

MODERN TEACHING FRACTIONS IN THE PRIMARY GRADES METHODOLOGY OWN METHODS

Uroкова Sharofatkhan Saidkul qizi

TerDPI teacher

Mamarajabova Sevara Azamat kizi

TerDPI Start 'internal education student



Abstract. *This article highlights the specific features and effective methods of teaching fractions in modern primary schools. In primary education, the formation of the concept of fractions, taking into account the age and psychological characteristics of students, is of great importance. The article analyzes methods of teaching fractions through visual aids, interactive methods, information and communication technologies, and game activities. It also substantiates the role of the topic of fractions in developing students' logical thinking, comparison, and generalization skills. The results of the study are aimed at providing practical recommendations for primary school teachers.*

Keywords: *primary education, fractions, modern methodology, interactive methods, visual aids, game education, ICT, mathematical concepts, logical thinking.*

Relevance of the topic. The formation of mathematical literacy of primary school students is one of the priority tasks in the modern education system. At this stage of mathematical education, students are formed not only knowledge about natural numbers, but also concepts related to understanding the relationship between quantities as a part and a whole. In this regard, the concept of fractions is considered one of the important and complex sections of the primary mathematics course. In particular, the concept of fractions expands the quantitative imagination of students and introduces them to the concepts of division, distribution and proportion encountered in real life. However, practice shows that the concept of fractions is one of the most difficult topics for primary school students to master. This is explained, first of all, by the abstractness of the concept of fractions and the age-specific

concrete-figurative thinking of students . Therefore, organizing a methodology for introducing the concept of fractions on a scientific basis is an urgent pedagogical problem. Incorrect or superficial formation of the concept of fractions in primary grades leads to serious difficulties for students in performing operations on fractions in later grades. Therefore, there is a need to teach the concept of fractions using demonstrative, practical, and step-by-step methods. These factors determine the relevance of the topic of the article . In the elementary mathematics course, the concept of fractions is considered an important extension of the concept of numbers. Through the concept of fractions, students have the opportunity to express quantities not only using whole numbers, but also through their parts. From a mathematical point of view, fractions are interpreted as numbers that represent the quantity formed as a result of dividing a whole into equal parts . This concept expands quantitative ideas limited to natural numbers and begins a new stage of mathematical thinking. The mathematical essence of the concept of fractions is based on the “whole-part” relationship. That is, a fraction represents a quantity consisting of a certain equal part of the whole . For example, if a whole unit is divided into equal parts and a part of it is taken, the resulting quantity is expressed by a fraction. In this regard, the concept of fractions is directly related to real-life situations such as dividing, dividing, and taking shares of quantities . In mathematics, fractions are an important component of the number system , and they are the basis of the concept of rational numbers. In scientific literature, the concept of a fraction is described as a multifaceted mathematical object. A fraction can be interpreted as a quantity, a ratio, and the result of an action at the same time. At the primary education stage, the concept of a fraction is studied mainly as a part of a quantity. This approach is appropriate for the age and cognitive characteristics of students and allows them to form an understanding based on concrete ideas rather than abstract mathematical interpretations. The structure of fraction notation is also important in understanding the mathematical essence of the concept of a fraction. In fraction notation, the

denominator indicates how many equal parts the whole is divided into , and the numerator indicates how many of these parts are taken. This structure expresses the internal logic of the fraction and serves to help students understand quantitative relationships. For primary school students, understanding this logic is an important condition for consciously mastering the concept of a fraction.

Mathematically, the concept of a fraction is also closely related to the idea of measurement . With the help of fractions , it is possible to express quantities such as length, mass, and volume in values less than a whole unit . This situation forms the initial ideas about the continuity of quantities in students and prepares them for mastering subsequent mathematical concepts. Therefore, the concept of a fraction is one of the main concepts that ensure the organic development of mathematical knowledge in primary education. Thus, the mathematical essence of the concept of a fraction is based on the ideas of expressing, dividing, and measuring a quantity in terms of a whole and a part . The scientific interpretation of this concept serves as a theoretical foundation for developing a methodology for introducing fractions in primary grades. This theoretical basis provides the basis for analyzing the significance and methodological role of the concept of a fraction in primary education in the following sections. At the stage of primary education, the concept of a fraction appears as an important didactic unit that expands and deepens the mathematical ideas of students. In the process of working with natural numbers, students form the idea that quantities are expressed only through whole units. The concept of fractions expands this idea and allows us to understand the expression of quantities in the relationship between part and whole. Therefore, the concept of fractions occupies a special place in the elementary mathematics course as a logical continuation of the concept of number.

From a didactic point of view, teaching the concept of fractions serves to develop the skills of understanding, comparing and generalizing quantitative relationships in elementary school students. With the help of fractions, students

master concepts such as “half”, “one third”, “three quarters”, and these concepts are directly related to the processes of division and distribution in everyday life. As a result, mathematical knowledge is not abstract for students, but is manifested as knowledge with vital content. The importance of the concept of fractions in elementary education is also manifested in its serving as a basis for subsequent mathematical topics. Insufficient formation of the concept of fractions in primary grades leads to serious difficulties in performing operations on fractions, working with decimals and ratios in later grades. Therefore, conscious and thorough mastering of the concept of fractions in primary education is one of the important conditions ensuring the continuity of education. The role of the concept of fractions in primary education is also reflected in its inextricable connection with measurement topics. In the process of measuring length, mass and volume, the need arises to express quantities smaller than a whole unit, and in this case the concept of fractions serves as an important tool. For example, expressions such as half a meter, a quarter of a kilogram form the initial scientific ideas about the continuity of quantities in students.

The didactic significance of the concept of fractions in primary education is also associated with the development of students' mathematical speech. In the process of expressing fractions, explaining them and comparing them, students learn to use mathematical terms consciously. This develops the skills of expressing their thoughts clearly and logically and is an important component of mathematical literacy. In primary grades, the process of forming the concept of fractions should be organized, first of all, based on the conscious understanding of the concepts of whole and part in students. The essence of the concept of fractions is based on the division of the whole into equal parts and the quantitative expression of these parts. Therefore, before introducing fractions in primary education, it is an important methodological task to form initial ideas about wholeness, equality and division in students.

As emphasized in pedagogical literature, for students of junior school age, the concept of “whole” is first perceived through concrete objects. For example, by dividing objects such as an apple, bread, a circle or a ribbon into equal parts, students directly observe the relationship between the whole and the part. Based on this concrete experience, the concept of part is formed in students, and later it becomes the basis for the concept of fractions. In this regard, the concepts of whole and part constitute the psychological and didactic foundation of the concept of fraction. The idea of equality is of particular importance in forming the connection between the concepts of whole and part. If the whole is divided into unequal parts, the resulting parts cannot serve as the basis for forming the concept of fraction. Therefore, when teaching the concept of fraction in primary grades, the teacher should always focus students' attention on the equality of parts. This situation develops students' ideas about fair distribution, equality and quantitative relationships.

In forming the concept of fraction, expressing the relationship between the whole and the part through visual models is methodologically effective. By dividing models in the form of a circle, rectangle, strip and square into equal parts, students begin to understand the geometric meaning of fractions. Through these models, it becomes easier to understand that the denominator of a fraction represents how many equal parts the whole is divided into, and the figure represents how many of these parts are taken. Visual models allow us to understand the abstract meaning of the concept of a fraction through concrete images. The language and speech factor are also important in the process of forming the connection between the concepts of a whole and a part. The conscious use of word combinations such as “half”, “quarter”, “one third” helps students understand the concept of a fraction semantically. Using these terms, students learn to express what proportion a part makes up of the whole. This ensures that the concept of a fraction is inextricably linked with mathematical speech. From a methodological point of view, it is advisable to gradually complicate the connection between the whole and the part when forming the concept of a

fraction. Initially, the whole is divided into two equal parts, and then the concept of a fraction is expanded by dividing it into three, four or more equal parts. This gradation corresponds to the age characteristics of students and serves for consistent and conscious assimilation of knowledge.

In conclusion, when teaching the concept of fractions, it is methodologically important to take into account their connection with measurement activities and life situations. The educational process organized through practical exercises, real-life examples, and situations based on division ensures the conscious, meaningful, and stable formation of the concept of fractions in students. These theoretical conclusions serve as an important basis for developing a methodology for effective teaching of the concept of fractions in primary grades.

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