IMPORTANCE OF METHODS IN TEACHING MATHEMATICS

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Abstract. *In this article, opinions about the use of various methods and didactic methods in teaching mathematics to students of the Faculty of Humanities are discussed, as well as explained with examples.*
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INTRODUCTION.

There is given attention to the fact that in the humanities research is usually conducted a sample study: some objects are randomly selected from the whole set and studied, and then the obtained results are generalized to the whole set of objects. A sample set or sample is a subset of randomly selected objects.

For example, in the study of pedagogical experience, the general research method is used, and in the study of the teacher's work style on specific topics, the selective research method is used, as a result of which the technique used in working on a given topic is recorded. A general set is the sum of all set units that have a certain property and need to be studied. For example, if 100 students out of 1000 school students are selected for the study, then the total sample size is N=1000, and the sample size is n=100.

In addition, we emphasize that the idea of the selection method, replacing the study of homogeneous objects with their general research and avoiding serious mistakes in conclusions, is a very ancient idea. The selection method was used in the study of economic life processes in Ancient Egypt and Ancient Greece, and in Russia in the 17th and 18th centuries. It has been used, for example, to determine the value of whole harvests and threshing yields on a trial basis. We will draw students' attention to the theoretical foundations of the selection method. The theoretical basis is the law of large numbers. We will show the application of the law of large numbers with the following example. During one sociological study, 500 people were first asked a question, and 54.9% of the participants answered the question in the negative. Then 1000 people participated in the survey. Sociologists received a negative answer from 54.2 percent of all participants, then from another 5 thousand people, the result is almost the same - 55.4 percent. Finally, when 30,000 people were asked, 55.5% of those asked answered in the negative. We conclude that you don't need to interview all the people to find out that about 54-56% of all people have a negative opinion on the issue, but it might be enough to interview 500 people. We draw students' attention to the fact that the law of large numbers applies only to mass phenomena where each individual element is a random variable value. This element is not only the result of a general law, but also the result of the influence of many factors independent of this law. Therefore, the selection method based on the law of large numbers cannot be used to study individual objects and events, it can only be used to study general processes based on general observation of facts. Considering the problem of data selection in sampling, we introduce the concepts of repeated and non-repeated samples. The selection is made in two ways: after the object is selected and tests are conducted on it, it can be returned to the general collection or not returned to the general collection. A repeated sample is a sample in which each selected item is returned to the general population after measurement. If a

sample is not returned to a non-repeated population, it is called a repeated sample. A random sample with no repetition is usually used in practice. In order to draw conclusions about the characteristics of the general population from the sample, the sample must be a representative sample, that is, it must fully and adequately represent the characteristics of the population. The representativeness of the sample is shown only when the data is selected with impartiality. In part, research objects should be randomly included in the sample - this is a necessary condition for representativeness. A sample is drawn from the total population only in such a way that each object (component) of this population has an equal probability of being selected, and its inclusion or exclusion as a sample should not be affected by any factor other than chance.

METHODS

It focuses on the following. There are several types of sample research, depending on how the selection of set elements in the sample is carried out:

a) simple random selection;

b) mechanical selection;

c) typical selection;

d) sequential selection.

We describe selected studies belonging to this type. In simple random sampling, the samples for the study are drawn one at a time from the population. The requirement of random selection is achieved in practice using lots, tables of random numbers, numbering. In typical sampling, the sample is divided into typical groups, and then an equal number of samples are selected from each group. In mechanical selection, the total set (or group) is conditionally divided into several groups, and one sample is randomly selected from each group. For example, if we want to select 20% of school students for research, then every fifth student will be selected; if 5% is needed, then every twentieth student is selected. In this case, the mechanism may not ensure the representativeness of the sample. We note the widespread use of mechanical sampling in Russian statistics. Of great importance were the surveys of the State Statisticians, who, in addition to the survey of permanent households of peasant farms, also surveyed a certain part of mechanically selected farms under the extended program.

If the set is sorted into a sequence, such selection is called sequential selection. This is used when the attribute being checked from the selection type varies in different sequences.

RESULTS

For example, in the past, annual sample surveys of farms were carried out using a sequential sampling method. Historian also needs to know how to select a sample in this way, because he may encounter such survey results in his work.

In practice, the combined selection method is often used, in which its various methods are combined. If our sample is randomly formed, the situation becomes more complicated. Often, the researcher faces such choices when analyzing texts and studying historical documents.

For example, in some cases, the historian views the statistics that have been preserved from the past as a ready-made sample. Here the researcher needs to know that a randomly formed sample is a random sample. If the process of collecting and storing the data presented to the historian is carried out in a pre-planned manner with bias, then the principle of randomness is violated, and therefore the selection method cannot be representative and does not give completely reliable results. For example, if a historian studying the conditions of the peasantry discovers information about household incense burners, some of which survive only because they were written in

resistant ink, the usable portion of the descriptions can be seen as a random selection. If those descriptions were made only in the years when there was a lot of harvest or when there was no harvest, then the preserved data cannot be considered a random sample, because the complete (complete) preservation of the sources depends on the characteristic studied by the historian, that is, the condition of the peasants depends on whether or not there is a harvest. The reliability and representativeness of the stored data are evaluated in several stages. First, the historian must assess the randomness (in the mathematical sense) of the data at his disposal, because this is what ensures their representativeness.

The surviving data can be considered a representative sample if they describe different characteristics of the general population; if the sample data belongs to the same part, then it belongs to the general set.

CONCLUSION

And finally, if during their collection and storage it is not planned to save some and destroy others, it belongs to the general collection. It should be noted that the randomness of the stored data is the main condition for their representativeness. In order to assess whether a historical sample is random or not, it is necessary to determine the origin of the data, how it was collected, stored, etc. If the origin and storage of data are not planned in advance, special methods can be used to assess the randomness of the sample. It is desirable that students also demonstrate the characteristics of psychological research. It should be remembered that there are a number of factors that affect the variability of the measured value in a psychological experiment.

We will show these factors:

1. Random technical fluctuations (equipment, measuring equipment).
2. Changing the external environment.
3. Random internal vibrations.
4. Age differences.
5. Gender differences.
6. Typological differences.
7. Individual, including differences in characteristics of the participant.

In any research, we emphasize that primary data can be obtained through direct observation, working with documents and conducting questionnaires. A distinctive feature of mathematics in the analysis of various processes is the presence of graphics, diagrams and similar qualitative features. Let's look at graphical methods of data presentation. Statistical data can be presented in the form of graphs if the goal is to emphasize some feature of the data, to compare them. Graphical comparisons can complement statistical tables, but are often used on their own. The graphic method is the most effective form of data perception. With the help of graphs, it is possible to see the relationship of events, to compare them. Statistical graphs are conventional representations of numerical values and their ratios in the form of lines, geometric shapes, drawings. Graphical comparisons can complement statistical tables, but are often used independently. The graphic method is the most effective form of data perception. With the help of graphs, the interaction of events is shown and compared visually. Statistical graphs are conditional representations of numerical values and their representation in the form of lines, geometric shapes and drawings.

The graphic method makes it easier to look at statistical data, makes them expressive, visual and memorable. The graph shows the limits of change of the numerical value, the relative rate of

change of different data. The use of diagrams helps students to learn the studied laws quickly and clearly, because the mathematical significance of diagrams serves to visually represent the compared values.

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