## Iranian Journal of Educational Sociology

# Validating and Presenting of the Curriculum Pattern of Multi-Grade Classes of Elementary School

Mojdeh Meshkinfam[1], Ali Akbar Khosravi Badabi[2*], Lotfollah Abbasi Sarvak[3], Kambiz Poushaneh[4]

1. PhD student, Curriculum Planning Department, Central Tehran Branch, Islamic Azad University, Tehran, Iran
2. Associate Professor, Training and Counseling Department, Central Tehran Branch, Islamic Azad University, Tehran, Iran (Corresponding Author).
3. Assistant Professor, Educational Management Department, Central Tehran Branch, Islamic Azad University, Tehran, Iran
4. Assistant Professor, Education and Counseling Methods Department, Central Tehran Branch, Islamic Azad University, Tehran, Iran

**Purpose:** Considering the importance of curriculum for different classes, especially for multi-grade classes, the present research was conducted with the aim of validating and presenting the curriculum pattern of multi-grade classes of elementary school.

**Methodology:** This study in terms of purpose was applied and in terms of implementation method was mixed. The population of the qualitative part of the current research was the documents related to the research field in scientific databases of internal (1391-1402) and external (2013-2023), which numbers of 27 document were selected as a sample with using the purposive sampling method. The population of the quantitative part of the current research was the experts familiar with the field of research, which numbers of 25 expert were selected as a sample with using the purposive sampling method. The research tool in the qualitative part was taking notes from the documents and in the quantitative part was answering about the validity of the designed pattern with the criteria of adaptability, comprehensibility, research process evaluation, generalizability, theory evaluation and control. The data of the qualitative part to present the curriculum pattern of multi-grade classes of elementary school were analyzed with the meta-synthesis method in MAXQDA version software, and the data of the quantitative part to validating the mentioned pattern were analyzed with the one sample t-test in SPSS version 23 software.

**Findings:** The findings showed that the curriculum pattern of multi-grade classes of elementary school had 157 indicators in 28 components and 10 dimensions including the logic, purpose, content, learning methods, teacher, materials and resources, student, time, place and evaluation methods, which based on it, the pattern of dimensions and components of curriculum of multi-grade classes of elementary school were drawn. Other findings showed that the curriculum pattern of multi-grade classes of elementary school was valid based on the criteria of adaptability, comprehensibility, research process evaluation, generalizability, theory evaluation and control.

**Conclusion:** The designed curriculum pattern of multi-grade classes of elementary school in the present research can help experts and planners in improving the curriculum status of multi-grade classes.

1. Corresponding Author: khosravi.edu@gmail.com

## 1. Introduction

Nowadays, along with the institutionalization of the role of education in the development of societies, numerous efforts have been initiated to regulate this crucial process, and education has been divided into various branches. Among these, in addition to different factors influencing education, curricula have gained increasing attention as the heartbeat of the educational system and a tool for achieving educational goals, thus making curriculum planning one of the specialized and, at the same time, controversial areas in education (Smith, 2023). Generally, four types of curriculum planning have been introduced, namely, formal curriculum, null curriculum, hidden curriculum, and operational curriculum. The formal and explicit curriculum is referred to as the written or documented curriculum, which precisely introduces charts, topic lists, curriculum guides, and objectives (Chuang, 2023). The term curriculum encompasses students' learning objectives (skills, knowledge, and attitudes), content (the subject matter of the learning experience), sequence (the method of presenting concepts), students, teaching methods and educational actions, educational resources (materials and settings), assessment (methods used to evaluate student learning), and the coordination between teaching processes and learning based on experience and evaluation (Bahtaji, 2023). Curriculum planning is one of the most challenging and controversial theoretical issues in the field of knowledge, playing a significant role in education (Nooroddin, Poushaneh & Yadegarzadeh, 2023). A curriculum model is a coherent and integrated conceptual framework used as a guide for planners and implementers in formulating objectives at different levels. Curriculum reform is necessary for modernizing the education system through changes in general and specific objectives, learning domains, educational content, educational structure and levels, teaching and learning methods, assessment of academic progress, educational materials, and media (Abaspour, Bayrami Ardi, Gholipour & Abaspour, 2023).

Statistics show that in Iran's education system, about one million students are engaged in multi-grade classrooms. These students are mostly from rural areas or the outskirts of small and remote cities. The teachers of these multi-grade classrooms are predominantly from rural areas, generally holding only a high school diploma and having received minimal training, lacking in basic teacher training. The primary reason for establishing multi-grade classrooms is the failure to meet the student population threshold for a single grade level (Izan, Shahri & Ahmadialiabadi, 2022). Some consider these classrooms as problems that need to be eliminated from the educational system, while others see them as opportunities for optimal education. Research indicates that there is no significant cognitive ability difference between students in multi-grade and single-grade classrooms. Moreover, students in multi-grade classrooms demonstrate superior social development, environmental adaptation, emotional expression, cooperative spirit, mental health, and behavioral maturity compared to their single-grade counterparts. Teaching in multi-grade classrooms and the student experience in these environments bring a wealth of experiences (Badri, Mahmodi, Imanzadeh & Adib, 2021). Multi-grade classrooms are a global phenomenon aimed at achieving international education for all, even in remote, sparsely populated, and inaccessible areas. These classrooms are one of the educational strategies to provide quality education to all schools in less developed areas, where students from two or more grades are placed in one classroom (Badakhshan Toroghi, Soleimanpour Omran & Fazlli, 2023).

It is noteworthy that in general, there is little or no attention paid to the curriculum in Iran. The lack of focus on the curriculum in education may be attributed to various factors. One of the main reasons could be insufficient attention to the real needs and educational problems in society. The curriculum should be designed based on the real needs of society and global developments, but these needs may not be correctly identified or fully considered in Iran. Political and social factors might also contribute to the neglect of the curriculum. Political decisions and the influence of political powers on education can prevent proper implementation of the curriculum or lead to unjust changes in it. Furthermore, cultural and social influences could result in a lack of attention to the curriculum. Cultural and social values and beliefs might conflict with the curriculum, hindering its proper implementation. Managerial factors might also be a reason for the neglect of the curriculum. The educational system might have structural and organizational deficiencies that prevent the proper execution of the curriculum. Additionally, the lack of adequate and appropriate resources and

equipment could impede the implementation of the curriculum. Overall, the lack of attention to the curriculum in Iran could be due to various factors, including ignoring educational needs and problems, political and social factors, cultural and social factors, and managerial factors. Therefore, this research aims to comprehensively study and answer the question: What model can be proposed for the curriculum in multi-grade primary classrooms? And how effective is it?

**Theoretical Foundations**

The curriculum is, in fact, one of the main approaches in the educational system and plays a significant role in the learning outcomes of students. This curriculum includes both formal and informal processes, encompassing both explicit and implicit approaches. The term curriculum covers students' learning objectives (skills, knowledge, and attitudes), content (the subject matter of the learning experience), sequence (the method by which concepts are presented), students, teaching methods and educational actions, educational resources (materials and settings), evaluation (methods used for assessing student learning), and the coordination between teaching and learning processes based on experience and evaluation (Eilks & Hofstein, 2017). Generally, there are six types of curricula: 1. Proposed Curriculum: This is a document offered by a committee, individual, or institution, suggesting a useful curriculum for certain subjects or interdisciplinary topics. There is no obligation for teachers, educational publishers, or governmental departments and institutions to implement this proposed document. 2. Written or Mandatory Curriculum: A formally and administratively prescribed curriculum, hence mandatory. It may include a list of achievable objectives, detailed sub-topics, assessment methods, and other elements. 3. Taught Curriculum: Refers to the educational materials practically taught by the teacher in the classroom. 4. Supported Curriculum: Includes textbooks, guides, scheduling, and equipment used in classrooms. 5. Tested Curriculum: A curriculum covered by tests or exams, which is prepared and taught by the teacher, and the parts or units assessed post-teaching are termed as the tested curriculum. This is more common in centralized systems. 6. Learned or Acquired Curriculum: Here, the focus is on what students actually learn, which differs from the tested curriculum and has a broader scope than the tested curriculum (Yule, Mingkai & Xianyun, 2019).

From Klein's (2003) perspective, the nine elements of the curriculum are: general objectives, concrete goals and purposes, content, educational materials and resources, student activities, teaching strategies, assessment, grouping, and location. Considering the levels of decision-making and curriculum elements, he mentions the unique characteristics of the participants and the range of their political power and influence in decision-making. Therefore, a participant may appear at several levels. For example, a teacher might try to influence social-level decisions as a parent, participate in writing new curriculum frameworks at the official level as a member of a state or regional committee, and act at the institutional or organizational level as a member of a class planning team. Consequently, coordination between decisions made at one level with other levels and types of mandatory decisions is essential (Colburn, Harris, Lehmann, Widdice & Klein, 2020).

The scope of decision-making in curriculum planning is vast and even includes the learning content of students in schools. Hence, experts and specialists in the field of curriculum have identified various models for decision-making in this area. For instance, some believe that curriculum decisions should be made by educators with the necessary professional training, without the intervention of parents and inexperienced individuals. Therefore, there is a wide range of opinions regarding decision-making in the curriculum domain. According to one view, the three dimensions of the curriculum model include the layers of stakeholders, origin or status, and flexibility. Another perspective relates to the levels of decision-making in school-centered curriculum planning in its broader concept. This approach, conceptually, differs from Klein's (2003) view. The leveling of school-centered curriculum planning is based on how individuals involved in the planning process interact. Decision-making in this view involves seven levels. 1. Acceptance: At this level, school-based curriculum planning includes a set of independent decisions. The school is not the designer of the curriculum but chooses and implements a pre-determined curriculum prepared by others and accepted by the school principal and staff. 2. Adaptation: Refers to modifying the curriculum to align it with the

environmental conditions used for implementation. This adaptation can be made in various ways. For example, in science education, when discussing plants and animals, one can talk about flora and fauna native to the student's environment. 3. Revision: At this level, the curriculum is revised based on the reactions of teachers, students, and others to different parts of the curriculum, as well as new experiences gained. Thus, the revision of the curriculum is to respond to changing demands. 4. Development: Improvement and expansion of the curriculum occur through the elimination of redundant parts, aligning content with time, and preparing supplementary materials. 5. Organization: At the organizational level, the relationship between different aspects of a curriculum and ways of delivering educational materials is addressed. The initiative and experience of the teacher are involved. 6. Implementation: Implementing the developed curriculum usually refers to the teaching that occurs in an educational setting with the interaction of teacher and student. At this level, the teacher assists in the personal development of the student by creating suitable learning opportunities with the help of the student. 7. Curriculum Evaluation: At this level, classroom teaching, content, educational materials, and anything considered an element of the curriculum are evaluated (Sabar, 2021).

In general, the factors affecting the curriculum can be divided into two groups. 1- Official influencing groups, including local officials, educational authorities at the local level, teachers, etc. 2- Informal influencing groups, including informal organizations, auxiliary organizations, parents, society, etc. In the school curriculum, in addition to teachers, parents and students also play a fundamental role. For example, surveys in the United States have shown that the school curriculum is one of the three main concerns of parents (the other two being discipline and drug abuse). However, in many educational systems worldwide, parents' rights to participate in curriculum decisions in schools are not legally specified. Establishing cooperation requires leadership and initiative, and schools are usually the main pioneers in providing initiative and leadership, rather than parents. In fact, parents often do not form a cohesive group, and sometimes the desires of one group of parents are in complete conflict with another. In such cases, the school leader is compelled to take the initiative and find an acceptable solution for all involved groups. Nonetheless, it should be noted that parental cooperation with schools depends on creating favorable conditions, and in many cases, the need for appropriate educational arrangements is felt (Salisu & Inuwa, 2019). One of the effective factors in curriculum implementation is teaching skills, which have different natures and meanings in various viewpoints. Some consider it the direct conveyance of scientific facts by the teacher to the learners, while others define it as collaboration or interaction between the teacher and learners and content in the classroom. Some education experts have defined teaching as creating situations and circumstances that facilitate learning for the learner (Shahraki, 2021).

Multi-grade classrooms are defined as classes where students of multiple educational grades attend together with a single teacher. According to statistics provided by the Ministry of Education, there are currently about 48,000 multi-grade classrooms in the country, with over 640,000 students enrolled in these classes. Multi-grade classrooms present specific challenges for teachers due to their unique conditions compared to single-grade classrooms. Due to differences in student ages, genders, and the number of grades, teachers in multi-grade classrooms have a greater range of responsibilities and roles. Fulfilling these roles and responsibilities requires various competencies (Hosseini & Rostami, 2022).

Several concepts require special attention regarding multi-grade classrooms. These concepts are as follows: 1. The reason for the emergence of multi-grade classrooms, 2. Specific geographical conditions. In many rural areas of the country, for various reasons such as migration to cities or children and teenagers assisting in family livelihoods, the number of students in a single grade becomes so low that it's impossible to form single-grade classes. Also, due to a lack of public transportation or unsuitable roads, many of these students cannot attend single-grade classes in schools of other villages or regions. In such situations, the only solution is to form multi-grade classes. 3. The successful experience of multi-grade classes in other countries. Although multi-grade classes are usually formed in deprived areas, their implementation is expanding in many countries worldwide, including developed ones, due to the benefits they offer. 4. The benefits of multi-grade classes. While multi-grade classes are usually formed out of necessity, their conduct can offer numerous benefits for

students (Manzano & Magalona, 2023): Managing multi-grade classes should be done in a way that meets the needs and different levels of students. For this purpose, teachers can use some tools prepared for all grades, saving time and cost while increasing teaching efficiency. In these classes, students who are behind in some subjects can be placed in a lower grade to catch up, and advanced students can be allowed to use higher-level lessons. Higher grade students revisiting their previous years' lessons enhances their learning depth, while lower-grade students become somewhat familiar with higher-grade lessons, setting the groundwork for broader learning. Students are given the opportunity to collaborate based on their skills, talents, interests, personalities, and age, which expands their experience and social relationships. With a wider age range of students, their level of advancement is increased, and students form friendships based on factors other than age. Older students get the opportunity to teach younger students, playing the role of a teacher, and the use of one teacher for several consecutive academic years deepens the bond between teacher and students (Bjoru, 2023).

## 2.  Methodology

Given that the aim of the current research was to validate and propose a curriculum model for multi-grade primary classrooms, the research method was applied and mixed in terms of implementation. The qualitative part of the study comprised documents related to the research domain from domestic (2012-2023) and foreign (2013-2023) scientific databases, selecting 27 documents through purposive sampling. In this study, based on documents searched in domestic and foreign databases, 353 documents were identified, and 4 more were recognized through their references. Therefore, in the preliminary review, 357 documents were collected, of which 312 were eliminated after reviewing their titles and abstracts, leaving 45. Finally, using coarse and fine screening, 18 documents were removed, and 27 were selected for final analysis and meta-synthesis as the final sample. The document selection process for the meta-synthesis to present the curriculum model for multi-grade primary classrooms can be seen in Figure 1. Additionally, the quantitative part of the study involved experts familiar with the research domain, selecting 25 experts through purposive sampling. In purposive sampling, experts are selected based on criteria and standards, the most important in this research being sufficient knowledge in the research field, a minimum of a master's degree, more than 10 years of work experience, and agreement to participate in the research.

The research execution stages were as follows: In the first stage, the research geography was determined. For this purpose, search parameters such as publication date, type of research (internal and external ISC and ISI research from 2012 to 2023 for internal databases and 2013 to 2023 for external databases, types of research including meta-synthesis, review, qualitative, and quantitative in both Persian and English), document selection criteria (research related to the research question and with suitable credibility), and document search strategy in databases (using keywords like curriculum elements, multi-grade classrooms, primary education in various reputable internal (IranDoc, SID, IranMedex, Magiran, MediLib, Iran Psych, Elmnet, Noormags, Civilica) and external (Web of Science, Pubmed, Scopus, Embase, Cochrane, Google Scholar, ERIC, ScienceDirect, PreQuest, Medline, ISI, Elsevier, Wiley Online Library, Springer, IEEE, JSTOR, PsycInfo) databases, and searching them in the mentioned databases) were reviewed. In the second stage, a systematic critique of selected documents was conducted, which included coarse screening (studying the abstracts of documents and evaluating them based on two general criteria of quality and relevance), fine screening (studying the full text of documents and evaluating them based on quality and relevance), and analysis (each document was read several times, and their concepts and components were described and recorded). In the third stage, new elements were created from separate elements, using two types of synthesis: aggregative synthesis (like a physical change in a chemical reaction, where the findings of selected research are combined) and integrative synthesis (like a chemical change in a reaction, where the findings of selected research are combined to recreate a new identity).
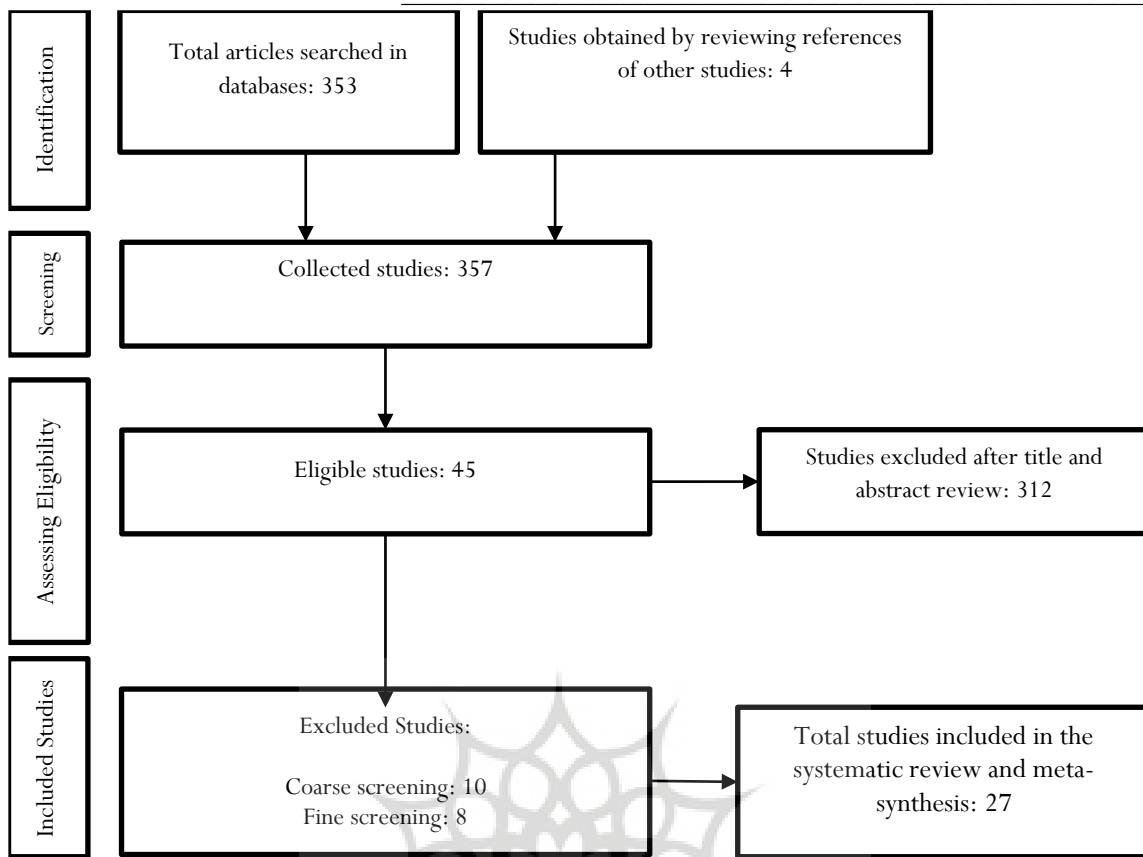
**Figure 1.** Research procedures

In the qualitative part of the study, research tools involved note-taking from documents, while in the quantitative part, responses were collected regarding the credibility of the designed model based on criteria such as alignment, comprehensibility, evaluation of the research process, generalization, theory evaluation, and control. In the qualitative section, all selected documents were individually and thoroughly examined, and their indices, components, and dimensions were extracted. This process was conducted with the assistance of a research colleague, and the validity of the findings was confirmed through triangulation, while their reliability was calculated using the inter-coder agreement coefficient of 0.74. In the quantitative section, experts expressed their level of agreement with the curriculum model for multi-grade primary classrooms based on six criteria: alignment, comprehensibility, evaluation of the research process, generalization, theory evaluation, and control.

The qualitative data for presenting the curriculum model for multi-grade primary classrooms were analyzed using meta-synthesis in MAXQDA software version 2020. Meta-synthesis (research synthesis/meta-synthesis) is a qualitative method based on a systematic review of the studied phenomenon and is used when the literature on a phenomenon is rich. This method systematically combines the qualitative findings of other research to discover new and fundamental categories. Every good systematic review starts with a protocol that acts as a roadmap, including components such as objectives, methods, and preliminary results of the systematic review. Additionally, the quantitative data for validating the aforementioned model were analyzed using a one-sample t-test in SPSS software version 23.

## 3. Findings

The findings of this study are the result of a meta-synthesis of 27 documents related to the curriculum of multi-grade primary classrooms. Therefore, the number of indicators, components, and dimensions of the curriculum model for multi-grade primary classrooms is visible in Table 1.

**Table 1.** Number of Indicators, Components, and Dimensions of the Curriculum Model for Multi-grade Primary Classrooms

| Dimensions | Components | Number of Indicators |
|---|---|---|
| Logic | Achieving Learning Objectives | 10 |
| | Development of Thinking | 4 |
| | Reducing Educational Gap | 6 |
| Objective | Knowledge | 8 |
| | Attitude | 6 |
| | Skills | 15 |
| Content | Educational | 5 |
| | Individual | 9 |
| | Social | 10 |
| | Environmental | 6 |
| Learning Methods | Based on Direct Transfer | 8 |
| | Based on Interaction | 4 |
| | Based on Problem-Solving | 5 |
| Teacher | Professional Competence | 3 |
| | Support | 3 |
| | Teaching Method | 3 |
| Materials and Resources | Textbooks | 3 |
| | Technology | 3 |
| Student | Individual Characteristics | 4 |
| | Grouping of Learners | 3 |
| Time | Learning Time | 3 |
| | Flexibility in Time | 3 |
| Location | Physical Conditions | 3 |
| | Equipment Conditions | 3 |
| Evaluation Methods | Goal-Based Evaluation | 10 |
| | Time-Based Evaluation | 5 |
| | Method-Based Evaluation | 6 |
| | Content-Based Evaluation | 6 |
| 10 Dimensions | 28 Components | 157 Indicators |

As seen in the above table, the curriculum for multi-grade primary classrooms includes 157 indicators in 28 components and 10 dimensions comprising logic (with 3 components), objectives (with 3 components), content (with 4 components), learning methods (with 3 components), teacher (with 3 components), materials and resources (with 2 components), student (with 2 components), time (with 2 components), location (with 2 components), and evaluation methods (with 4 components). Therefore, the model of dimensions and components of the curriculum for multi-grade primary classrooms is visible in Figure 2.
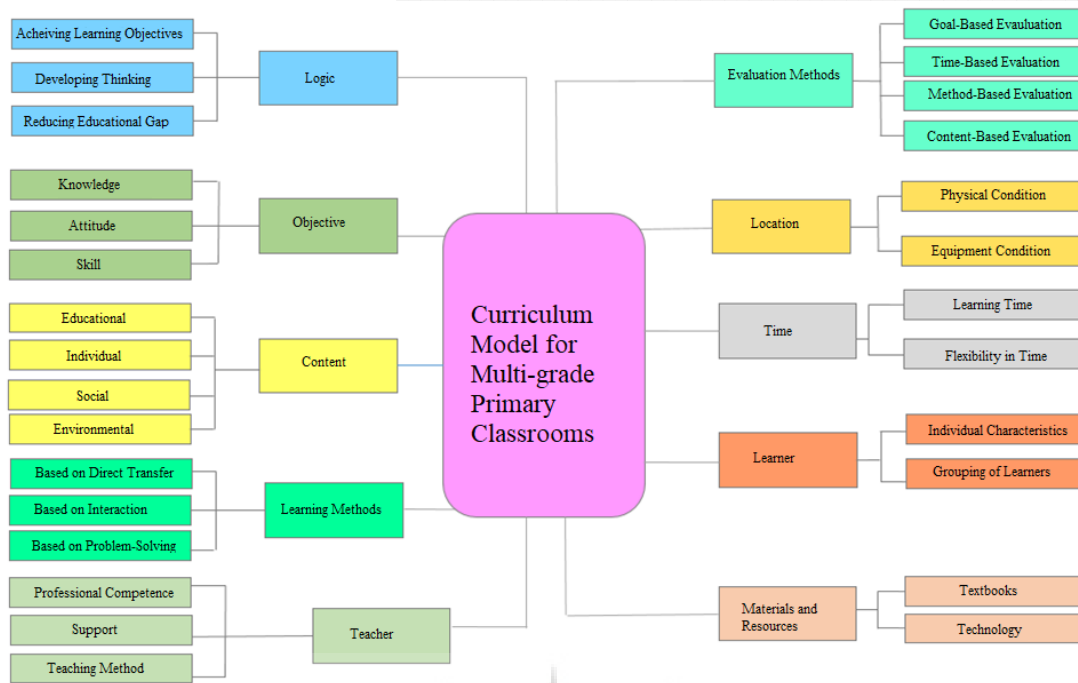
**Figure 2.** Final Model

As seen in the above figure, the model of dimensions and components of the curriculum for multi-grade primary classrooms includes 28 components in 10 dimensions: logic, objectives, content, learning methods, teacher, materials and resources, student, time, location, and evaluation methods. Therefore, the validation of the curriculum model for multi-grade primary classrooms is visible in Table 2.

**Table 2.** Validation of the Curriculum Model for Multi-grade Primary Classrooms

| No. | Criteria | Question | Mean | SD | t-value | Df | p |
|---|---|---|---|---|---|---|---|
| 1 | Alignment | Are the concepts generated from the reviewed data? | 3.74 | 1.24 | 10.83 | 24 | 0.000 |
| 2 | Comprehensibility | Are the concepts identifiable and systematically interrelated? | 3.61 | 1.21 | 10.71 | 24 | 0.000 |
| 3 | Research Process Evaluation | Are the categories well-developed? | 3.54 | 1.33 | 9.59 | 24 | 0.000 |
| 4 | Generalization | Is the theory explained to consider different changing conditions? | 3.66 | 1.25 | 10.84 | 24 | 0.000 |
| 5 | Theory Evaluation | Are broader conditions that may affect the studied phenomenon described? | 3.65 | 1.18 | 10.79 | 24 | 0.000 |
| 6 | Control | Do the theoretical findings seem significant? | 3.69 | 0.88 | 11.53 | 24 | 0.000 |

As seen in the above table, the curriculum model for multi-grade primary classrooms was found to have suitable credibility based on criteria such as alignment, comprehensibility, evaluation of the research process, generalization, theory evaluation, and control. It should be noted that the hypothetical mean of the population or the expected mean was 3, and the fact that it was higher than 3 and statistically significant in the t-test indicates the appropriate credibility of the said model.

## 4. Conclusion

The results of the current research showed that the main elements of the curriculum in multi-grade primary classrooms include logic (achieving learning objectives, developing thinking, and reducing educational gaps),

objectives (knowledge, attitudes, and skills), content (educational, individual, social, and environmental), learning methods (based on direct transmission, interaction, and problem-solving), teacher (professional competence, support, and teaching method), materials and resources (textbooks and technology), student (individual characteristics and grouping of learners), time (learning time and flexibility in timing), location (physical conditions and equipment conditions), and evaluation (objective-based, time-based, process-based, and content-based evaluation). Additionally, the curriculum model for multi-grade primary classrooms was found to be credible, and its average score based on the six criteria of alignment, comprehensibility, evaluation of the research process, generalization, theoretical evaluation, and control was higher than the hypothetical mean or expected mean of the population.

The current study highlighted that the term curriculum encompasses the learning objectives of students (skills, knowledge, and attitudes), content (the subject matter of the learning experience), sequence (the method by which concepts are presented), students, teaching methods and educational actions, educational resources (materials and settings), evaluation (methods used for assessing student learning), and the coordination between teaching and learning processes based on experience and evaluation. The curriculum and the content provided for teaching are considered crucial for all learners and students. The current study particularly focused on teaching skills in the curriculum, stating that in educational enhancement, the curriculum is considered the most important factor. In fact, the curriculum is one of the main compulsory pillars in educational sciences and plays a very valuable role in students' performance. This curriculum also includes informal processes. The curriculum is a capacity that has found multiple functions and can accommodate all explicit and hidden, as well as operational, educational events to meet the expectations of education and training. The curriculum can be seen as a process that links the beginning and end of the learning and teaching flow. The logic of the curriculum in multi-grade classrooms allows students with different educational levels to be in one class and interact with each other. This enables students with lower levels to learn from those with higher levels and benefit from each other's experiences. Using the logic of the curriculum in multi-grade classes reduces the educational gap, as lower-level students look up to higher-level students and learn from their experiences. This helps lower-level students learn better and faster, benefiting from the knowledge and experiences of higher-level students. In addition, students are given the opportunity to become familiar with educational materials in various fields with the help of others' experiences, leading them to a more comprehensive understanding of the presented educational content.

Like all studies, this study has limitations that pose challenges to the generalization of the results. Limitations include the use of non-random sampling and the lack of finding models about the curriculum of multi-grade classes, which, as mentioned, impedes the generalization of the results. Therefore, further research on the curriculum of multi-grade primary classes is recommended. Another research suggestion is for educational experts and planners to conduct research on the curriculum of multi-grade classes in different areas using the opinions of different experts and specialists. By combining the strategies of each study, a comprehensive plan for improving the curriculum of multi-grade classes can be designed and implemented. Thus, the curriculum model for multi-grade primary classrooms designed in the current study can assist experts and planners in improving the curriculum of multi-grade classes.

## Ethical Considerations
In this study, all ethical standards, including confidentiality and privacy, were observed.

## Acknowledgments

## Authors' Contributions
The authors of this study had almost equal contributions.

## Conflict of Interest

The researchers declare no conflicts of interest.

## References

Abaspour A, Bayrami Ardi M, Gholipour M, Abaspour S. (2023). Investigating the amount of attention to the moral competences of the national curriculum of the Islamic Republic of Iran in the social studies text books of the first secondary school. *Iranian Journal of Educational Sociology*. 6(2): 35-44. doi: 10.61186/ijes.6.2.35

Badakhshan Toroghi E, Soleimanpour Omran M, Fazlli R. (2023). Validation of a model for the quality of education in multi-grade classrooms in primary schools. *Iranian Journal of Educational Sociology*. 5(4): 43-54. 10.61186/ijes.5.4.43

Badri R, Mahmodi F, Imanzadeh A, Adib Y. (2021). Teachers' lived experiences of harms and curriculum challenges in elementary multi-grade classrooms (phenomenological studies). *Journal of Teaching Research*. 9(1): 135-153. [Persian]

Bahtaji MAA. (2023). Pre-service science teachers' emphases and views about science education curriculum. *International Journal of Instruction*. 16(1): 919-932. doi: 10.1002/sce.21194

Bjoru AM. (2023). *Multi-grade teaching in a small rural school in Northern Norway*. In: Hirshberg, D.B., Beaton, M.C., Maxwell, G., Turunen, T., Peltokorpi, J. (eds) Education, Equity and Inclusion. Springer Polar Sciences. Springer, Cham. doi: 10.1007/978-3-030-97460-2_14

Chuang Z. (2023). Anesthesiologists in the modern medical school curriculum: importance and opportunity. *Canadian Medical Education Journal*. 14(2): 175-177. doi: 10.36834/cmej.76188

Colburn MD, Harris E, Lehmann C, Widdice LE, Klein MD. (2020). Adolescent depression curriculum impact on pediatric residents' knowledge and confidence to diagnose and manage depression. *Journal of Adolescent Health*. 66(2): 240-246. doi: 10.1016/j.jadohealth.2019.08.022

Eilks I, Hofstein A. (2017). *Curriculum development in science education*. In book: Science education: An international comprehensive course companion. Chapter: 13, 169-181. doi: 10.1007/978-94-6300-749-8_13

Hosseini SR, Rostami M. (2022). *The necessity of guidance and counseling in multi-level classes*. Tehran: National Organization and Management Research Conference. 421-435.

Izan M, Shahri A, Ahmadialiabadi A. (2022). The effect of the combined planning approach (central and group) on the level of social skills and academic progress in mathematics of students in multi-grade classes in Piranshahr city. *Quarterly Journal of Education in Basic Sciences*. 8(28): 63-74. [Persian]

Klein PD. (2003). Rethinking the multiplicity of cognitive resources and curricular representations: Alternatives to 'learning styles' and 'multiple intelligences'. *Journal of curriculum studies*. 35(1): 45-81. doi: 10.1080/00220270210141891

Manzano EC, Magalona JD. (2023). Attitude towards teaching and professional qualification of prospective teachers in a multi-grade classroom. *International Journal of Multidisciplinary Research*. 9(4): 187-190. doi: 10.36713/epra12955

Nooroddin SM, Poushaneh P, Yadegarzadeh GH. (2023). Designing a curriculum model for aftersales service of the automobile industry in Iran. *Iranian Journal of Educational Sociology*. 6(1): 210-221. Doi: 10.61186/ijes.6.1.210

Sabar HS. (2021). The key words in Iraqi university thesis and dissertation in the field of Information and libraries department and their role in information retrieval. *Mustansiriyah Journal of Arts*. 45(93): 11-47.

Salisu M, Inuwa U. (2019). Factors enhancing the implementation of business education curriculum in colleges of education in North Eastern Nigeria. *ATBU Journal of Science, Technology and Education*. 7(4): 300-308.

Shahraki S. (2021). The effect of research-based teaching method in teaching history (case study: secondary school students). *Journal of Research of Nations*. 70: 127-147. [Persian]

Smith JK. (2023). *Lives in education: A narrative of people and ideas*. Routledge: Taylor & Francis Publisher.

Yule J, Mingkai Z, Xianyun M. (2019). The development of curriculum theory in the era of information technology. *Journal of East China Normal University (Educational Sciences)*. 37(4): 47-56. doi: 10.16382/j.cnki.1000-5560.2019.04.005