

Presenting Research-oriented Curriculum Pattern for Preschool Period (Case Study: Tehran)

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Authors:

Parisa Arjomandi¹
Hamidreza Rezazadeh
Bahadoran^{2*}
Alireza Assareh³
Abbas Khorshidi⁴

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Abstract

Purpose: The present study aims to provide research-oriented curriculum Pattern for a preschool period.

Methodology: The method is considered as applied, qualitative, and self-emerging in terms of objective, data, as well as nature and type, respectively. Totally, 15 experts were selected based on the snowball theoretical sampling method and theoretical data saturation. The instrument included a semi-structured interview in which the dimensions, components, and indices of the research-oriented curriculum of the preschool period were set. To this aim, all of the national and global Patterns, results, studies, and theories were assessed for the above-mentioned interview form. Then, the indices were counted with open coding, categorized in the form of dimensions, components, and indices through axial coding, and submitted for 15 experts. In the next step, the dimensions and components were identified using selective coding through interview, Delphi technique, and brainstorming.

Results: resulting in finalizing three dimensions, 26 components, and 142 indices for the research-oriented curriculum Pattern of the preschool period. In the next procedure, the dimensions, components, and indices of the Pattern were drawn after the final confirmation and prioritization of the experts.

Conclusion: Finally, the aforementioned Pattern was validated again by the experts.

Keywords: Teaching method, Content, Evaluation, Learners

¹. Ph.D Student of Curriculum Studies, Department of Educational Sciences, Central Tehran Branch, Islamic Azad University, Tehran, Iran.

². Assistant Professor, Department of Psychology and Educational Sciences, Central Tehran Branch, Islamic Azad University, Tehran, Iran. (Corresponding's Author): rezazade1390@gmail.com

³. Professor, Department of Psychology and Educational Sciences, Shahid Rajaei Teacher Training University, Tehran, Iran.

⁴. Professor, Department of Psychology and Educational Sciences, Eslamshahr Branch, Islamic Azad University, Eslamshahr, Iran.

Introduction

Childhood is among the most critical periods for children's education because the method of communicating with surroundings and adapting to society is learned during this period. The method of treating children during this period affects their self-confidence. Based on the studies, most of the obstacles and mental illnesses of people are rooted in their self-confidence in childhood. Thus, kindergartens and preschools seek to increase children's self-confidence, as well as social and emotional development. Teamwork, cleaning things for each other, and getting to know and interacting with others are among the programs of the above-mentioned centers. The child gradually learns the method of conducting the works and communicating with others by performing such activities (Karimi, 2019).

In the field of preschool education, different and sometimes conflicting views have been presented. On the one hand, people like Alkind, 1987; Siegel, 1987; Canning and Lyon, 1991; quoted by Mulligan, 2020) indicated that the children should not be forced towards preschool education and the prevailing atmosphere of some preschool programs may fail to lead children to progress. During preschool education, children learn experiences, the positive effects of which may not be enjoyed at home. In addition, Canning and Lyon (1991) and Mulligan (2020) argued that the role of adults in preschool environments which should provide an appropriate opportunity for children is ignored based on the myth of early experience. Further, Doman, (1984), Rescorla 1991), Pandy (1991), and Mulligan (2020) claimed that preschool experiences affect children's development positively. As indicated, education during the preschool period is regarded as highly sensitive since it is among the early stages of the child's relationship with the society. Therefore, the method of education at the aforementioned stage is among the basic issues of educational centers (Mulligan, 2020).

On the other hand, due to the progress of science and technology, the old teaching methods are no longer effective. As we said, currently, the educational system is responsible for creating favorable changes in human thoughts, cognitions and behavior. Psychologists believe that schools in the future will train students to be researchers according to the trends that are being created in the world (Salimi et al., 2022).

Previously, the teacher mostly played the role of moderator and the students did not participate in the teaching process, while new teachers as guides, supervisors, and organizers should know the learning theories and teaching patterns appropriately because educational centers are considered as places for guidance, supervision, and learning (Marin, 2020).

Teachers should benefit from awareness, skills, and knowledge in relation to teaching design and assessment methods in addition to the curriculum. Creating the sense of self-confidence and self-esteem among the students is regarded as the most critical necessity of the new teaching method. Based on the studies, teaching methods play an effective role in students' progress, motivation, satisfaction, character development, and growth. Teachers should teach the method of thinking and learning in addition to transmitting scientific facts. Teachers aim to present the curriculum in the classroom in addition to strengthening the skills such as listening, speaking, reading, writing, reasoning, comparing, matching, analyzing, building, and creativity by giving students a role in the education process. New teaching methods have attracted the officials' attention (Diehl et al., 2017). Research-oriented learning is among the active and process-oriented Patterns of education, which is based on challenging questions and ambiguous situations. Such learning enables the student to design and make decisions, as well as solving the problems. The aforementioned method focuses on critical components such as observing, questioning, thinking, exploring, experimenting, and reasoning in addition to listening to enable the students to interpret, judge, and theorize from the beginning of their education. Research-oriented education is considered as a new strategy to teach the method of learning, not just a teaching method (Bereczki, 2017).

Based on the research-oriented education, the teacher seeks the answers in sync with the students and provides means and facilities, as well as guiding and controlling different stages of exploration until reaching the set results and objectives. Such method emphasizes the method of solving the problem, not the answer to the problem. The above-mentioned approach aims to help the teacher know and alter the students' mental structures in order to obtain comprehensive growth. (Sarkhosh et al, 2021)

Promoting the skills and improving the view of teachers in the field of research-oriented teaching-learning process, increasing the vitality of the educational environment, creating a context for self-direction in learning, understanding objectives, expanding cooperative learning and the ability of individual and group self-evaluation among teachers and students, raising the strength of scientific

attitude, achieving high levels of cognitive field, and strengthening the students to interpret and judge are among other objectives of the aforementioned teaching method (Fahendej, 2016).

This study seeks to determine the research-oriented curriculum Pattern for preschool period in Tehran.

Accordingly, the researcher seeks to answer the following questions.

1. What are the dimensions, components, and indices of the research-oriented curriculum Pattern of the preschool period in order of priority?
2. How the above-mentioned Pattern is validated theoretically from the users' viewpoint?

A large number of studies have been conducted in the field of research-oriented education at the national and global level, the most significant of which are as follows.

Sadati Kiadehi et al. (2021) designed the Pattern of research-oriented schools in order to evaluate their impact on the factors which facilitate students' learning in education in Mazandaran province to present a Pattern. Based on the results, the aforementioned impact was regarded as significant and positive, and the presented Pattern exhibited an appropriate fit. Lesson design, educational technology, classroom atmosphere, as well as educational facilities and equipment are among the most critical dimensions acquired for the above-mentioned Pattern.

In addition, Hazrati et al. (2020) designed a Pattern of applied research content for primary school students and reported that the applied research content, teaching method, and evaluation approach play an active role in the applied research curriculum Pattern. The results indicated that the applied research curriculum is realized when the aforementioned factors are provided.

Further, Chavoshi et al. (2020) designed a paradigm Pattern of a research-oriented school in order to present such a Pattern utilizing a qualitative method of the grounded theory type. The results indicated that the ineffectiveness of the education-based structure, developmentalist attitude, requirement for adopting research-orientedness in the document of fundamental transformation, necessity for applying research-orientedness in the law of the sixth five-year development plan, and development of futuristic thinking are among the causal factors which affect research-orientedness and somehow justify its necessity. Further, change of learning policies, multifaceted foundation, and institutional support are among the fields and foundations which facilitate the realization of research-orientedness. Furthermore, some macro (socio-cultural and conflict between power institutions) and micro factors (social psychological capital and dramatic discourse of education) affect the strategies for realizing research-orientedness including reviving the mission of the school and rearranging educational elements. Positive consequences can be observed at individual (development of individual pragmatism and mental dynamism) and social-organizational (development of social knowledge-based strategy and organizational improvement) levels when the research-orientedness is realized.

In another study, Noguez and Neri (2019) examined research-oriented learning in the field of engineering at the undergraduate level and asserted that utilizing such method in learning can affect the success of learners in everyday life in addition to deepening the information in their mind. The people trained with the above-mentioned method were regarded as more successful in their work field after graduation than those trained in other methods.

Salleh (2018) investigated the significance of children's learning and found that such approach, along with applying the research teaching method affects the children's learning and education, resulting in deepening learning. In addition, the method of evaluating the teacher plays a critical role in such type of education and teachers who use the research teaching method should always assess their students appropriately.

Further, Van Laere (2017) studied the impact of active methods in education and declared that teaching methods utilized for playing role, conducting cooperative works, and creating small groups are considered as applied in education. Furthermore, the teaching methods used for the team members, searching for the position, and field trip are among the applied ones in natural science education. The inductive and constructivist teaching method is among the best ones which deepens learning.

In another study, Caswell and Laborie (2017) reviewed new educational methods and believed that utilizing such methods in education such as question and answer, research-orientedness, and problem solving strategy increases the power of critical thinking and deepens learning. In addition, such methods consolidate learning, resulting in increasing children's self-esteem.

Hwang et al. (2015) discussed the research-oriented method in the field of learning social studies and indicated that creating a creative spirit among students and raising a generation of researchers is

among the most critical objectives of the education system. Achieving the aforementioned objective requires an appropriate platform in which the teacher enjoys sufficient motivation to guide the education process towards research activities and does not focus on the level of knowledge and mere reserves which is regarded as the lowest educational level. Such objective is realized by designing a creative and motivational educational system. Applying the research-oriented learning method can facilitate the achievement of the proposed objectives.

Table 1 indicates some of the Patterns developed until now regarding the research-oriented preschool curriculum.

Table 1. Preschool/research-oriented curriculum Patterns

Title of Pattern and researcher	Results
The optimal Pattern of the curriculum for the preschool period (Piri and Adib, 2009)	The elements of the optimal curriculum Pattern include general and detailed objectives, content, content organization, learning activities, educational methods, evaluation, and the role of teacher, manager, and parents in the proposed Pattern.
Entrepreneurship curriculum Pattern for preschool children (Sabzeh, 2015)	Based on the results, entrepreneurship education has been proposed in the form of curriculum Patterns from pre-primary school age in order to create the context and nurture self-fulfilling, efficient, and independent children.
Curriculum Pattern for preschool in Iran (Shahidi and Qasim Tabar, 2018)	The results indicated that the compiled curriculum includes five main dimensions including principles, structure, objective, organization method, and assessment.
Applied research curriculum Pattern for elementary school students (Hazrati et al. 2020)	Based on the presented Pattern, the applied research content, teaching method, and evaluation approach play a critical role in the applied research curriculum Pattern. The results indicated that the applied research curriculum is realized when the aforementioned factors are provided. In addition, research-oriented encouragement and connecting students with scientific resources as a strategy, supporting school administrators, designing school structures based on research activities and trained educators in the specialized field of applied research as facilitators, and motivation, attitude, and values of the adopters, as well as developing the research skills should be considered as a platform.
Preschool religious education Pattern (Ashrafi, Sultanahmadi et al., 2021)	The proposed Pattern of the religious education curriculum for the preschool period which includes ten elements based on Aaker approach should be presented. The above-mentioned elements include educational objectives, content, space, and strategy, teacher's role, resources, student grouping, teaching time, and evaluation.
Paradigm Pattern of research-oriented school (Chavoshi et al., 2020)	Such Pattern was designed in two dimensions including macro (socio-cultural and conflict between power institutions) and micro factors (social psychological capital and dramatic discourse of education). According to the researchers, positive consequences can be observed at individual (development of individual pragmatism and mental dynamism) and social-organizational (development of social knowledge-based strategy and organizational improvement) levels when the research-orientedness is realized
Research-oriented school Pattern (Hosseinpour Vezinabadi, 2019)	The primary Pattern of a research-oriented school with four dimensions of a research-based manager included scholarship promotion and facilitation, as well as distributed leadership. In addition, the

research-based teacher dimension included belief research, professional knowledge and skills, and professional communication and interactions. Further, culture dimension and research-based structure included research-oriented culture, supportive and empowering structure, supporting laws, and resources. Finally, the research-oriented teaching and learning dimension included classroom management, research-oriented teaching, educational content, and evaluation, strengthening skills, assignment, and research-oriented encouragement.

The theoretical framework included the Pattern of applied research curriculum for elementary school students (Hazrati et al., 2019). Based on the results, applied research content, teaching method, and evaluation approach play an active role in the applied research curriculum Pattern. The curriculum of applied research is realized when the aforementioned factors are provided. In addition, research-oriented encouragement and connecting students with scientific resources as a strategy, supporting school administrators, designing school structures based on research activities and trained educators in the specialized field of applied research as facilitators, and motivation, attitude, and values of the adopters, as well as developing research skills should be considered as a platform.

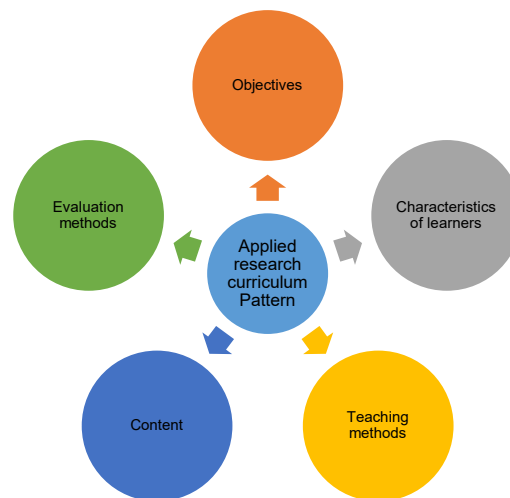


Fig 1. Theoretical framework of the study

Methodology

The present study is regarded as applied, qualitative, and self-emerging in terms of objective, data, as well as nature and type, respectively. The population included experts with a doctorate in educational sciences and studies in the field of curriculum planning, among which 15 participants were selected based on the snowball theoretical sampling method and theoretical data saturation. The instrument included a semi-structured interview based on open and axial coding. Then, selective coding was implemented through interviews, Delphi technique, and brainstorming, in which dimensions, components, and indices were confirmed and validated by experts. In the next step, the reliability and validity of the measurement instrument was obtained by the three-way consensus method. The data were gathered through in-depth study of theories, Patterns, results, patterns, national and global studies in the field of preschool curriculum Patterns, and research-orientedness. In the next procedure, axial coding was implemented in order to categorize the indices in the form of dimensions and components through open coding from the results related to the first phase onwards. Then, the issue was set in the form of a semi-structured interview form through in-depth interview, Delphi technique, and brainstorming with the help of experts and its continuation until the theoretical saturation. In the next step, counting the Pattern, dimensions, components, and indices were validated and prioritized by experts. Finally, the data were analyzed through three stages of open, axial, and selective coding.

Results and Discussion

The data were analyzed during four stages.

Open coding: During this step, 86 indices were counted through national and global studies, as well as interviews with experts.

Axial coding: During this stage, 3 dimensions, 10 components, and 86 indices were counted through interviews with experts. It is worth noting that the table related to open and axial coding was ignored in order to prevent the length of the text.

Selective coding: During this stage, which is monitored by experts, 3 dimensions, 26 components, and 142 indices are counted regarding research-oriented curriculum Pattern for preschool period (Table 2).

Table 2. Dimensions, components and the number of indices which constitute the research-oriented curriculum Pattern for the preschool period

Dimension	Components	Number of indices
Structure	Management	8
	Planning	5
	Organization	4
	Cohesion	6
	Culture	7
	Rules and Regulations	5
	Objectives	12
Educational	Content	11
	Method	4
	Learning-teaching activities	5
	Evaluation	8
	Environment	7
	Trainer	12
	Equipment	4
Skills	Visual-spatial	3
	Verbal-linguistic	3
	Logical-mathematical	3
	Sensory-motor	3
	Musical	3
	Extra personal	7
	Intrapersonal	6
	Naturalist	3
	Moral-spiritual	3
	Identity-based	4
Emotional	3	
Social	3	

Theoretical validation of the Pattern: During this step, the dimensions, components, and indices of the research-oriented curriculum Pattern for the preschool period for Tehran were prepared in the form of a Pattern and validated by experts.

Based on the results, the research-oriented curriculum Pattern for preschool period is as follows.

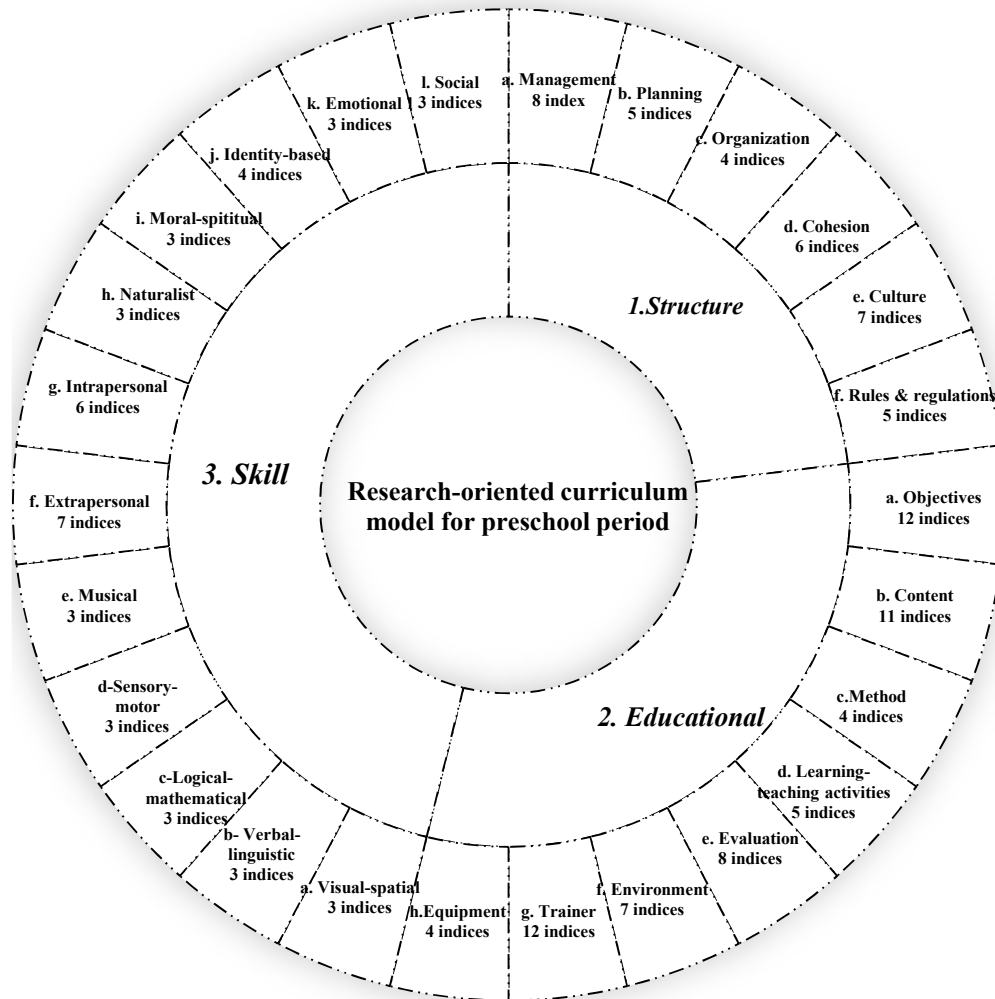


Fig 2. Research-oriented curriculum Pattern for preschool period (Case study: Tehran)

As shown in Fig. 2, the above-mentioned pattern contains 3 dimensions, 26 components, and 142 indices. The results are consistent with those of some studies (Sadati Kiadehi, 2021; Hazrati, 2020; Chavoshi, 2020; Kiana, 2020; Towers, 2020; Julieta and Luis, 2019).

Structure, educational, and skill are considered as three constructive dimensions of the aforementioned Pattern. In addition, 26 components related to the above-mentioned Pattern include management, planning, organization, cohesion, culture, rules and regulations, objectives, content, method, learning-teaching activities, evaluation, environment, trainer, equipment, visual-spatial, verbal-linguistic, logical-mathematical, physical-motor, musical, extrapersonal, intrapersonal, naturalist, moral-spiritual, identity-based, emotional, and social. The results are in line with those in some studies (Sadati Kiadehi, 2021; Hazrati, 2020; Chavoshi, 2020; Kiana, 2020; Towers, 2020; Julieta and Luis, 2019). The results indicated that each of the achieved components includes indices (Table 3).

Table 3. Dimensions, components, and indices of the research-oriented curriculum Pattern for the preschool period

Dimension	Components	Indices
Structure	Management	1. Applying democratic leadership in school
		2. Encouraging and persuading behavior of managers (encouraging the trainers involved in change and innovation)
		3. Benefitting from the spirit of free thinking and questioning
		4. Using a collaborative management style (participating creative people in higher level decisions)
		5. Management support for implementing new ideas
		6. Holding workshops and training courses related to research-orientedness
		7. Allocating the necessary budget to implement the research-orientedness
		8. Focusing on research-orientedness as the main core of the academic program
	Planning	9. Developing a research-oriented curriculum to encourage questioning
		10. Developing a research-oriented curriculum to encourage research
		11. Developing a research-oriented curriculum to encourage new ideas
		12. Developing a research-oriented curriculum commensurate with the students' intellectual development and experiences
		13. Developing a research-oriented curriculum commensurate with the cultivation of the five senses
	Organization	14. Curriculum content is adjusted from easy to difficult
		15. Curriculum content is adjusted based on students' prerequisites
		16. The curriculum are sequenced during adjusting the content
		17. The content is adjusted based on the unity of the curriculum
	Cohesion	18. Existence of coherence between the research-oriented curriculum and objectives
		19. Existence of coherence between the research-oriented curriculum and students' intellectual development
		20. Existence of coherence between the research-oriented curriculum and trainers' skills
		21. Existence of coherence between research-oriented curriculum and evaluation methods
		22. Existence of coherence between research-oriented curriculum and teaching methods
		23. Existence of coherence between research-oriented curriculum and learning-teaching activities
		24. Governance of organizational culture prone to research-orientedness
	Culture	25. Governance of a friendly atmosphere based on trust and delegation of authority in the school
		26. Benefitting from a culture of support for research activities

	27. Governance of encouraging culture for ideation and research
	28. Trainers' willingness to perform team and group work in school
	29. Governance of thinking for continuous improvement of organizational values guiding the employees' behavior and actions
	30. Governance of freedom of expression and opinions
Rules and regulations	31. Flexibility of rules and regulations
	32. Appointing a trustee to support research-orientedness, innovation, and presenting new ideas
	33. Benefitting from an ideation system to obtain and modify ideas and engage the trainers
	34. Flexibility of salary system
	35. Providing system, process, executive, and technical infrastructures for thinking and research
Objectives	36. Objectives help develop the students' cognitive dimension
	37. Objectives are regarded as meaningful for the learners and appropriate to the students' age
	38. Designed objectives can be realized during the relevant period
	39. Designed objectives benefit from a psychological and scientific basis
	40. Objectives help develop the students' emotional dimension
	41. Objectives help develop the students' sensory-motor dimension
	42. Objectives can be measured
	43. Objectives meet the students' needs
	44. Designed objectives are considered as challenging
	45. Objectives are regarded as clear
	46. Objectives at different levels are considered as coordinated and coherent
	47. Objectives are regarded as flexible and reviewable
Educational	48. Content is compiled to provide the basis for developing students' interest
	49. Content is compiled to provide the basis for interaction, participation, and sharing of efforts
	50. Content is compiled to stimulate the students' curiosity
	51. Content is compiled to provide the basis for recognition and growth of responsibility among the students
	52. Content is compiled to provide the basis for raising appropriate questions
	53. Content is compiled to provide the basis for producing answers (fluidity).
	54. Content is compiled to provide the basis for generating new answers (initiative)
	55. Content is compiled to provide the basis for producing diverse ideas (flexibility).
	56. Content is compiled to provide opportunities for cooperation and collaboration
	57. Content is compiled to provide opportunities for exploration
Content	

	58. Content is compiled to provide the basis for motivation to be dynamic and active
Method	59. Utilizing the problem solving method in teaching
	60. Applying the research method in teaching
	61. Using discovery method in teaching
Learning-teaching activities	62. Utilizing the collaborative method in teaching
	63. Performing learning-teaching activities based on stories
	64. Performing learning-teaching activities based on games
	65. Performing learning-teaching activities based on poetry
	66. Performing learning-teaching activities based on creative presentation
Evaluation	67. Performing learning-teaching activities based on crafts
	68. Assessing the students comprehensively
	69. Focusing on individual differences during evaluation
	70. Focusing on different forms of evaluation
	71. Focusing on formative evaluation
	72. Focusing on continuous evaluation
	73. Focusing on group and team evaluation
	74. Focusing on the appropriateness of evaluation and content
	75. Evaluating the students based on their efforts in the teaching and learning process
	76. School benefits from a library
Environment	77. School benefits from a group think tank
	78. School benefits from an appropriate laboratory and necessary equipment
	79. School benefits from a calm and appropriate environment for research
	80. School benefits from educational consultants
	81. Benefiting from an appropriate physical building
	82. Establishing a free atmosphere for expressing opinions
Trainer	83. Trainers' benefits from the power of initiative and innovation
	84. Trainers' benefits from a critical spirit
	85. Trainers' benefits from sufficient knowledge and expertise in the field of research
	86. Presence of belief research in the trainer's behavior and performance
	87. Existence of strong motivation for learning and individual professional development of trainers
	88. Trainers' benefits from a high imagination
	89. Trainer's inspiration from the thoughts and words of others to solve problems
	90. Trainers' benefit from a scientific research relationship with the faculties of educational sciences and Farhangian University for their professional development
	91. Continuous participation of trainer in scientific meetings based on research findings in the field of active teaching methods
	92. Fluidity of the trainers' minds and thoughts
	93. Flexibility of trainers in front of changes and problems
	94. Trainers' belief in applying active teaching methods in the classroom
Equipment	95. Benefiting from equipment and educational assistance facilities to implement the trainers' lesson ideas

		96. Up-to-date training and guidance for trainers in using educational technology
		97. Encouraging trainers to utilize educational aids during teaching
		98. Allocating new educational materials and aids to the classes as needed
	Visual-spatial	99. Teaching different geometric shapes to children
		100. Teaching the communication of geometric shapes to children
		101. Applying images and diagrams in education
	Verbal-linguistic	102. Encouraging the students to speak fluently
		103. Encouraging the students to express their feelings
		104. Strengthening the students' vocabulary, grammar, and storytelling skills
	Logical-mathematical	105. Learning to use abacus by students
		106. Utilizing different Patterns in education
		107. Applying different puzzles in education
	Physical-motor	108. Emphasizing physical skills in the curriculum
		109. Focusing on the ability to create harmony between different parts of the body
		110. Emphasizing practical training, along with theoretical one
	Musical	111. Teaching various melodies in the research-oriented curriculum
		112. Strengthening the sense of hearing in the research-oriented curriculum
		113. Strengthening the sense of understanding the musical structures in a research-oriented curriculum
		114. Strengthening the students to relate everything learned to real life (dynamism)
		115. Strengthening the students to build and use knowledge (activity-orientedness)
Skill	Interpersonal	116. Strengthening the students to display discipline in acquiring practical results
		117. Strengthening the students to express their feelings and thoughts
		118. Strengthening the students to pose appropriate questions (problem-orientedness)
		119. Ability to compare the academic status of each student with him/herself (self-regulation)
	Extra-personal	120. Strengthening the students to participate in team activities (exploration)
		121. Strengthening the students to make friends
		122. Strengthening the students to interact with others
		123. Strengthening the students to think logically
		124. Distributing various responsibilities among the students in the class and the ability to be responsible for the assigned tasks
		125. Ability to understand the learning environment
		126. Creating a context for exchanging ideas and sharing information, as well as helping each other in performing activities
	Naturalist	127. Focusing on programs such as botany, biology, and zoology in the research-oriented curriculum

	128. Strengthening the students to classify and list information in research- oriented curriculum
	129. Holding consecutive nature trips in the research-oriented curriculum
	130. Developing the values in the research- oriented curriculum
Moral-spiritual	131. Creating strong moral beliefs in the research- oriented program
	132. Acting on beliefs in the research- oriented curriculum
	133. Strengthening the students to recognize their talents (self-awareness)
Identity-based	134. Strengthening the students to recognize their weaknesses (self-awareness)
	135. Strengthening the students to turn weaknesses into strengths
	136. Strengthening the students to manage their potentials (self-management)
	137. Strengthening the students to express their positive and negative feelings in a research- oriented curriculum
Emotional	138. Strengthening the students to express their opinions in the research- oriented curriculum
	139. Strengthening the students to respect differences
	140. Strengthening the students to know their society (social awareness)
Social	141. Strengthening the students to make responsible decisions
	142. Strengthening the students to perform social and group activities

Conclusion

Teachers, school administrators, and education officials should expand the research and strengthen the research-oriented culture among the future makers in Iran. Research programs should be considered at a young age in society so that children and teenagers can learn the method of thinking and finding solutions to answer problems. Research-orientedness in schools helps students learn thinking skills such as analyzing and explaining problems and testing hypotheses. Research is among the most critical components of the development and progress of the country, which leads the society towards scientific mobility. Creating the atmosphere of questioning and searching in schools should be considered by education officials in order to institutionalize research-orientedness among students and even teachers. As for the limitations in this study, it was conducted to design a research-oriented curriculum Pattern for the preschool period. This study could be implemented on a wider level including other stages of education in order to be more generalizable. In addition, it was difficult to access to experts in this field due to health conditions of the country and the application of COVID-19 restrictions. Thus, it is recommended to conduct the study on a wider level to increase the generalizability of the results through a standard and more comprehensive scale which is widely used. Further, future studies can focus on analyzing the effects of policies and macro programs on strengthening the identified dimensions and components.

References

- Ashrafi Sultanahmadi, Z., Kayhan, J., Maleki Avarsin, S., and Yari, Jahangir (2021). Designing the Ideal Pattern of the Religious Education Curriculum in the Preschool Period. *Applied Problems of Islamic Education and Training*, 6 (1): 7-30. (In Persian)
- Berezki, E. O., & Karpati, A. (2018). Teachers' beliefs about creativity and its nurture: A systematic review of the recent research literature. *Educational research review*, 23: 25-56.
- Caswell, C. J., & LaBrie, D. J. (2017). Inquiry based learning from the learner's point of view: A teacher candidate's success story. *Journal of Humanistic Mathematics*, 7(2): 161-186.
- Chavoshi, E., Shah Talebi, B., and Ebrahimzadeh Dastjerdi, R. (2020). Multi-layered research-orientedness: Presenting a research-oriented school paradigm Pattern. *A new approach in educational management*, 11 (5): 133-166. (In Persian)
- Diehl, W., Grobe, T., Lopez, H., & Cabral, C. (1999). Project-based learning: A strategy for teaching and learning.
- Fahandej, M. (2017). Research-oriented Learning, Tehran, *Hedayat Publication*. (In Persian)
- Hairon, S., Chua, C. S. K., & Neo, W. L. (2018). School-based curriculum development in Singapore: a case study of a primary school. *Asia Pacific Journal of Education*, 38(4): 518-532.
- Hazrati, A., Hashemi, S.A., Qaltash, A., and Mashinchi, A.A. (2020). Applied research-oriented curriculum Pattern for elementary school students. *Research Teaching*, 8(3): 97-122. (In Persian)
- Hosseinpour, S.H. and Zeinabadi, H.R. (2019). Research-oriented School: Developing and testing a causal Pattern utilizing a combined exploratory method. *Family and Research*, 16 (42): 27-47. (In Persian)
- Hwang, G. J., Chiu, L. Y., & Chen, C. H. (2015). A contextual game-based learning approach to improving students' inquiry-based learning performance in social studies courses. *Computers & Education*, 81: 13-25.
- Julieta, N. & Luis, N. (2019). Research-based learning: a case study for engineering students. *International Journal on Interactive Design and Manufacturing*, 13:1283–1295.
- Karimi, Y. (2019). Educational Psychology, *Arasbaran publication*. (In Persian)
- Kiana, W. (2020). The impact of active methods on education. *Studies in Higher Education*, 35(6):723-740. (In Persian)
- Marin, V. (2020). Research-Based Learning in Education Studies: Design Inquiry Using Group e-Portfolios Based on Blogs. *Australian Journal of Educational Technology*, 36(1): 1-20.
- Mulligan, J., Oslington, G., & English, L. (2020). Supporting early mathematical development through a 'pattern and structure' intervention program. *ZDM*, 52: 663-676.
- Noguez, J., & Neri, L. (2019). based learning: a case study for engineering students. *International Journal on Interactive Design and Manufacturing*, 13(4): 1283-1295.

- Piri, Rabab, and Adib, Yusuf. (2009). The optimal model of the curriculum for the pre-primary period. *Education and Evaluation*, 2(5): 53-82. (In Persian)
- Sabzeh, B. (2015). Designing and evaluating an entrepreneurship curriculum Pattern for preschool children from the perspective of curriculum experts, entrepreneurship, and trainers. *Preschool and Elementary Studies*, 1 (1): 140-160. (In Persian)
- Sadati Kiadehi, S.M. and Niazazari, K. (2021). Impact of research-oriented schools on factors facilitating student learning in Mazandaran Province Education Office: A Pattern presentation study in order to provide a Pattern for the development of Jundi Shapur education. 11 (3): 99-106. (In Persian)
- Salimi, B., Namvar, Y., Rastgoo, A., & Soleymani, T. (2022). Characteristics of successful schools in the future from the experts' point of view. *Curriculum Research*, 3(4).
- Sarkhosh, S., Sadeghi, A., Faghiharam, B., Shabani, H., & Zabihi, R. (2021). Describing the Elements of Preschool Curriculum with a Problem-Solving Approach from the Perspective of Curriculum Planning Specialists and Educational Psychologists. *Curriculum Research*, 2(4):23-38.
- Shahidi, A. and Qasim Tabar, S.N. (2018). Early childhood education in Iran: Introducing a curriculum. The first international congress and the fifth national congress of education and health of preschool children, University of Welfare and Rehabilitation Sciences. (In Persian)
- Towers, J. (2020). The impact of research on children's learning, *Canadian Journal of Education*, 35(1): 259- 278.
- Van Laere, K., & Vandebroek, M. (2020). Early learning in preschool: meaningful and inclusive for all? Exploring perspectives of migrant parents and staff. In *Perspectives from Young Children on the Margins*. Routledge, pp. 71-85.