transferred to clinical performance. This finding is consistent with educational evaluation literature, which emphasizes that the effectiveness of educational skills and learning outcomes must be assessed systematically rather than assumed (15). It also corresponds with the heuristic framework for evaluating advanced practice nursing care, which emphasizes multidimensional assessment of nursing practice, including process, outcomes, professional judgment, and patient-centered care (2).

The emphasis on assessment and evaluation also reflects the applied nature of nursing education. In workplace curriculum, evaluation should not be limited to written tests or attendance records. It should include observation of clinical performance, assessment of professional behavior, review of decision-making processes, feedback on patient care, and monitoring of improvement over time. This is consistent with empirical methods of social research, which emphasize the importance of valid measurement, reliable data collection, and systematic evaluation in applied studies (16). In the present study, the confirmation of this dimension through both expert consensus and quantitative validation shows that assessment is not a supplementary part of the model, but one of its core elements. Without continuous evaluation, hospitals cannot determine whether workplace learning actually improves nurses' competencies or contributes to quality of care.

The fifth finding concerned the dimension of place and time. The results showed that the appropriateness of the clinical workplace as a learning environment, flexibility of learning time in clinical shifts, and coordination between work schedule and learning opportunities were important components of the model. This finding demonstrates that workplace curriculum design must be sensitive to the real conditions of hospital practice. Nurses work in shifts, face workload pressures, respond to patient needs, and operate within time-sensitive clinical environments. Therefore, educational activities must be coordinated with clinical schedules and should not disrupt essential care processes. This finding is consistent with the systems approach to curriculum planning, which emphasizes that educational design must consider the interaction among objectives, content, resources, implementation conditions, and evaluation (4). It also aligns with educational management principles, because time, place, coordination, and implementation feasibility are managerial issues as much as educational ones (5).

The importance of time and place further confirms that nursing workplace curriculum is different from conventional classroom curriculum. The clinical workplace itself is an educational environment, but its educational potential must be intentionally organized. This idea is consistent with the concept of non-curricular and informal learning, which suggests that many important learning experiences occur outside formal instructional plans and within daily organizational and professional interactions (7). In nursing, informal learning through observation, participation, feedback, and interaction may strongly influence professional development. However, when such learning remains unstructured, it may become inconsistent and dependent on individual circumstances. Therefore, the present model contributes to the field by transforming the workplace into a more deliberate and manageable curriculum space.

The confirmation of the total model through structural equation modeling and expert validation indicates that the five dimensions form an integrated and coherent framework. This result is aligned with previous work on the design and validation of workplace curriculum models, which shows that workplace curricula must be adapted to organizational tasks, professional responsibilities, learning resources, and performance expectations (1). The present study extends this logic to the nursing

context and shows that a hospital-based workplace curriculum should integrate educational, clinical, managerial, and evaluative dimensions. The model also corresponds with the general principles of curriculum planning, educational management, effective teaching, and curriculum effectiveness, all of which emphasize coherence, relevance, systematic design, and evaluation (3, 6, 8, 17). Overall, the findings suggest that the proposed model can serve as a practical framework for improving nursing education in the workplace, strengthening the connection between learning and care quality, and supporting the professional development of nurses.

The present study had several limitations that should be considered when interpreting the findings. First, the study was conducted among nurses working at Imam Reza Hospital in Larestan; therefore, although the model was validated and experts confirmed its generalizability, its direct application to other hospitals should be done with caution and with attention to organizational, cultural, managerial, and clinical differences. Second, part of the data was collected through questionnaires, and therefore the findings may have been influenced by respondents' perceptions, self-report bias, or their temporary work conditions at the time of data collection. Third, although expert consensus and structural equation modeling provided strong support for the model, the study did not examine the long-term outcomes of implementing the model in actual hospital practice. Fourth, the cross-sectional nature of the quantitative phase limited the possibility of examining changes in nurses' competencies, clinical performance, or care quality over time. Finally, the study focused on the design and validation of the model rather than on experimental implementation, and therefore conclusions about the practical effects of the model should be made after future intervention-based studies.

Future studies are recommended to implement the proposed workplace curriculum model experimentally in different hospital wards and evaluate its effects on nurses' clinical competencies, professional behavior, job performance, patient safety indicators, and quality of nursing care. Researchers can also compare the effectiveness of this model with conventional in-service training programs to determine whether a structured workplace curriculum produces stronger and more sustainable learning outcomes. In addition, longitudinal studies are suggested to examine whether the model can maintain its effectiveness over time and whether it can contribute to continuous professional development among nurses with different levels of experience. Future research may also adapt and test the model in other hospitals, cities, and medical specialties in order to examine its contextual applicability and identify possible modifications needed for different clinical environments.

Hospital managers, nursing education planners, and clinical supervisors are advised to use the proposed model as a framework for organizing workplace learning among nurses. In practice, this requires defining clear educational objectives based on nurses' real professional needs, selecting content that is directly related to clinical care, designing active and problem-based learning activities, strengthening the role of clinical mentors and instructors, providing accessible educational resources, and establishing continuous assessment and feedback mechanisms. It is also recommended that hospital authorities coordinate educational activities with nurses' work schedules and ward conditions so that learning becomes an integrated part of professional practice rather than an additional burden. By applying this model, hospitals can transform everyday clinical work into a structured learning opportunity and improve both nurses' professional development and the quality of patient care.

Acknowledgments

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

Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

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

Transparency of Data

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

Funding

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

References

1. Fathi S. Designing and Validating a Workplace Curriculum Model: The Case of South Pars Oil and Gas Company [Master's thesis]. Tehran: School of Nursing and Midwifery, Tehran University of Medical Sciences; 2025.
2. Wong ST, Stewart AL, Gilliss CL. Evaluating Advanced Practice Nursing Care through Use of a Heuristic Framework. *Journal of Nursing Care Quality*. 2024;14(2):21-32.
3. Hashemi SA, Mehrabi M. Effective Teaching: Evidence and Actions: Islamic Azad University, Lamerd Branch; 2015.
4. Hashemi SA, Hazrati A. Foundations of Educational Management: Taimaz; 2015.
5. Hashemi SA, Saberfard A. Curriculum Effectiveness: Nedaye Karafarin; 2019.
6. Hashemi SA, Taghipour M. Principles of Educational Management: Paytakht-e Farhangi; 2019.
7. Hashemi SA, Hazrati A. A Systems Approach to Educational and Curriculum Planning: Taimaz; 2015.
8. Hashemi SA. Curriculum Planning: Principles and Applications: Islamic Azad University, Lamerd Branch; 2015.
9. Varaei S. Investigation of Educational Facilities and the Provision of Human Development Programs in Nursing Offices of Hospitals Affiliated with Universities of Medical Sciences and Health Services in Tehran [Master's thesis]. Tehran: School of Nursing and Midwifery, Tehran University of Medical Sciences; 2025.
10. Mohammadzadeh H, editor In-Service Training in Nursing. Abstracts of the Seminar on In-Service Training in Nursing; 2025; East Azerbaijan: Social Security Treatment Management of East Azerbaijan.
11. Amir Jahansouzi F. Investigation of the Quality of Physical Nursing Care after Open-Heart Surgery in Patients Hospitalized in Intensive Care Units of Teaching Hospitals in Tehran [Master's thesis]. Tehran: School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences; 2021.
12. Rafiei G. Investigation of the Quality of Oxygen Therapy Nursing Care in CCU and Internal Medicine Wards of Rafsanjan University of Medical Sciences [Master's thesis]. Kerman: School of Nursing and Midwifery, Kerman University of Medical Sciences; 2022.
13. Sadeghi A. Evaluation of the Quality of Care Provided to Patients with Foley Catheters Hospitalized in Urology Wards of Hospitals Affiliated with Hamadan University of Medical Sciences and Health Services [Master's thesis]. Tehran: School of Nursing and Midwifery, Tehran University of Medical Sciences; 2021.
14. Farajollahi M. Designing a Learning Quality Model Based on Connectivism Theory. *Educational Strategies in Medical Sciences*. 2024;10(1):51-63.

15. Yousefzadeh P. Evaluation of the Effectiveness of Training Students' Educational Skills. Quarterly Journal of Applied Issues in Islamic Education. 2021;3(2):143-70.
16. Atteslander P. Empirical Methods of Social Research. Kazemzadeh B, editor. Mashhad: Astan Quds Razavi; 2021.
17. Hashemi SA, Gandemkar D. Non-Curricular Study: Status and Application: Taimaz; 2015.