

Comparison of Differentiation of 2018 and 2024 Primary School Mathematics Curriculums

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Abstract: *The aim of the study was to compare the differentiation of the 2018 and 2024 Primary School Mathematics Curriculums. In this study, the document review method in the qualitative research design was used. The data of this study consists of 2018 and 2024 Mathematics Curriculum. In the research process, documents were first accessed. The originality of the documents was checked and an attempt was made to understand the documents. In the data analysis, while comparing the differentiation in the curriculums, the unit of analysis was determined in accordance with the purpose of the research. In the study, sentences and paragraphs in the curriculum were used as the unit of analysis. As a result of the analysis, information was provided differentiation in both curriculums. However, differentiation is included in more detail in the 2024 curriculum.*

Keywords: *Primary School, Curriculum, Differentiation.*

1. INTRODUCTION

Differentiation is the design of instruction that prioritizes the individual differences of learners.

Differentiation is the design and implementation of instruction that takes into account the learning needs of individuals.

In Turkey, the 2024 Primary, Secondary, and High School Mathematics Curriculum has been implemented, replacing the 2018 Primary, Secondary, and High School Mathematics Curriculum. Keeping pace with the developing world is among the goals of all countries. This is undoubtedly one of our country's primary goals. Achieving and maintaining a positive position in society depends on quality education. Achieving quality education is only possible through the development and implementation of curriculums that consider the learning needs of individuals equipped in every respect.

A well-equipped curriculum should answer the question of how well it meets the learning needs of students. Researchers, in turn, should reveal the extent to which students' learning needs are addressed in curriculums. Studies like these have many benefits.

These studies can inform curriculum developers about the positive and negative aspects of differentiation in curriculums. This information can guide them. If there are negative outcomes, curriculum developers can revise the curriculum, if possible, to eliminate these outcomes. They can then inform future curriculum development efforts based on this information. Furthermore, because the 2024 Primary, Middle, and High School Mathematics Curriculum has just been implemented, no comparison of the old and new curriculums regarding "differentiation" has been found. Another reason for this study is to contribute to the literature.

A review of the relevant literature revealed that various studies have been conducted on the comparison of curriculums.

Istihapsari, Junaedi & Mulyono (2021) compared the school mathematics curriculums in Switzerland and Indonesia. They noted that while the Swiss curriculum emphasizes problem-solving, the Indonesian curriculum utilizes problem-based learning, project-based learning, and discovery learning models designed for all educational levels.

Şen (2017) conducted a comparative analysis of the mathematics curriculum (grades 5-8) published in 2009, 2013, and 2017. They found that while all three curriculums share common skills intended to teach students, the 2009 and 2017 mathematics curriculum emphasized different skills outside of the relevant field.

In his research, Altıntaş (2019) attempted to contribute to the literature by comparing the visions, approaches and philosophies, objectives, skills/competences, values, measurement and evaluation approaches, learning and sub-learning areas, outcomes, and course durations of the renewed and updated middle school mathematics curriculum in 2009, 2013, 2017, and 2018, revealing their similarities and differences.

Bozan (2024) examined the elements of the 2018 Science curriculum. The review addressed all curriculum elements: objectives, content, the teaching process, and measurement and evaluation. Among his findings was that the 2018 curriculum was weaker than the previous curriculum in terms of measurement and evaluation.

In their study, "Comparison of Science Curricula: Turkey and Australia," Topaloğlu and Kızılcı (2025) attempted to compare the curricula of Turkey and Australia. This study aimed to compare the science curricula of Turkey and Australia in terms of purpose and content. The results revealed that the science curricula of the two countries emphasize both similar and different aspects in terms of purpose and content.

2. METHODOLOGY

2.1. Model of the Research

Model of the Research is qualitative research and design and model of the method is document review method.

2.2. Research Process

The data of this study consists of the the Differentiation in the 2018 Primary School Mathematics(1., 2., 3.and 4. Grades) and 2024 Primary School Mathematics Curriculum(1., 2., 3.and 4. Grades). The research data were taken from <https://mufredat.meb.gov.tr> and <https://tymm.meb.gov.tr>. Both curriculum examined are official curriculum used in Turkey.

The Differentiation statements in both mathematics curriculum were read and interpreted comparatively.

In the study, sentences and paragraphs included in Differentiation were used as the unit of analysis. Finally, findings and results based on the Differentiation in both curriculums in terms of similarities and differences were presented.

In the differentiation of the 2018 primary school (1st, 2nd, 3rd and 4th grade) mathematics curriculum, there is no differentiation section for each subject. However, in the of the 2024 primary school (1st, 2nd, 3rd and 4th grade) mathematics curriculum, there is a differentiation section for each subject. Differentiation is divided into two: enrichment and supporting.

For this reason, the differentiation section of one of the subjects was selected and included in the analysis. The subject selected for analysis is the subject “4. THEME: Geometry of Objects (1)” in the 2024 Primary School Mathematics Course curriculum (2nd Grade).

4. THEME: Geometry of Objects (1): This theme aims to enable students to identify, separate, classify, and name various objects used in daily life based on their formal characteristics; to identify geometric objects within geometric structures; to establish relationships between these geometric objects and create unique structural models from them; to establish relationships among triangles, squares, rectangles, circles, and other circles, and to combine these shapes to create unique models. Furthermore, this theme aims to enable students to recognize that the formal properties of geometric objects and shapes remain unchanged when their orientation, position, or size change; to estimate liquid volume using nonstandard liquid measuring instruments; and to compare measurement results with predicted results.

4.FINDINGS

Table 1 Differentiation in The 2018 Primary School Mathematics Curriculums

Curriculum is structured with sensitivity to individual differences in mind. Individual differences stemming from genetic, environmental, and cultural factors also manifest themselves in terms of interests, needs, and orientations. Furthermore, this also encompasses interpersonal and intrapersonal differences. Individuals differ both from others and from their own unique characteristics. For example, an individual's ability to think abstractly may be strong, while their drawing skills may be weak.

Table 2 Differentiation in The 2024 Primary School Mathematics Curriculums

While the expected knowledge and skills for students are similar in terms of learning outcomes, the pace of progress and the knowledge and skills needed for each process may differ from one student to another. This is addressed in the context of "differentiation" in the Primary School Mathematics Curriculum. "Enrichment," a dimension of differentiation, is designed for students who can more quickly understand more complex and abstract information and use the knowledge and skills targeted in the curriculum more effectively. Explanations regarding the content, methods, and processes that will allow students to deepen their learning without straying from the content framework are included in the enrichment activities.

In this sense, in enrichment activities, interdisciplinary associations and daily life applications are at the forefront, as well as disciplinary associations.

Suggestions for creating learning opportunities that allow students to effectively use technology and digital environments to create digital content in line with performance tasks are also presented within the context of enrichment. Enrichment activities were limited to current grade-level learning outcomes and did not include learning outcomes from the next grade level. The activities were designed to be enriched with different teaching-learning practices aligned with current grade-level learning outcomes. The other dimension of differentiation, "support," is designed for students who need more concrete examples, daily life contexts, tools, and visualizations to achieve the knowledge and skills targeted by the curriculum.

Supporting activities emphasize the applications students need, the tools and technology available, peer learning through group work in the classroom, and the role of the teacher in the process, without compromising the knowledge and skills targeted by the curriculum. Furthermore, recommendations are offered under the support heading to ensure students can effectively utilize digital platforms. Teachers are expected to implement both enrichment and support activities with an inclusive approach, sensitive to individual differences. The principle that every student can learn mathematics under the appropriate conditions must be clearly and decisively stated, and the role of these activities in achieving the curriculum's objectives must be considered.

Differentiation on 4. THEME: Geometry of Objects (1)

Enrichment: They are asked to design robots using cubes, square prisms, rectangular prisms, triangular prisms, right circular cylinders, and spheres. Interactive geometry software also provides three-dimensional concrete versions of these objects. They are also encouraged to create original shape models using more geometric shapes. Students are asked to create their own designs using three-dimensional interactive geometry software.

Students are provided with virtual experiences via computers or mobile apps to develop their liquid measurement skills in an interactive environment. For example, when an empty bucket is filled using different non-standard liquid measuring tools, they are asked to predict which measuring tool will fill the bucket with liquid faster. They are then asked to test these predictions by filling the bucket with liquid using different measuring tools and comparing their results with their initial predictions.

Supporting: By showing models of geometric objects, students are encouraged to exemplify objects similar to these objects in daily life without naming them.

Considering the needs of the students, an exercise is carried out to create shape models using one or more of the shapes of triangle, square, rectangle and circle.

Daily life scenarios are created in which the formal properties of geometric object and shape models do not change even if their location changes.

Concrete examples are used to help students estimate the amount of liquid using non-standard liquid measuring tools. This includes classroom exercises involving adding liquid to a bucket using different objects. Students are then asked to estimate the amount of liquid by asking how many times each object can be used to fill the bucket.

According to the findings, differentiation is present in both curriculums.

The 2018 curriculum did not provide a specific heading for differentiation across subjects. General information about differentiation was provided. In addition to providing general information about differentiation, the 2024 curriculum also provided subheadings for enrichment and support under the heading of differentiation. Appropriate enrichment and support were provided for the subject examined, THEME 4: Geometry of Objects (1). Enrichment and support activities were explained in detail, based on the content of the subject.

CONCLUSION

Both curriculums emphasized the importance of differentiation. (Ministry of National Education of the Republic of Turkey, “Primary Mathematics Curriculum(1st, 2nd, 3rd, 4th Grades), 2018 & Ministry of National Education of the Republic of Turkey, “Primary Mathematics Curriculum(1st, 2nd, 3rd, 4th Grades)”, 2024). It was stated that the 2018 Primary School Mathematics curriculum was prepared based on differentiation.

Differentiation is briefly mentioned in the curriculum. The 2024 Primary School Mathematics Curriculum also covers differentiation in detail. Enrichment and support topics are also included in detail. Furthermore, differentiation is included for every subject in the first, second, third, and fourth grades of primary school. Consequently, both curriculums address this topic. However, the 2024 Primary School Mathematics Curriculum goes into considerable detail.

Furthermore, by introducing differentiation for every subject in the curriculum, it enhances the quality of the curriculum.

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