



Evaluation of the 7th Grade Mathematics Curriculum According to Bloom's Evaluation Model Based on Curriculum Elements*

Sercan BAYDOĞDU¹, Hasan Hüseyin ŞAHAN²

¹ Balıkesir University, Institute of Social Sciences, Türkiye, sercanbaydogdu@gmail.com,
<http://orcid.org/0000-0003-0393-2957>

² Balıkesir University, Necatibey Faculty of Education, Türkiye, hsahan@balikesir.edu.tr,
<http://orcid.org/0000-0003-0180-4812>

Received : 03.09.2025

Accepted : 29.12.2025

Doi: <https://doi.org/10.17522/balikesirnef.1777781>

Abstract – The purpose of the study is to evaluate the 7th grade middle school mathematics curriculum according to teachers' perceptions with an evaluation model based on the elements of the curriculum. Mixed method was used in this study. An explanatory sequential design was employed to complement the quantitative data with qualitative insights. The study population for the quantitative dimension of the study consisted of 690 mathematics teachers working in Balıkesir during the 2024-2025 academic year, and the sample consisted of 105 teachers working in central districts of Balıkesir through random sampling. The study group for the qualitative dimension of the study consisted of 8 mathematics teachers selected using criterion and convenience sampling methods. This study used the "Curriculum Evaluation Scale" to obtain quantitative data, whereas qualitative insights were acquired from semi-structured interviews. In analyzing quantitative data, the arithmetic mean of teachers' perceptions was calculated. The significance of differences gender, age, educational status, years of experience was examined using independent samples t-tests and one-way analysis of variance. Qualitative data were analyzed using content analysis. The study found that teachers' perceptions on the curriculum's objectives, content, measurement and evaluation elements did not differ significantly based on gender, but their views on the teaching-learning situation were significantly affected. Female teachers were found to have more positive perceptions of the curriculum's teaching-learning elements based on gender. A combined analysis of the mixed-methods data highlighted that the teachers generally expressed positive perceptions about the curriculum.

Keywords: Mathematics, curriculum, mixed method, middle school students, curriculum evaluation.

Corresponding author: Sercan BAYDOĞDU, sercanbaydogdu@gmail.com

*This paper is derived from the doctoral dissertation carried out by the first author under the supervision of the second author.

Introduction

From the past to the present, change has remained a constantly vibrant and dynamic concept in education, as it does in every field. The conditions, needs, and trends brought about by the times, as well as the developments and disasters experienced in our country and around the world, continue to influence the shaping of this process. The shaping process of the education system also brings about changes and innovations in curricula (Susam & Demir, 2020). Curricula not only determine what and when to teach, but also define the skills and competencies that need to be acquired (Lyakhova et al., 2019).

This process of change and renewal not only requires curricula to adapt to evolving social conditions but also raises the question of how the concept of "curriculum" is defined and what dimensions it encompasses. In this context, different approaches and definitions of the concept of curriculum gain importance.

The concept of curriculum has been addressed through various definitions. The first of these is expressed as a design that aims to achieve the goals, has a linear structure and the stages are planned sequentially. The second definition encompasses the totality of learners' experiences, both in and outside of school. The third approach is considered a human-related system, whether linear or nonlinear. Finally, it is defined as a field of study based on unique foundations, encompassing specific areas of knowledge and skills, and shaped by specific principles (Ornstein & Hunkins, 2016). Similar to the second definition, Demirel explained the curriculum as a system consisting of experiences planned to be gained by individuals inside or outside the school (Çiftçi & Tatar, 2015).

Consequently, these varying perspectives demonstrate that a well-planned, methodical, and student-driven framework is necessary for a successful educational process. The foundational principles of curriculum design hold significant weight across all areas of schooling, particularly in targeted subjects like math. Thus, any mathematical curriculum implemented in a classroom setting needs to be deeply rooted in established scientific principles, while remaining organized and impactful.

These diverse approaches demonstrate that curricula are not merely theoretical frameworks but also dynamic systems that must be structured in line with the specific characteristics and requirements of each field. In this context, it is crucial that mathematics education and training programs be approached with an effective, scientific, and holistic approach.

Mathematics education and training curricula in schools need to be developed and maintained with effective and scientifically based methods and techniques. Accordingly, mathematics topics at every school and grade level should be addressed in accordance with the principles of effective teaching, and stimulating practices should be incorporated to increase students' interest in the subject. Current education and training curricula should be implemented with a holistic approach, ensuring consistency between their objectives and practices. Therefore, mathematics instruction, which begins in preschool, continues through middle school and beyond. The purpose of mathematics instruction is to equip students with the mathematical knowledge and skills required for daily living and to enable them to reason to solve problems they will encounter in their daily lives (Alkan & Altun, 1998). For a quality education, the educational process must be conducted within the framework of a qualified curriculum and in a planned manner (řahan, 2007).

With the aim of teaching mathematics successfully and methodically, educational frameworks need ongoing evaluation and enhancement. As a result, building these instructional programs is a highly organized endeavor governed by distinct phases and core guidelines.

Since the curriculum has a dynamic structure, development efforts continue uninterruptedly. This process is shaped by four basic questions:

1. What learning objectives should the aim to achieve?
2. How can learning experiences be created that will achieve these learning objectives?
3. How should learning experiences be organized for an effective teaching process?
4. How can the impact of these experiences be assessed?

The curriculum development process is structured around the questions shown in Figure 1, encompassing learning objectives, content, learning situations, evaluation (Demirel, 2017).

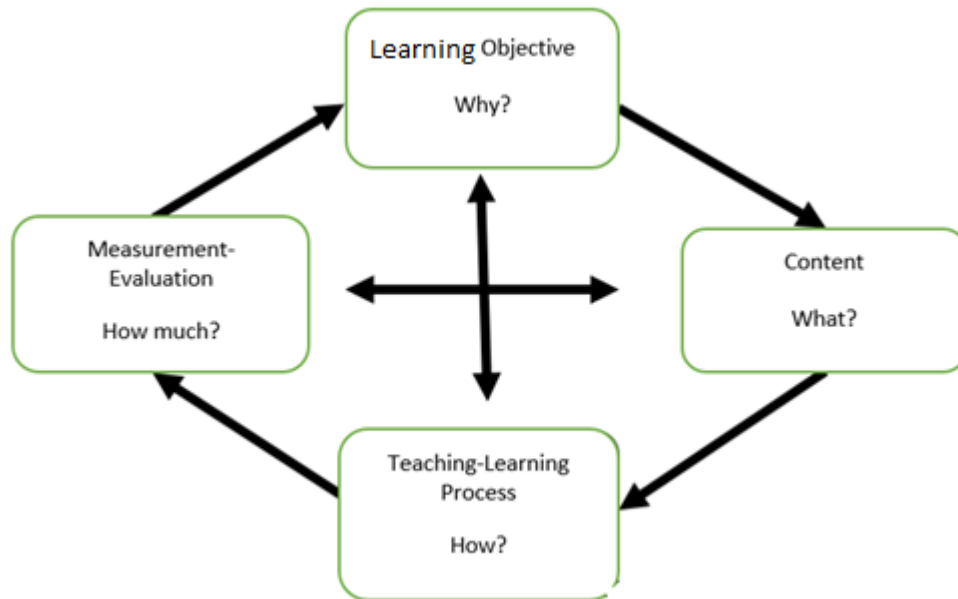


Figure 1 Elements of the Curriculum

The curriculum development process and its fundamental elements defined within this framework constitute the theoretical basis for the curriculum reforms implemented in Türkiye. Indeed, the comprehensive curriculum changes implemented in our country have been reflected, particularly in mathematics curricula, in line with these fundamental questions and elements.

The 2004 curriculum change implemented across all subjects in our country is the largest curriculum change in the Republic of Türkiye. In line with the philosophy of this renewed curriculum, mathematics curriculum was prepared in 2006, 2009, 2013, 2018 and 2024. The philosophy of the 2009 middle school mathematics curriculum was specified. However, the philosophy and boundaries of the 2013 middle school mathematics curriculum were not specified (Şen, 2017). The 2013 and 2018 middle school mathematics curriculum was student-centered, allowing teachers to move more freely throughout the teaching process (Beyendi, 2018; MoNE, 2018). The concept of student centrality has been highlighted with the revised curriculum. The revised curriculum emphasizes that mathematics learning can be achieved through activities tailored to learners' characteristics. In the revised mathematics curriculum, students are expected to construct the meaning of mathematical concepts (Yenilmez & Sölpük, 2014). These curricula, which reflect the constructivist approach, are Türkiye's effort to catch up with the world's approach to mathematics education. Finally, the Turkish Century Education Model was published in the Journal of Communiqués No. 2799, dated June 2024, and entered into force. It will be implemented in grades 1, 5, and 9 in the

2024-2025 academic year, with a gradual transition planned. This change clearly highlights the importance of evaluating the 2018 curriculum (MoNE, 2024).

These radical changes and updates to mathematics curricula in Türkiye necessitate systematic evaluation of their effectiveness and the extent to which they meet current needs. Therefore, periodic evaluation of curricula is crucial.

Every curriculum needs to be regularly re-evaluated due to factors such as changes in scientific, technological, social, economic, and political fields, and developments arising from individuals' biological and cultural differences (Sönmez, 2015). Özdemir (2009) emphasizes the need to evaluate the relevance of educational curricula to society's needs and expectations, individuals' interests and needs, scientific and technological developments, and changes and advancements in relevant fields. Curriculum evaluation is a systematic process that examines the effectiveness, quality, and relevance of an educational program through the identification of its strengths and weaknesses before, during, and after implementation (Ornstein & Hunkins, 2016). The findings obtained through evaluation provide a basis for determining the direction and scope of curriculum improvement and development (řahan, 2014). Consequently, curriculum evaluation is widely recognized as the final and complementary stage of the curriculum development process, ensuring that curricula remain responsive to educational objectives and societal needs (Ertürk, 2017).

A review of international curriculum evaluation studies reveals that evaluation activities in this field were limited to practical applications until the 1930s. While evaluation during this period was generally associated with determining students' test performance and assigning grades, these studies later led to the field of curriculum evaluation gaining acceptance as a discipline (Fitzpatrick et al., 2019). The first significant studies were initiated in the 1930s, and activities in this area gained momentum in the 1960s (Kürüm Yapıcıođlu et al., 2016). Some sources cite the first acceptable study in curriculum evaluation as a study conducted by Joseph Rue in the United States between 1897 and 1898, which compared spelling performance of 33,000 students (Erden, 1998). In Türkiye, the first curriculum evaluation study based on written documentation was conducted in 1948 on the middle school curriculum. In this context, a draft curriculum was prepared for comparison with the 1948 curriculum and implemented in selected schools in Bolu and Istanbul (Demirel, 1992; Gözütok, 2003). Different curriculum evaluation models have emerged, consisting of different perspectives on curriculum evaluation and different approaches stemming from these perspectives.

Curriculum evaluation models guide both curriculum evaluators and curriculum evaluation (Şahan, 2014). During the curriculum evaluation phase, different models such as Demirel's "Analytical Curriculum Evaluation Model", Provus's "Differences Approach Model", Stake's "Needs-Responsive Model", and Bloom's "Evaluation Model Based on Curriculum Elements" can be used (Aykan, 2021). Since a curriculum is a dynamic structure consisting of the elements of the curriculum, i.e. learning objectives, content, educational situations, and testing situations (Şahan, 2014), all elements should be examined together when evaluating the curriculum and making a judgment about it (Erden, 1998). For these reasons, "Bloom's Curriculum Elements Based Evaluation Model." was adopted in the evaluation of the 7th grade middle school mathematics curriculum at this study.

Curriculum evaluation models aim to determine the effectiveness and quality of educational programs by systematically examining their fundamental elements, namely learning objectives, content, instructional processes, and assessment components (Erden, 1998; Sönmez & Alacapınar, 2015). In this respect, curricula are evaluated based on specific characteristics that these elements are expected to possess in order to ensure internal consistency, applicability, and alignment with educational goals (Şahan, 2014). Such evaluations not only reveal the strengths and weaknesses of curricula but also provide essential feedback for their revision and improvement.

Adhering to established standards is of great importance in program evaluation studies in order to obtain reliable and valid results. In this context, the evaluation process should address the learning objectives, content, teaching-learning processes, and measurement-evaluation elements through a holistic approach; be based on scientific, systematic, and objective data; and include comprehensive data collection methods capable of revealing the strengths and weaknesses of the program. In addition, evaluation studies are expected to be conducted in parallel with the principles of feasibility, utility, accuracy, and ethics, and the findings obtained should be interpreted in order to strengthen the development and improvement of the program. Program evaluation studies conducted in line with these standards make significant contributions to determining whether curricula meet current needs and to improving the quality of the educational process (Stufflebeam & Shinkfield, 2007).

Teachers, as the primary implementers of curricula, play a crucial role in revealing how curricular elements function in real classroom settings. However, findings from the literature indicate a noticeable decrease over time in curriculum studies that include teachers as the study group. While approximately 63% of mathematics curriculum theses conducted between

2004 and 2013 focused on teachers (Yenilmez & Sölpük, 2014), this rate declined to about 48% in studies conducted between 2015 and 2022 (Ertem Akbaş & Tekin, 2023). This decline suggests a growing gap in understanding teachers' perspectives, experiences, and evaluations regarding curriculum implementation.

Considering the dynamic nature of curricula and the frequent revisions made to mathematics education programs in Türkiye, obtaining teachers' views has become increasingly important. Teachers' insights provide valuable evidence regarding the practicality, clarity, and effectiveness of curricular objectives, content, teaching processes, and evaluation approaches. Therefore, including teachers as the main study group in the present This research plays a crucial role in bridging the current gap in the literature. and in offering a more practice-oriented evaluation of the curriculum.

In this context, the present study is considered important as it contributes to the curriculum evaluation literature by foregrounding teachers' perspectives and providing empirically grounded findings that may guide future curriculum development and revision efforts. In line with this purpose, the research seeks to answer the following questions.

1. What are teachers' perceptions regarding the evaluation of learning objectives in the 7th-grade middle school mathematics curriculum and is there a significant difference between teachers' perceptions in terms of gender, age, educational status and years of experience?
2. What are teachers' perceptions regarding the evaluation of the content of the 7th-grade middle school mathematics curriculum and is there a significant difference between teachers' perceptions in terms of gender, age, educational status and years of experience?
3. What are teachers' perceptions regarding the evaluation of the teaching-learning process in the 7th grade middle school mathematics curriculum and is there a significant difference between teachers' perceptions in terms of gender, age, educational status and years of experience
4. What are teachers' perceptions of the evaluation of the measurement and evaluation element in the 7th-grade middle school mathematics curriculum and is there a significant difference between teachers' perceptions in terms of gender, age, educational status and years of experience?
5. What are the teachers' perceptions about the 7th grade middle school mathematics curriculum based on the elements of the curriculum?

Method

Research Design

In this descriptive research, designed to evaluate the 7th grade middle school mathematics curriculum implemented in the 2017–2018 academic year, a mixed-methods approach was employed, integrating both quantitative and qualitative data within a complementary framework. Scanning model was utilized in the quantitative dimension whereas phenomenological model was preferred in the qualitative dimension. The quantitative statistics of the research were collected using the “Curriculum Evaluation Scale” developed by Baş (2016). Qualitative data in the study were collected using a semi-structured interview form. In this study, the explanatory sequential design, which is one of the mixed method designs that presents, analyzes and brings together events within a framework using various methods (Baki & Gökçek, 2012), was preferred. The explanatory design can be defined as supporting, explaining and exemplifying the data collected with the quantitative method with the data collected with the qualitative method (Yıldırım & Şimşek, 2006).

Since a curriculum is a dynamic structure consisting of the elements of the curriculum, i.e. learning objectives, content, teaching-learning process and measurement-evaluation (Şahan, 2014), all elements should be examined together when evaluating the curriculum and making a judgment about it (Erden, 1998). For these reasons, an element-based curriculum evaluation model was adopted in the evaluation of the 7th grade middle school mathematics curriculum.

In this study, Bloom's Evaluation Model Based on Curriculum Elements was applied by examining the curriculum through its four fundamental components: learning objectives, content, teaching-learning process, and measurement-evaluation. Quantitatively, these components were evaluated using the sub-dimensions of the Educational Curriculums Evaluation Scale, which is structured according to curriculum elements. Qualitatively, semi-structured interview questions were similarly organized around these four components and their expected characteristics, enabling teacher statements to be coded in alignment with Bloom's framework. Through this structure, both data sets were integrated within a unified analytical model, allowing Bloom's model to guide the interpretation of the curriculum's strengths, weaknesses, and internal coherence.

The main purpose of the study is to describe the middle school 7th grade mathematics course curriculum in its current form and to support and explain the data collected with the

quantitative methods with the data collected with the qualitative methods in order to obtain generalizable results. Quantitative and qualitative data are evaluated and presented together in the discussion section.

An evaluation plan was structured to ensure systematic, ethical, and accurate implementation of Bloom's model. The plan included defining the curriculum elements to be evaluated, selecting appropriate quantitative and qualitative tools, conducting statistical analyses followed by explanatory qualitative analysis, and integrating findings for a comprehensive judgment. The evaluation adhered to widely accepted curriculum evaluation standards: (1) Utility was ensured by collecting data from teachers actively implementing the curriculum, enhancing the practical value of results; (2) Feasibility was achieved through the use of valid instruments, realistic sampling strategies, and manageable data collection procedures; (3) Propriety was upheld through ethics committee approval, ministry permission, voluntary participation, and protection of participant confidentiality; and (4) Accuracy was supported by using reliable measurement tools, conducting analyses based on statistical assumptions, and ensuring qualitative reliability through coder agreement.

Participants

During the 2024-2025 school year, the quantitative aspect of this research focused on a target population of 690 middle school math instructors employed throughout Balıkesir province. Although the data were collected in the 2024–2025 academic year, the participating teachers were still implementing the 2018 middle school mathematics curriculum in 7th grade, as the Türkiye Century Education Model (Maarif Model) had only recently begun its phased implementation and was applied solely to grades 5 and 6 during the data collection period; therefore, the present study evaluates the 2018 curriculum.

To form the study sample, 105 mathematics teachers working in middle schools across the central districts of Balıkesir were selected via random sampling. There are various formulas in the literature for determining the appropriateness of the sample size (Balci, 2025). Using the formula developed by Frankfort-Nachmias and Nachmias in their 1996 study on analyzing means, it was determined that the selected sample represents 37% of the population. According to the formula proposed by Frankfort-Nachmias and Nachmias (1996), the required sample size for a population of 690 is 41 participants, based on a 0.05 margin of error. Therefore, the inclusion of 105 participants in this study constitutes an adequate sample size. In addition, these participants continue their activities in the 7th and 8th grades where the current curriculum is implemented.

On the other hand, by integrating both criterion and convenience sampling strategies, the researchers were able to effectively identify the target group for the study's qualitative component. People who worked as mathematics teachers and responded to the curriculum evaluation scale were selected. The study group of the research consists of 8 middle school mathematics teachers who can be easily reached among the teachers who were applied the curriculum evaluation scale. These eight teachers were selected based on their scores on the Curriculum Evaluation Scale, including two with low scores, four with medium scores, and two with high scores, in order to ensure variation in participants' evaluations of the curriculum.

Data Collection

The data collection process was authorized under research permit numbered MEB.TT.2024.011396 of the Balıkesir Provincial Directorate of National Education dated December 13, 2024, and ethics committee approval numbered E-19928322-050.04-371745 dated April 3, 2024, for the curriculum evaluation scale and semi-structured interview form.

Data for the quantitative dimension of the research were collected using the "Curriculum Evaluation Scale" developed by Baş (2016). This scale consists of four dimensions: learning objectives, content, teaching-learning process, and measurement-evaluation, and contains 35 items.

Qualitative data for the study were gathered using a semi-structured interview form. This interview form was developed based on evaluation criteria for the curriculum's dimensions (Demirel, 2017; Erden, 1998; Şahan, 2014) and principles for preparing the interview form (Yıldırım & Şimşek, 2006). In the first stage, potential questions for the relevant research questions of the study were listed. Then, the questions that best served the research sub-problem were selected. During this process, the questions were formulated in a clear and simple manner to avoid any misdirection or differences in interpretation.

Furthermore, probes were prepared to reduce the possibility of open-ended questions being interpreted differently by different individuals during the interview. In this context, the interview form used in this study consisted of nine open-ended questions and probes aimed at evaluating the personal information section and the 7th grade middle school mathematics curriculum. So as to ensure the content validity of the draft interview form, the perceptions of four field experts (two curriculum and instruction experts and two mathematics field education experts) were presented, and the interview form was formatted based on their

feedback and corrections. The draft interview form was applied to a group outside the scope of the study to test the questions' functionality and suitability for the purpose. By making the necessary corrections, a usable interview form was obtained for the research purpose. To illustrate the nature of the inquiry, two sample questions from the interview are presented below:

1. What are your thoughts about the learning objectives in the 7th grade middle school mathematics curriculum?
2. What are your thoughts about the content in the 7th grade middle school mathematics curriculum?

Data Analysis

In the quantitative process, firstly, the skewness and kurtosis values of the data were examined. The skewness value was calculated as -0.04 and the kurtosis value was calculated as -0.31. The fact that the skewness and kurtosis coefficients were within the limits of ± 2 indicates that the data were normally distributed (Garson, 2012; George & Mallery, 2010; Tabachnick & Fidell, 2001). Since the initial analysis confirmed that the data was normally distributed, parametric tests were used.

To examine the educators' viewpoints gathered via the "Curriculum Evaluation Scale," main descriptive statistics were computed, specifically mean, frequency, and standard deviation. The intervals in Table 1 were used in the interpretation of the responses given by the teachers to the curriculum evaluation scale. Operating under an equal-interval assumption, the study determined the appropriate score ranges for the arithmetic means. This calculation was made according to the following formula, taking into account the number of items in each sub-dimension:

For the Learning Objective, Content, and Teaching-Learning Process dimensions, the score range was calculated as follows: $\text{Score Range} = (\text{Highest Value} - \text{Lowest Value}) / 5 = (50 - 10) / 5 = 40 / 5 = 8$. For the Measurement-Evaluation dimension, the score range was calculated as follows: $\text{Score Range} = (\text{Highest Value} - \text{Lowest Value}) / 5 = (25 - 5) / 5 = 20 / 5 = 4$. The calculations are given in Table 2 below.

Table 1 Value Ranges of the Five-Point Likert-Type Curriculum Evaluation Scale

Sub-dimensions	Agreement level	Value range
Learning objective	Totally disagree (very low)	10.00–18.00
Content	Disagree (low)	18.01–26.00
Teaching-learning process	Neutral (medium)	26.01–34.00
	Agree (high)	34.01–42.00
	Totally agree (very high)	42.01–50.00
Measurement-evaluation	Totally disagree (very low)	5.00–9.00
	Disagree (low)	9.01–13.00
	Neutral (medium)	13.01–17.00
	Agree (high)	17.01–21.00
	Totally agree (very high)	21.01–25.00

Independent samples t-tests and one-way analysis of variance (ANOVA) tests were applied to analyze whether there were significant differences between the perceptions based on various variables (gender, age, educational status, and years of experience). Since the groups presented to participants as 1-3, 4-6, 7-10, 11-15, and 16 and above for the years of service variable in line with the demographic information of the scale were not statistically sufficient in number, the groups were rearranged and three groups were created as 1-10, 11-15, and 16 and above for statistical comparisons. The significance level for the interpretation of the data in this study was accepted as 0.05.

By applying content analysis, the study systematically reviewed and drew meaning from the qualitative information gathered. To present the data obtained from the teachers anonymously and to avoid confusion, the teachers were coded as "Ö1, Ö2, Ö3, Ö4, Ö5, Ö6, Ö7, Ö8," respectively. Accordingly, the information gathered from the interviews was organized and presented to directly address the research questions. Codes were created based on teachers' perceptions regarding the research purpose. Similar codes were integrated to create themes. For example, "...the learning objectives in the curriculum are more suitable for students with a strong foundation or high level of readiness, and with the simplifications made in the curriculum, they have become more appropriate for the students' level..." (Ö4) The italicized word group in the sentence regarding this teacher's perception was used as one of the codes in the analysis process.

Validity and Reliability

In the quantitative dimension of the research, it was stated that all 35 items in the Scale had a loading value above 0.40. A second factor analysis was applied to all items, and the KMO value was found to be 0.940, which is perfectly significant, and the Bartlett test of

sphericity was also found to be significant. In addition, an independent samples t-test was applied to determine the internal validity of the scale, and it was understood that the questions had high discrimination within themselves and had internal validity. Obtaining a Cronbach's Alpha of 0.92 alongside a Spearman-Brown split-half score of 0.90, the statistical evaluation confirmed the scale's robustness. Consequently, as supported by Baş (2016), these metrics prove that the measurement tool possesses strong validity and reliability.

In this study, a reliability study was conducted for each dimension and the overall scale of the “Curriculum Evaluation Scale”. The results are shown in Table 2.

Table 2 Cronbach Alpha Reliability Analysis Results of the Curriculum Evaluation Scale Sub-Dimensions and Overall

Sub dimension	Number of items	Cronbach's Alpha
Learning objective	10	.85
Content	10	.85
Teaching-learning process	10	.85
Measurement-evaluation	5	.86
General	35	.94

When the reliability coefficients of the Curriculum Evaluation Scale are examined in Table 2, it is seen that they vary between .85 and .94. Since the reliability coefficients of the “Curriculum Evaluation Scale” are between $0.80 < \alpha < 1.00$, the sub-dimensions of the scale and the overall scale are highly reliable (Kalaycı, 2006).

It is suggested that validity in qualitative research is related to the accuracy of scientific findings and trustworthiness is related to the repeatability of scientific findings (Yıldırım & Şimşek, 2006). In this context, in the method section of the research, the research model, study group and its characteristics, data collection tools, data collection and analysis processes were defined in detail in order to ensure the validity of the research. In addition, it was examined whether the themes identified in the analysis of the findings were consistent within themselves and whether they formed a meaningful whole with each other. The results obtained were associated with the existing theoretical structure, thus ensuring the integration of the findings with the theoretical infrastructure. With the aim of securing internal validity for this study, the findings obtained were frequently presented with direct quotations, and then they were discussed holistically in the discussion section. In addition, the relationship and consistency of the information collected from two different data collection tools were

examined. In order to establish external validity, the issues regarding how the data was collected in the research were detailed, and the demographic information of the interviewed teachers was included.

With the aim of securing reliable outcomes for the qualitative data, several methods were employed. First, the interview data were transcribed verbatim in order to preserve objectivity, and the findings were presented with direct quotations from participants so that each result could be clearly supported. All qualitative data gathered within the scope of the study were systematically archived and securely stored.

Another method used to ensure reliability in qualitative research was maintaining consistency in the data analysis process. Accordingly, the coded data were analyzed by the same researcher at two different time points. The level of consistency between these two analyses was calculated using the percentage of agreement formula proposed by Miles and Huberman (1994). According to this formula, reliability is calculated as $\text{Reliability} = \text{Agreement} / (\text{Agreement} + \text{Disagreement})$. As a result of the calculation, the reliability coefficient was found to be 84%. Considering that values of 70% and above are regarded as acceptable levels of reliability in qualitative research, this result indicates that the qualitative findings of the study are reliable (Tavşancıl & Aslan, 2001; Yıldırım & Şimşek, 2006).

Findings

In this section, using the established sub-dimensions of the curriculum as a guiding framework, the study evaluated the teacher perceptions gathered through the "Curriculum Evaluation Scale." The descriptive results regarding the evaluation of the teachers' 7th grade mathematics course curriculum are presented in Table 3.

Table 3 Descriptive Results Regarding Curriculum Evaluation

Elements of the Curriculum	N	$\bar{X}$	sd	Min	Max	Skewness	Kurtosis
Learning objective	105	39.04	5.58	21.00	50.00	-0.45	0.83
Content	105	38.33	6.53	24.00	50.00	0.15	-0.53
Teaching-learning process	105	38.72	6.84	22.00	50.00	-0.20	-0.07
Measurement-evaluation	105	19.30	3.63	10.00	25.00	-0.56	0.18
Total	105	135.39	21.41	90.00	175.00	-0.04	-0.31

The curriculum evaluation scale has a total of 35 items. The minimum score to be obtained from the scale determined as 90, and the maximum score is 175. When Table 3 is examined, the skewness coefficient was found to be -.04, and the kurtosis coefficient was -

.31. Upon examining the sub-dimensions of the scale, it is seen that the learning objective ($\bar{X}$ =39.04; SD=5.58) has the highest mean, followed by teaching-learning process ($\bar{X}$ =38.72; SD=6.84) and content ($\bar{X}$ =38.33; SD=6.53), respectively, while the measurement and evaluation dimension ($\bar{X}$ =19.30; SD=3.63) has the lowest mean. The total mean obtained from the scale was 135.39, and the standard deviation was 21.41. This result shows that the teachers evaluated the curriculum positively in general due to their high mean scores regarding the evaluation of the curriculum.

Findings Regarding the Learning Objectives

When teachers' perceptions regarding the curriculum's learning objectives element were evaluated, it was determined that the teachers' overall average was 39.04, indicating that they agreed. This suggests that the teachers had a positive perception of the curriculum's learning objectives element.

Data were analyzed using an independent samples t-test to determine whether teachers' perceptions regarding the curriculum's learning objectives element differed significantly across variables of gender and educational background. The findings are presented in Table 4.

Table 4 Comparison of Views on the Learning Objective Element in terms of Gender and Educational Status Variables

Sub-dimension	Group	N	$\bar{X}$	sd	df	t	p
Gender	Male	49	38.20	5.23	103	-1.44	.15
	Female	56	39.77	5.82			
Educational status	Bachelor's degree	76	38.58	6.44	103	-1.6	.10
	Master degree	29	37.41	6.95			

When Table 4 is examined, a comparison of teachers' perceptions on the learning objectives element of the curriculum in terms of gender reveals that the average score for males is 38.20 and the average score for females is 39.77. Accordingly, it is seen that both female and male teachers expressed their perceptions as "I agree" and have a positive perception. The analysis revealed no statistically significant difference between the learning objectives element of the curriculum and the gender variable ($t = -1.44$, $p > .05$). When teachers' perceptions on the learning objectives element are examined in terms of gender variable, it was found to have an effect on teachers' perceptions on the learning objectives element to a similar extent. A comparison of teachers' perceptions on the learning objectives element of the curriculum in terms of educational background reveals that the average score for

undergraduate teachers is 38.58 and the average score for graduate teachers is 37.41. Accordingly, it is seen that both undergraduate and graduate teachers expressed their perceptions as "I agree" and have a positive perception. There was no significant difference between the learning objectives element of the curriculum and the educational background variable ($t = -1.44, p > .05$). When the teachers' views on the learning objectives item are examined in terms of the educational status variable, it can be said that the educational status variable affects the teachers' views on the learning objectives item at a similar level.

The significance of the difference between the teachers' perceptions on the learning objectives element of the curriculum in terms of age and years of experience variables was examined with ANOVA analysis of variance and the findings are given in Table 5.

Table 5 Comparison of Perceptions on the Learning Objective Item in terms of Age and Years of Experience Variables

Variable	Group	N	$\bar{X}$	ss	Source of variances	Sum of squares	sd	Mean square	F	p
Age	20-30	31	37.71	5.52	Intergroups	87.34	2	43.67	1.41	.25
	31-40	38	39.95	5.41	Within-groups	312.50	102	30.91		
	41 ve over	36	39.22	5.55	Total	3239.85	104			
	Total	105	39.04	5.58						
Years of experience	1-10	33	37.85	5.52	Intergroups	152.81	2	76.40	2.52	.085
	11-15	30	38.30	5.41	Within-groups	3087.04	102	30.27		
	16 and over	42	40.50	5.55	Total	3239.85	104			
	Total	105	39.04	5.58						

When the findings in Table 5 are examined regarding the comparison of teachers' perceptions regarding the learning objectives element of the curriculum in terms of the age variable, it is seen that the average scores of teachers aged 20-30, 31-40, 41 and above are 37.71, 39.95, 39.22, respectively. Accordingly, the teachers expressed their perceptions as "I agree." In this case, it can be said that teachers from different age groups expressed positive perceptions regarding the learning objectives element of the curriculum. When the findings regarding the comparison of teachers' perceptions regarding the learning objectives element of the curriculum in terms of the age variable are examined, no significant difference was found between the learning objectives element of the curriculum and the age variable ($F = 1.41$; $p = .25$; $p > .05$). When the teachers' perceptions regarding the learning objectives element are examined in terms of the age variable, It can be inferred that the age variable affects teachers' perceptions regarding the learning objectives element at a similar level.

When the findings in Table 5 are examined regarding the comparison of teachers' perceptions regarding the learning objectives element of the curriculum in terms of the years of experience variable, it is seen that the average scores of teachers with 1-10, 11-15, 16 and above years of service are 37.85, 38.30, 40.50, respectively. Accordingly, the teachers expressed their perceptions as "I agree." In this case, it can be said that teachers with different lengths of service expressed positive perceptions regarding the learning objectives element of the curriculum. When the findings regarding the comparison of teachers' perceptions regarding the learning objectives element of the curriculum in terms of the years of experience variable are examined, no significant difference was found between the learning objectives element of the curriculum and the years of experience variables ($F=2.52$; $p=.085$; $p>.05$). When the teachers' perceptions regarding the learning objectives element are examined in terms of the years of experience variable, it can be said that the years of experience variable affects the teachers' perceptions regarding the learning objectives element at a similar level.

Findings Regarding the Content

When teachers' perceptions regarding the content element of the curriculum were evaluated, it was seen that the teachers responded "Agree," as the overall average score was 38.33. This indicates that the teachers had a positive perception of the content element of the curriculum.

Data were analyzed using an independent samples t-test to determine whether teachers' perceptions regarding the content element of the curriculum differed significantly across variables of gender and educational background, and the findings are presented in Table 6.

Table 6 Comparison of Views on the Content Element in terms of Gender and Educational Status Variables

Variable	Group	N	$\bar{X}$	sd	df	t	p
Gender	Male	49	37.57	5.84	103	-1.12	.18
	Female	56	39.00	7.07			
Educational status	Bachelor's degree	76	38.58	6.44	103	1.56	.46
	Master degree	29	37.41	6.95			

When the findings in Table 6 are compared regarding teachers' views on the content element of the curriculum in terms of the gender variable, it is seen that the average score for males is 37.57 and the average score for females is 39. Accordingly, it is observed that both

male and female teachers expressed their perceptions as "I agree," and that teachers have a positive view of the content element of the curriculum. Teachers' views on the content element do not differ in terms of the gender variable ($t = -1.12, p > .05$). Based on the findings, it can be said that the gender variable similarly affects teachers' views on the content element of the curriculum.

When the findings of the comparison of teachers' views on the content element of the curriculum in terms of the educational status variable are examined, it is seen that the average score of teachers with bachelor's degrees is 38.58 and the average score of teachers with master degrees is 37.41. Accordingly, it is observed that teachers with bachelor's and master degrees expressed their perceptions as "I agree," and that the teachers have a positive perception of the content element of the curriculum. It is observed that the teachers' views on the content element did not differ in terms of the educational status variable ($t = 1.56, p > .05$). Based on the findings, It can be inferred that the educational status variable similarly affects teachers' views on the content element of the curriculum.

Whether teachers' perceptions regarding the content component of the curriculum significantly differ in terms of age and years of service variables was examined through ANOVA, and the findings obtained are presented in Table 7.

Table 7 Comparison of Perceptions on the Content Item in terms of Age and Years of Experience Variables

Variable	Group	N	$\bar{X}$	ss	Source of variance	Sum of squares	sd	Mean square	F	p
Age	20-30	31	38.32	6.28	Inter-group	66.89	2	33.44	.78	.46
	31-40	38	39.26	7.16	Within-groups	4370.45	102	42.85		
	41 and over	36	37.36	6.33	Total	4437.33	104			
	Total	105	38.33	6.53						
Years of experience	1-10	33	37.76	6.28	Inter-group	43.40	2	21.701	.50	.61
	11-15	30	37.87	7.16	Within-groups	4393.90	102	43.078		
	16 and over	42	39.12	6.33	Total	4437.33	104			
	Total	105	38.33	6.53						

When the findings in Table 7 regarding the comparison of teachers' views on the content element of the curriculum in terms of age variable are examined, it is seen that the average scores of teachers aged 20-30, 31-40, 41 and above are 38.32, 39.26, 37.36, respectively. Accordingly, teachers expressed their perceptions as "I agree." In this case, it

can be said that teachers from different age groups expressed positive perceptions regarding the content element of the curriculum. When the findings of the comparison of teachers' views on the content element of the curriculum in terms of the age variable were examined, no significant difference was found between the content element of the curriculum and the age variable ($F=1.41$; $p=.25$; $p>.05$). When teachers' views on the content element were examined in terms of the age variable, it could be said that the age variable affected teachers' views on the content element to a similar extent.

When the findings from Table 7 are examined, comparing teachers' views on the content element of the curriculum with the years of experience variable, it is seen that the mean scores of teachers with 1-10, 11-15, and 16 or more years of service are 37.76, 37.87, and 39.12, respectively. Accordingly, the teachers expressed their perceptions as "I agree." In this case, it can be said that the teachers with different years of experience expressed positive perceptions regarding the content element of the curriculum. When the findings regarding the comparison of teachers' views on the content element of the curriculum in terms of the years of experience variable were examined, no significant difference was found between the content element of the curriculum and the years of experience variables ($F=.50$; $p=.61$; $p>.05$). When the teachers' views on the content element were examined in terms of the years of experience variable, it could be said that the years of experience variable affected the teachers' views on the content element at a similar level.

Findings Regarding Teaching-Learning Process

When teachers' perceptions regarding the teaching-learning aspects of the curriculum were evaluated, it was determined that the teachers' overall average was 38.72, indicating their "I agree." This suggests that teachers have a positive perception of the teaching-learning aspects of the curriculum. To determine whether teachers' perceptions regarding the teaching-learning aspects of the curriculum differed significantly across gender and educational status variables, data were analyzed using an independent samples t-test, and the findings are presented in Table 8.

Table 8 Comparison of Views on the Teaching-learning process Element in terms of Gender and Educational Status Variables

Variable	Group	N	$\bar{X}$	sd	df	t	p	Cohen's d
Gender	Male	49	38.37	5.54	103	-.50	.02*	.12
	Female	56	39.04	7.84				
Educational status	Bachelor's degree	76	39.11	6.62	103	1.27	.27	
	Master degree	29	37.27	7.60				

Table 8 shows the comparison of teachers' views on the teaching-learning aspect of the curriculum based on gender, with the average score being 38.37 for males and 39.04 for females. Accordingly, both female and male teachers expressed their "I agree" views and held a positive view of the teaching-learning aspect of the curriculum. When teachers' views on the teaching-learning aspect were examined based on gender, it could be said that gender significantly influenced teachers' views on the teaching-learning aspect ($t = -0.50$, $p < 0.05$). The effect size of the difference in terms of gender variable was calculated. According to Cohen's d value ($d = .12$), it can be said that the difference is at a very low level (Cohen, 1988).

Based on these findings, it can be said that female teachers had more positive views on the teaching-learning aspect of the curriculum based on gender.

When the findings regarding the comparison of teachers' views on the teaching-learning aspects of the curriculum in terms of the educational status variable are examined, it is seen that the average score of teachers with bachelor's degrees is 39.11 and the average score of teachers with postgraduate degrees is 37.27. Accordingly, it is observed that teachers with bachelor's and postgraduate degrees expressed their perceptions as "I agree" and that the teachers have a positive perception regarding the teaching-learning aspects of the curriculum. It is observed that the teachers' views on the teaching-learning aspects do not differ in terms of the educational status variable ($t = 1.27$, $p > .05$). Based on the findings, it can be said that the educational status variable affects teachers' views on the teaching-learning aspects of the curriculum in a similar way.

The relationship between the teachers' learning-teaching status element of the curriculum and the age and years of experience variables was examined using ANOVA variance analysis and the findings are given in Table 9.

Table 9 Comparison of Views on the Learning-Teaching Process Element in terms of Age and Years of Experience Variables

Variable	Group	N	$\bar{X}$	ss	Source of variance	Sum of squares	sd	Mean square	F	p
Age	20-30	31	39.03	6.40	Intergroups	147.12	2	73.56	1.59	.21
	31-40	38	39.95	6.95	Within-groups	4723.86	102	46.31		
	41 and over	36	37.17	7.23	Total	4870.99	104	1.59		
	Total	105	38.72	6.84						
Years of experience	1-10	33	38.48	6.42	Intergroups	4.805	2	2.40	.50	.95
	11-15	30	38.63	6.95	Within-groups	4866.19	102	47.71		
	16 and over	42	38.98	7.23	Total	4870.99	104			
	Total	105	38.72	6.84						

When the findings in Table 9 are examined, comparing the perceptions of teachers regarding the teaching-learning elements of the curriculum in terms of the age variable, it is seen that the average scores of teachers aged 20-30, 31-40, 41 and over are 39.03, 39.95, 37.17, respectively. Accordingly, the teachers responded with "I agree." Therefore, it can be said that teachers from different age groups expressed positive perceptions regarding the teaching-learning elements of the curriculum. When the findings of the comparison of teachers' perceptions regarding the teaching-learning elements of the curriculum in terms of the age variable are examined, no significant difference was found between the teaching-learning elements of the curriculum and the age variable ($F=1.41$; $p=.25$; $p>.05$). When teachers' perceptions regarding the teaching-learning elements are examined in terms of the age variable, It can be inferred that the age variable affects teachers' perceptions regarding the teaching-learning aspects to a similar extent.

When the findings in Table 9 are examined regarding the comparison of teachers' perceptions on the teaching-learning elements of the curriculum in terms of years of experience variable, it is seen that the average scores of teachers with 1-10, 11-15, 16 and above years of service are 38.48, 38.63, 38.98, respectively. Accordingly, the teachers stated their perceptions as "I agree." In this case, it can be said that teachers with different lengths of service expressed positive perceptions regarding the teaching-learning aspects of the curriculum. When the teachers' perceptions on the teaching-learning elements of the curriculum in terms of the years of experience variable, it can be said that the perceptions of the teachers on the teaching-learning aspects of the curriculum in terms of the years of experience variable do not differ significantly ($F=.50$; $p=.95$; $p>.05$). Based on the findings, it

can be said that the years of experience variable affects teachers' perceptions on the teaching-learning elements of the curriculum in a similar way.

Findings Regarding the Measurement-Evaluation Element

When teachers' perceptions regarding the measurement and evaluation component of the curriculum were evaluated, it was determined that the teachers expressed their perception as "I agree," as the overall average score was 19.30. This suggests that teachers have a positive perception of the measurement and evaluation component of the curriculum.

Data were analyzed using an independent samples t-test to determine whether teachers' perceptions regarding the assessment and evaluation component of the curriculum differed significantly across gender and educational background variables, and the findings are presented in Table 10.

Table 10 Comparison of Views on the Measurement and Evaluation Situations Element in terms of Gender Variable

Variable	Group	N	$\bar{X}$	sd	df	t	p
Gender	Male	49	18.86	3.54	103	-1.16	.81
	Female	56	19.68	3.70			
Educational status	Bachelor's degree	76	19.47	3.59	103	.91	.34
	Master's degree	29	18.64	3.80			

When the findings obtained from the comparison of teachers' views on the measurement and evaluation element of the curriculum in Table 10, based on the gender variable, are examined, it is seen that the average score for males is 18.86 and the average score for females is 19.68. Accordingly, both male and female teachers expressed their perceptions as "I agree" and have positive views on the assessment and evaluation element of the curriculum. There is no significant difference in teachers' views on the measurement and evaluation element in terms of the gender variable ($t=-1.16$, $p>.05$). Based on the findings, it can be said that the gender variable has a similar impact on teachers' views on the measurement and evaluation element of the curriculum.

When the findings regarding the comparison of teachers' views on the measurement and evaluation element of the curriculum in terms of the educational status variable are examined, it is seen that the average score of teachers with bachelor's degrees is 19.47, and the average score of teachers with master degrees is 18.64. Accordingly, it is observed that teachers with

bachelor's and master degrees expressed their perceptions as "I agree," and that the teachers have a positive perception of the measurement and evaluation element of the curriculum. It is observed that the teachers' views on the measurement and evaluation element did not differ in terms of the educational status variable ($t=.91$, $p>.05$). Based on the findings, it can be said that the educational status variable affects teachers' views on the measurement and evaluation element of the curriculum in a similar way.

The relationship between the teachers' measurement-evaluation status element of the curriculum and the variables of age and years of experience was examined using ANOVA variance analysis and the findings are given in Table 11.

Table 11 Comparison of Perceptions Regarding the Measurement and Evaluation Situations Element in terms of Age and Years of Experience Variables

Variable	Group	N	$\bar{X}$	ss	Source of variance	Sum of squares	sd	Mean square	F	p
Age	20-30	31	19.13	3.71	Intergroups	12.02	2	6.01	.45	.64
	31-40	38	19.74	3.65	Within-groups	1361.83	102	13.35		
	41 and over	36	18.97	3.59	Total	1373.85	104			
	Total	105	19.30	3.63						
Years of experience	1-10	33	19.12	3.71	Intergroups	20.490	2	10.25	.77	.47
	11-15	30	18.77	3.65	Within-groups	1353.36	102	13.27		
	16 and over	42	19.81	3.59	Total	1373.85	104			
	Total	105	19.30	3.63						

When the findings in Table 11 are examined regarding the comparison of teachers' perceptions regarding the assessment-evaluation element of the curriculum in terms of age variable, it is seen that the average scores of teachers aged 20-30, 31-40, 41, and over are 19.13-19.74-18.97, respectively. Accordingly, the teachers stated their perceptions as "I agree." In this case, it can be said that teachers from different age groups expressed positive perceptions regarding the measurement-evaluation element of the curriculum. When the findings regarding the comparison of teachers' perceptions regarding the assessment-evaluation element of the curriculum in terms of age variable are examined, no significant difference was found between the assessment-evaluation element of the curriculum and the age variable ($F=1.41$; $p=.25$; $p>.05$). When the teachers' perceptions regarding the measurement-evaluation element are examined in terms of age variable, it can be said that the age variable affects teachers' perceptions regarding the measurement-evaluation element at a similar level.

When the findings of Table 11 are examined regarding the comparison of teachers' perceptions on the measurement-evaluation element of the curriculum in terms of years of experience variables, it is seen that the average scores of teachers with 1-10, 11-15, 16 and above years of service are 19.12-18.77-19.81, respectively. Accordingly, the teachers stated their perceptions as "I agree." In this case, it can be said that teachers with different lengths of service expressed positive perceptions regarding the measurement-evaluation element of the curriculum. When the teachers' perceptions on the measurement-evaluation element of the curriculum are examined in terms of the years of experience variable, it can be said that the perceptions of the teachers on the teaching-learning process element in terms of the years of experience variable do not differ significantly ($F=.77$; $p=.47$; $p>.05$). Based on the findings, it can be said that the years of experience variable affects teachers' perceptions on the assessment-evaluation element of the curriculum similarly.

Teachers' Perceptions Obtained with the Interview Form

As a result of the analysis of the interview data, the findings regarding how the participants evaluated the learning objectives in the middle school 7th grade mathematics curriculum are visualized in Table 12.

Table 12 Frequency Distribution of How Teachers Evaluate the Learning Objectives in the Middle School 7th Grade Mathematics Curriculum

Themes	Subthemes	f
Accessibility	Appropriate	6 (Ö1, Ö3, Ö4, Ö5, Ö7, Ö8)
	Inappropriate	2 (Ö2, Ö6)
	Total	8
Suitability to student level	Appropriate	6 (Ö2, Ö3, Ö4, Ö5, Ö7, Ö8)
	Somewhat appropriate	1 (Ö1)
	Inappropriate	1 (Ö6)
	Total	8
Contiguity	Appropriate	3 (Ö3, Ö4, Ö8)
	Inappropriate	5 (Ö1, Ö2, Ö5, Ö6, Ö7)
	Total	8
Limitation	Appropriate	5 (Ö1, Ö3, Ö4, Ö5, Ö7)
	Inappropriate	3 (Ö2, Ö6, Ö8)
	Total	8

Analysis of the interview data revealed four themes concerning how teachers evaluated the learning objectives in the seventh grade mathematics curriculum. These themes were "Accessibility", "Suitability to Student Level", "Contiguity and Limitation". As shown in Table 12, six teachers (Ö1, Ö3, Ö4, Ö5, Ö7, Ö8) considered the learning objectives accessible, while two teachers (Ö2, Ö6) stated that they were not accessible. Supporting this

view, Ö1 explained that although students had different levels of readiness, *“I am able to achieve the learning objectives with the help of computer assisted tools such as GeoGebra; the learning objectives are attainable.”*

Regarding the suitability of the learning objectives to student level, six teachers (Ö2, Ö3, Ö4, Ö5, Ö7, Ö8) found them appropriate, while one teacher (Ö1) found them somewhat appropriate and one teacher (Ö6) considered them inappropriate. Reflecting the positive evaluations, Ö4 stated that *“the learning objectives in the curriculum are more suitable for students with a strong foundation or high level of readiness, and with the simplifications made in the curriculum, they have become more appropriate for the students’ level.”*

In relation to contiguity, three teachers (Ö3, Ö4, Ö8) believed that the learning objectives met this criterion, whereas five teachers (Ö1, Ö2, Ö5, Ö6, Ö7) thought they were not contiguous. Ö5 criticized the structure of certain learning outcomes, stating that *“some learning outcomes are definitely not adjacent; they have been written as overlapping,”* referring specifically to the outcome on corresponding, alternate interior and alternate exterior angles. Finally, five teachers (Ö1, Ö3, Ö4, Ö5, Ö7) believed that the learning objectives conformed to the principle of limitation, whereas three teachers (Ö2, Ö6, Ö8) thought otherwise. Supporting the positive evaluations, Ö7 explained that *“mathematics progresses in a spiral; the learning objectives are limited and expand as the class progresses, with new ones added on top. I think the curriculum complies with the principle of limited learning objectives.”*

The findings regarding how teachers evaluate the content of the middle school 7th grade mathematics course curriculum are visualized in Table 13.

Table 13 Frequency Distribution Obtained Regarding How Teachers Evaluate the Content of the Middle School 7th Grade Mathematics Curriculum

Themes	Subthemes	f
Suitable for learning outcomes	Appropriate	7(Ö1, Ö2, Ö3, Ö4, Ö5, Ö7, Ö8)
	Inappropriate	1(Ö6)
	Total	8
Validity and timeliness	Current	6(Ö1, Ö2, Ö3, Ö4, Ö5, Ö8)
	Not Current	1(Ö6)
	Total	7
Consistency	Consistent	5(Ö1, Ö2, Ö3, Ö4, Ö8)
	Inconsistent	1(Ö6)
	Total	6
Relevance to daily life	Enough	5(Ö1, Ö2, Ö3, Ö4, Ö8)
	Not Enough	2(Ö6, Ö7)
	Total	7

Analysis of the interview data revealed four themes concerning how teachers evaluated the content of the seventh grade mathematics curriculum. These themes were “Suitability for Learning Outcome”, “Validity and Timeliness”, “Consistency” and “Relevance to Daily Life”. According to Table 13, seven teachers (Ö1, Ö2, Ö3, Ö4, Ö5, Ö7, Ö8) stated that the content was suitable for the learning outcomes, whereas one teacher (Ö6) believed it was not. Reflecting this positive view, Ö1 emphasized that the content directly supports the intended outcomes, explaining that *“the content consists of the information required to achieve the learning objectives... in the seventh grade the content expands in detail in accordance with the learning objective.”*

Regarding the theme of “Validity and Timeliness”, six teachers (Ö1, Ö2, Ö3, Ö4, Ö5, Ö8) considered the content current, while one teacher (Ö6) found it outdated. In the theme of “Consistency”, five teachers (Ö1, Ö2, Ö3, Ö4, Ö8) believed that the content was consistent across grade levels, while one teacher (Ö6) disagreed. Supporting the view that the content is structured consistently, Ö6 explained that *“the subjects are given consistently in the content; new ones are added to the previous year's learning.”*

In the theme of “Relevance to Daily Life”, five teachers (Ö1, Ö2, Ö3, Ö4, Ö8) believed that the content was sufficiently connected to real life, whereas two teachers (Ö6, Ö7) stated that it was not. Illustrating this positive evaluation, Ö4 noted that *“there are contents close to daily life in the exercises and activities in the textbook... especially the problem sections are related to our lives.”*

Teachers also commented on how the content supports student learning levels. For example, Ö3 highlighted the appropriateness of the material by stating that *“the information given in the content is appropriate to the student level... students reach the learning outcome more easily with the pictures and visuals given appropriate to the student level.”*

The findings regarding how teachers evaluate the teaching-learning process in the middle school 7th grade mathematics curriculum are visualized in Table 14.

Table 14 Frequency Distribution Obtained Regarding How Teachers Evaluate Teaching-Learning Process in Middle School 7th Grade Mathematics Curriculum

Themes	Subthemes	f
Suitable for Learning outcome	Suitable	4(Ö1,Ö3, Ö4, Ö7, Ö8)
	Not suitable	4(Ö2,Ö4, Ö5, Ö6)
	Total	8
Student eligibility	Suitable	6(Ö1, Ö2, Ö3, Ö5, Ö7, Ö8)
	Not suitable	1(Ö6)
	Total	7
Content suitability	Suitable	5(Ö1, Ö2, Ö3, Ö7, Ö8)
	Not suitable	1(Ö6)
	Total	6

Analysis of the interview data revealed three themes concerning how teachers evaluated the teaching learning process in the seventh grade mathematics curriculum. These themes were “Suitable for the Learning Outcome”, “Students Eligibility” and “Content Suitable”. As presented in Table 14, teachers were divided in their evaluations regarding the suitability of the teaching learning process for the learning outcomes. Five teachers (Ö1, Ö3, Ö4, Ö7, Ö8) stated that the process was suitable, whereas four teachers (Ö2, Ö4, Ö5, Ö6) believed it was not. Illustrating a positive perspective, Ö3 explained that the availability of technological tools supports alignment with learning outcomes, stating that *“with the help of smart boards, internet access and videos, the education process can progress more interactively, and we go through a learning teaching process that is in line with the learning objectives.”*

Regarding the theme of “Students Eligibility”, six teachers (Ö1, Ö2, Ö3, Ö5, Ö7, Ö8) stated that the teaching learning process was appropriate for student needs, whereas one teacher (Ö6) believed it was not. Supporting this view, Ö8 emphasized the role of technology in motivating students and explained that *“the learning teaching process supported by computers and the internet mobilizes students more... applications such as GeoGebra and EBA contribute positively to reaching the learning objectives and provide a more suitable process for the student.”*

In the theme of “Content Suitable”, five teachers (Ö1, Ö2, Ö3, Ö7, Ö8) considered the teaching learning process appropriate, while one teacher (Ö6) found it unsuitable. Reflecting this positive evaluation, Ö7 stated that *“the educational situations are suitable for the content because there are activities and we can prepare materials in accordance with the learning outcome... the materials are very useful for those who have difficulty in learning.”*

The findings regarding how teachers evaluate measurement and evaluation in the middle school 7th grade mathematics curriculum are visualized in Table-15.

Table 15 Frequency Distribution Obtained Regarding How Teachers Evaluate Measurement and Evaluation in Middle School 7th Grade Mathematics Curriculum

Themes	Subthemes	f
Suitability to the curriculum's understanding	Appropriate	4(Ö2, Ö3, Ö5, Ö8)
	Inappropriate	2(Ö1, Ö6)
	Total	6
Usefulness	Simple	4(Ö3, Ö4, Ö7, Ö8)
	Not Simple	3(Ö1, Ö2, Ö6)
	Total	7
Serving the purpose	Adequate	2(Ö5, Ö8)
	Inadequate	5(Ö1, Ö2, Ö3, Ö4, Ö6)
	Total	7

Analysis of the interview data revealed three themes concerning how teachers evaluated the measurement and evaluation component of the seventh grade mathematics curriculum. These themes were “Suitability to the Curriculum’s Understanding”, “Usefulness” and “Serving the Purpose”. As shown in Table 15, four teachers (Ö2, Ö3, Ö5, Ö8) stated that the measurement and evaluation practices were appropriate for the curriculum’s understanding, while two teachers (Ö1, Ö6) believed they were not. Supporting the positive perspective, Ö5 noted that the approach was aligned with the curriculum philosophy, stating that *“it is process and activity focused... there is also a logic of evaluating the process rather than the product, so I think it is in line with the understanding of the curriculum.”*

Regarding the theme of “Usefulness”, four teachers (Ö3, Ö4, Ö7, Ö8) stated that the measurement and evaluation practices were simple to implement, whereas three teachers (Ö1, Ö2, Ö6) found them difficult. Reflecting this challenge, Ö2 emphasized the burden of applying open ended examinations in crowded classrooms, explaining that *“the open ended nature of the written exams makes it really difficult to read the written papers... the application and evaluation process of written exams is not easy.”*

In the theme of “Serving the Purpose”, only two teachers (Ö5, Ö8) considered the measurement and evaluation practices adequate, while five teachers (Ö1, Ö2, Ö3, Ö4, Ö6) believed they did not sufficiently serve their intended purpose. Illustrating this concern, Ö1 highlighted the inconsistency between school based assessments and national examinations, stating that *“we are prohibited from giving tests to students... but the important exams that students will take are in the form of tests. This situation makes me think that measurement and evaluation do not serve its purpose.”*

Discussion

By synthesizing both the qualitative and quantitative results, this study found that educators largely held favorable views of the curriculum. This positive consensus applied across all core components, including the syllabus content, learning goals, instructional methods, and assessment strategies . In addition, the quantitative analyses indicated that these positive evaluations were largely stable across gender, age, educational status, and years of experience, with only a very small gender-based difference in favour of female teachers for the teaching–learning process element.

Teachers’ generally positive perceptions of the 7th-grade mathematics curriculum indicate that the curriculum generally reflects the desired attributes across its goals, content, and delivery and assessment methods in terms of its fundamental elements. Having the necessary qualities in each curriculum element is crucial in enhancing the overall quality and applicability of the curriculum (Özçelik, 2014). Similar observations were also documented in studies conducted by Özer and Bal (2024) and Avcu and Yenilmez (2011), which reported that teachers generally hold positive perceptions of the 7th-grade mathematics curriculum, and thus supports the findings of the present study. Similarly, the international literature indicates that structuring curriculum components such as learning objectives, content, teaching–learning processes, and measurement practices in a coherent, clear, and student, level, appropriate manner positively influences teachers’ perceptions (Fullan, 2016; Ornstein & Hunkins, 2018). Furthermore, it is reported that teachers’ perceptions do not differ significantly according to demographic variables such as age, years of experience, and status, and that evaluations are largely based on the structural characteristics of the curriculum itself (Remillard, 2005; Voogt & Roblin, 2012).

In the study, when the teachers' views on the learning objectives, content, assessment and evaluation elements of the curriculum were examined in terms of the gender variable, it was revealed that the gender variable did not significantly differentiate the teachers' views on the learning objectives, content, measurement and evaluation elements of the curriculum and it was found that the gender variable affected the teachers' views on the learning objectives, content, measurement and evaluation elements of the curriculum correspondingly However, when teachers' views on the teaching-learning aspects of the curriculum were examined in terms of gender, it was revealed that gender significantly influenced teachers' views on the teaching-learning aspects, with female teachers having more positive views on the teaching-learning aspects of the curriculum. Özer and Bal (2024) found that teachers generally found

the mathematics curriculum learning objectives understandable, appropriate for grade level, with adequate boundaries and gradual progression, and that assessment and evaluation were adequate, with no significant differences based on gender. The results of Özer and Bal (2024) are similar to our results. In that study, it can be considered as a different result that female teachers have more positive perceptions in evaluating the learning-teaching situations of the curriculum.

The study found that age was not a determining factor in how the curriculum was perceived. Specifically, teachers' views on the instructional process and learning objectives remained consistent regardless of their age, suggesting that this variable does not significantly influence their professional evaluation of the framework. Demir (2021), in his study aiming to evaluate the 9th grade mathematics course curriculum using the evaluation model based on the curriculum elements and including teachers' perceptions, revealed no statistically significant difference in the perceptions of teachers regarding the learning objectives, content, teaching-learning process, assessment and evaluation elements of the curriculum such as gender, age, educational status, graduation status, and years of experience. The results of the study conducted by Demir (2021) are parallel to the present study.

In the study, when the perceptions of the teachers about the learning objectives, content, teaching-learning process, and assessment-evaluation elements of the curriculum were examined in terms of the educational status variable, it was revealed that the educational status variable did not significantly affect the perceptions of the teachers about the learning objectives, content, teaching-learning process, and assessment-evaluation elements of the curriculum and it was stated that the educational status variable affected the perceptions of the teachers about the learning objectives, content, teaching-learning process, and assessment-evaluation elements of the curriculum in a similar way.

In the study, when the perceptions of the teachers about the learning objectives, content, teaching-learning process and measurement-evaluation elements of the curriculum were examined in terms of the years of experience variable, it was stated that the years of experience variable did not significantly differentiate the perceptions of the teachers about the learning objectives, content, teaching-learning process and measurement-evaluation elements of the curriculum, and the years of experience variable affected the perceptions of the teachers about the learning objectives, content, teaching-learning process and measurement-evaluation elements of the curriculum in a similar way.

The findings indicate that teachers' perceptions of the instructional process and learning goals are largely independent of their professional longevity or educational status. Data across

these demographic categories showed a high degree of consistency, with no significant variance observed in how the curriculum's fundamental elements were perceived.

When the data of the study were examined, it was concluded that the elements of the curriculum were generally evaluated positively by the teachers and that the teachers found the elements of the curriculum compatible with each other. The results of the studies conducted by Keçeli (2024) revealed that teachers have a positive attitude towards the mathematics education curriculum. In this study, the teachers also had a positive perception about the curriculum. Therefore, it can be said that the results of the study by Keçeli (2024) are consistent with this study. Contrary to this study, the results of the study conducted by Sayın (2019) did not evaluate the middle school curriculum positively due to the excess of achievements and the inadequacy of resources and time.

Although teachers expressed generally positive perceptions about the curriculum, their evaluations also indicate that there is still room for improvement, suggesting that further revisions to the 2018 curriculum could be beneficial.

When content analysis was conducted to assess teachers' views on the learning objective element of the curriculum in the qualitative data, the themes of "accessibility," "suitability to student level," "contiguity," and "limitation" emerged. An examination of the frequencies related to "contiguity" revealed that 5 of the 8 teachers who responded to the question indicated that this theme was not appropriate. Therefore, it is believed that the learning objective element of the curriculum could be improved in line with "contiguity." Similarly, it has been determined that issues related to coherence and progression among learning objectives are frequently encountered in mathematics curricula across different countries; this has once again revealed the importance of contiguity and coherence in curriculum design (OECD, 2019; Schmidt & Prawat, 2006).

In the qualitative data, a content analysis of teachers' views on the curriculum's teaching-learning process element revealed the themes of "suitability to learning objective," "suitability to students," and "suitability to content." An examination of the frequencies related to "suitability to learning objective " revealed that four of the eight teachers who responded to the question indicated that this theme was not suitable. Therefore, it is believed that the curriculum's teaching-learning process element could be improved in line with its "suitability to learning objective."

In the qualitative data, content analysis for the processes related to the production curriculum measurement-evaluation element reveals the themes of "according to the curriculum's understanding," "usability," and "purposefulness." Five of the seven teachers

who responded within the frequency ranges related to "purposefulness" were found to be inadequate in this theme. In this context, it is thought that the measurement and evaluation element of the curriculum can be developed in line with "serving the purpose". In the international literature, particular attention is drawn to the measurement and evaluation element as one of the relatively weaker aspects of curricula in terms of alignment with learning objectives and instructional processes. This situation is consistent with the qualitative findings of the study, which indicate that the measurement and evaluation element needs to be improved in terms of purposefulness and alignment (Black & Wiliam, 2009; Brookhart, 2013).

Conclusions and Suggestions

As a result of the research, when the teachers' perceptions about the curriculum's learning objectives, content, teaching-learning process and measurement-evaluation elements were evaluated as a whole based on the findings obtained from quantitative and qualitative data, it was concluded that the teachers generally expressed positive perceptions about the curriculum.

This section includes suggestions based on research findings and for future research.

Since educational curricula are dynamic and can be continuously improved, preserving the positive features of the curriculum and spreading these features to other grade levels in line with the results obtained for subsequent curriculum development studies will contribute to curriculum development studies.

The study found that teachers' views on the teaching-learning process of the curriculum differed significantly based on gender. Further studies examining this difference in depth will contribute to the literature.

Research results indicate that teachers believe the curriculum's learning objectives elements lack contiguity. Therefore, it is recommended that the curriculum's learning objectives elements be restructured to be sequential, logically ordered, and supportive of the learning process. This integration of objectives will increase the curriculum's effectiveness and facilitate implementation in the teaching process.

The research results reveal that teachers believe the curriculum's teaching-learning process element has deficiencies in terms of "relevance to the objectives." Therefore, it is recommended that this element be reviewed and restructured to make it more consistent with

the objectives. An organization aligned with the objectives will increase the effectiveness of the teaching process and support students in achieving their objectives.

Research findings indicate that teachers believe the measurement and evaluation component of the curriculum lacks a sufficient purpose. Therefore, it is recommended that the measurement and evaluation component be reviewed and developed to better align with the curriculum's objectives. This will enable assessment processes to support learning objectives and be implemented more effectively.

Compliance with Ethical Standards

Disclosure of potential conflicts of interest

The authors declare that this study and no processes involved in conducting the study have the potential for conflicts of interest

Funding

No funding from any institution was received for this study CRediT author statement

CRediT author statement

The article was collaboratively written by two authors, with each contributing equally to its content.

Research involving Human Participants and/or Animals

This study was reviewed and approved by the Ethics Committee of the Institute of Social Sciences at Balıkesir University, Türkiye (05.04.2024/ 03). All procedures followed national ethical guidelines, and informed consent was obtained from all participants prior to their involvement in the study.

Bloom'un Program Öğelerine Dayalı Değerlendirme Modeline Göre 7. Sınıf Matematik Programının Değerlendirilmesi

Özet:

Çalışmanın amacı, ortaokul 7. sınıf matematik öğretim programını, program öğelerine dayalı değerlendirme modeliyle öğretmen görüşlerine göre değerlendirmektir. Bu çalışmada karma yöntem kullanılmıştır. Nicel verileri nitel verilerle tamamlamak için açıklayıcı sıralı desen kullanılmıştır. Çalışmanın nicel boyutu için çalışma evrenini 2024-2025 eğitim-öğretim yılında Balıkesir'de görev yapan 690 matematik öğretmeni, örneklemini ise rastgele örnekleme yoluyla Balıkesir ili merkez ilçelerinde görev yapan 105 öğretmen oluşturmuştur. Çalışmanın nitel boyutu için çalışma grubunu ise ölçüt ve kolay ulaşılabilir örnekleme yöntemleri kullanılarak seçilen 8 matematik öğretmeni oluşturmuştur. Çalışmada nicel veriler "Eğitim Programları Değerlendirme Ölçeği", nitel veriler ise yarı yapılandırılmış görüşme formu ile toplanmıştır. Nicel verilerin analizinde, öğretmenlerin algılarının aritmetik ortalaması hesaplanmıştır. Cinsiyet, yaş, eğitim durumu, hizmet süresi gibi farklılıkların anlamlılığı bağımsız örneklem t-testi ve tek yönlü varyans analizi kullanılarak incelenmiştir. Nitel veriler ise içerik analizi kullanılarak analiz edilmiştir. Araştırma sonucunda, öğretmenlerin programın hedef, içerik, ölçme ve değerlendirme öğelerine ilişkin algılarının cinsiyete göre anlamlı bir farklılık göstermediği ancak öğretme-öğrenme durumuna ilişkin görüşlerinin anlamlı bir şekilde etkilendiği bulunmuştur. Kadın öğretmenlerin cinsiyete göre programın öğretme-öğrenme öğesine ilişkin daha olumlu algılara sahip olduğu bulunmuştur. Araştırmanın nicel ve nitel bulguları birlikte değerlendirildiğinde, öğretmenlerin genel olarak programa ilişkin olumlu görüş bildirdikleri sonucuna ulaşılmıştır.

Anahtar kelimeler: Matematik, öğretim programı, karma yöntem, ortaokul öğrencileri, program değerlendirme.

References

- Alkan, H., & Altun, M. (1998). *Matematik öğretimi*. Anadolu Üniversitesi.
- Avcu, T., & Yenilmez, K. (2011). Evaluation of the seventh-grade mathematics curriculum based on teachers' perceptions. *Education Sciences*, 6(1), Article 1C0273.
<https://dergipark.org.tr/pub/nwsaedu/issue/19821/212113>
- Aykan, A. (2021). Eğitimde program geliştirme. In F. Dursun & A. Aykan (Eds.), *Öğretim ilke ve yöntemleri* (pp. 99–124). Pegem Akademi.
- Baki, A., & Gökçek, T. (2012). A general overview of mixed method researches. *Electronic Journal of Social Sciences*, 11(42), 1–21.
<https://dergipark.org.tr/en/pub/esosder/issue/6156/82721>
- Balcı, A. (2025). *Sosyal bilimlerde araştırma yöntem, teknik ve ilkeler*. Pegem Akademi.
- Baş, G. (2016). Curriculum evaluation scale: Validity and reliability study. *Turkish Journal of Educational Studies*, 3(1), 53–80.
<https://dergipark.org.tr/pub/turkjes/issue/34163/377683>
- Beyendi, S. (2018). Comparison of teaching programs of 2013-2018 middle school mathematics course. *Individual and Society Journal of Social Science*, 8(1), 177–200.
<https://dergipark.org.tr/pub/birtop/issue/39520/450818>
- Black, P., & Wiliam, D. (2009). Developing the theory of formative assessment. *Educational Assessment, Evaluation and Accountability*, 21, 5–31. <https://doi.org/10.1007/s11092-008-9068-5>
- Brookhart, S. M. (2013). The use of teacher judgment for summative assessment in the USA. *Assessment in Education: Principles, Policy & Practice*, 20(1), 69–90.
<https://doi.org/10.1080/0969594X.2012.703170>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.
- Çiftçi, O., & Tatar, E. (2015). Teachers' opinions about the updated secondary mathematics curriculum. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 6(2), 285–298. <https://doi.org/10.16949/turcomat.15375>

- Demir, T. (2021). *Evaluation of secondary education 9th grade mathematics curriculum* (Publication No. 689041)[Master's thesis, Balıkesir University]. Council of Higher Education Thesis Center.
- Demirel, Ö. (1992). Türkiye'de program geliştirme uygulamaları. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 7, 27–43.
<https://dergipark.org.tr/tr/pub/hunefd/issue/7829/102958>
- Demirel, Ö. (2017). *Eğitimde program geliştirme*. Pegem Akademi.
- Erden, M. (1998). *Eğitimde program değerlendirme* (3rd ed.). Anı.
- Ertem Akbaş, E. & Tekin, F. (2023). Analysis of master's and doctoral theses on high school mathematics curriculum (2015-2022), *The Educational Science and Research Journal*, 4(2), 444-468. <https://doi.org/10.54637/ebad.1335604>
- Ertürk, S. (2017). *Eğitimde program geliştirme* (2nd ed.). Edge Akademi.
- Fitzpatrick, J. L., Sanders, J. R., & Worthen, B. R. (2019). *Curriculum evaluation: Alternative approaches and practical guidelines* (M. K. Aydın & B. Bavlı, Eds., 4th ed.). Pegem Akademi.
- Frankfort-Nachmias, C., & Nachmias, D. (1996). *Research methods in the social sciences* (5th ed.). Arnold.
- Fullan, M. (2016). *The new meaning of educational change* (5th ed.). Teachers College.
- Garson, G. D. (2012). *Testing statistical assumptions*. Statistical Publishing Associates.
- George, D., & Mallery, M. (2010). *SPSS for Windows step by step: A simple guide and reference* (10th ed.). Pearson.
- Gözütok, D. (2003). Türkiye'de program geliştirme çalışmaları. *Milli Eğitim Dergisi*, 160.
http://dhgm.meb.gov.tr/yayimlar/dergiler/Milli_Egitim_Dergisi/160/gozutok.htm
- Kürüm Yapıcıoğlu, D., Atik Kara, D., & Sever, D. (2016). Trends and problems in curriculum evaluation studies in Turkey: The perspective of domain experts. *International Journal of Curriculum and Instructional Studies*, 6(12), 91–113. https://ijocis.epo-der.org/wp-content/uploads/2025/01/6_12_12_2016.pdf
- Kalaycı, Ş. (2006). *SPSS applied multivariate statistical techniques*. Asil.

- Keçeli, G. (2024). *Secondary school mathematics teachers' awareness of the instructional program and their evaluations about the curriculum* (Publication No. 864497) [Master's thesis, Bartın University]. Council of Higher Education Thesis Center.
- Lyakhova, S., Joubert, M., Capraro, M. M., & Capraro, R. M. (2019). Designing a curriculum based on four purposes: Let mathematics speak for itself. *Journal of Curriculum Studies*, 51(4), 513–529. <https://doi.org/10.1080/00220272.2019.1594389>
- MoNE. (2018). *Mathematics course curriculum (Primary and secondary school 1st–8th grades)*. <https://ttkb.meb.gov.tr>
- MoNE. (2024). *Türkiye Century Education Model: Secondary school mathematics curriculum (5th, 6th, 7th and 8th grades)*. <https://mufredat.meb.gov.tr>
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. Sage.
- OECD/G20 Base Erosion and Profit Shifting Project. (2015). *Addressing the tax challenges of the digitalisation of the economy* (Public consultation document). OECD Publishing.
- Ornstein, A. C., & Hunkins, F. P. (2016). *Curriculum: Foundations, principles, and issues* (A. Ari, Ed.). Eđitim.
- Ornstein, A. C., & Hunkins, F. P. (2018). *Curriculum: Foundations, principles, and issues* (7th ed.). Pearson Education.
- Özçelik, D. A. (2014). *Eđitim programları ve öğretim*. Pegem Akademi.
- Özdemir, S. M. (2009). Curriculum evaluation in education and examination of the curriculum evaluation studies in Turkey. *Van Yüzüncü Yıl University Journal of Education*, 6(2), 126–149. <https://dergipark.org.tr/tr/download/article-file/146317>
- Özer, A. A., & Bal, A. P. (2024). An analysis of the 8th grade mathematics curriculum revised in 2018 according to the Eisner educational criticism model. *Electronic Journal of Social Sciences*, 23(91), 978–1003. <https://doi.org/10.17755/esosder.1411019>
- Remillard, J. T. (2005). Examining key concepts in research on teachers' use of mathematics curricula. *Review of Educational Research*, 75(2), 211–246. <https://doi.org/10.3102/00346543075002211>

- Sayın, A. (2019). *Investigation of lower secondary school mathematics teachers' noticing about the current curriculum* (Publication No. 602422) [Master's thesis, Trabzon University]. Council of Higher Education Thesis Center.
- Schmidt, W. H., & Prawat, R. S. (2006). Curriculum coherence and national control of education: Issue or non-issue? *Journal of Curriculum Studies*, 38(6), 641–658.
<https://doi.org/10.1080/00220270600682804>
- Sönmez, V. (2015). *Program geliştirmede öğretmen el kitabı* (18th ed.). Anı.
- Sönmez, V., & Alacapınar, F. G. (2015). *Örnekleriyle eğitimde program değerlendirme*. Anı.
- Şen, Ö. (2017). Comparison of Elementary School Mathematics Curricula: 2009-2013-2017 . *Current Research in Education*, 3(3), 116–128.
https://www.researchgate.net/publication/352292743_Matematik_dersi_ortaokul_ogretim_programlarının_karsilastirilmesi
- Stufflebeam, D. L., & Shinkfield, A. J. (2007). *Evaluation theory, models, and applications*. Jossey-Bass.
- Susam, B., & Demir, M. K. (2020). Evaluation of classroom teachers' views on the change of curriculums. *Journal of Education, Theory and Practical Research*, 6(2), 245–267.
<https://dergipark.org.tr/tr/download/article-file/1265413>
- Şahan, H. H. (2007). *Evaluation of third year mathematics program in elementary school* (Publication No. 229042) [Doctoral dissertation, Hacettepe University]. Council of Higher Education Thesis Center.
- Şahan, H. H. (2014). *Eğitimde program geliştirme & öğretim ilke ve yöntemleri* (2nd ed.). Pegem Akademi.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics*. Pearson.
- Tavşancıl, E., & Aslan, E. (2001). *İçerik analizi ve uygulama örnekleri*. Epsilon.
- Voogt, J., & Roblin, N. P. (2012). A comparative analysis of international frameworks for 21st century competences: Implications for national curriculum policies. *Journal of Curriculum Studies*, 44(3), 299–321. <https://doi.org/10.1080/00220272.2012.668938>
- Yenilmez, K., & Sölpük, N. (2014). The examination of theses to relate with mathematics curriculum (2004-2013) *Journal of Research in Education and Teaching*, 3(2), 33–42.
<http://jret.org/FileUpload/ks281142/File/05.yenilmez.pdf>
- Yıldırım, A., & Şimşek, H. (2006). *Sosyal bilimlerde nitel araştırma yöntemleri*. Seçkin.