Questionnaire analysis related to the lesson "GLASSES AS A SIMPLE OPTICAL INSTRUMENT or from what it started ...

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The questionnaire study was conducted in two classes: the mathematics and computer profile, which carried out a lesson in "traditional way", ie. without the historical elements and biological - chemical class, in which the lesson was carried out within the HIPST programme.

Analyzing the survey I focused on student responses, which significantly differed in the class profiles and on the responses that were incomprehensible to me, or surprising. Complement to the survey there was a free conversation with the students, whose aim was to obtain additional information on specific questions of the survey.

I. Most of students disagreed with the statement that "*most of the questions in science has only one answer*" stating - no, rather not. From the words spoken students we can assume, that this question has been understood in the context of the history of science. Often the views of researchers on the fundamental issues of science underwent radical change, therefore, probably, the surprising answers on this question. In both classes, the results of the survey were very close, so the final results have been included in one common diagram.

II. A large part of the students agreed with the statement *"if anything you read in a scientific book, it is certainly true."*

In addition, students were asked to explain the confidence in the information contained in these books. Major role, according to students, plays here the name of author of the book and additional information such as on the cover of a book proving the reliability of the information presented in the book.

Similar as in the previous section responses in both classes were presented on a common diagram.





III. The following diagrams present the answers to the same question given by the students of two different classes. The first is a biological-chemical class, the second - mathematics and informatics class.



biological-chemical class

mathematics and informatics class

IV. Most of the students participating in the survey agreed with the statement that "we are all responsible for a way how research results are used in everyday life." Participation in a way how research results are used in everyday life is understood by students as their use of technical "novelties", so often what is currently launches fashion.



V. The following diagrams present the answers to the same two questions in a class of chemical and biological profile and mathematics and informatics profile.

Answers to the first question provide information about the preferred ways of learning in classes with different profiles: in biological – chemical class the best way of learning by students is to discuss and analyze the problems together with the teacher, while in mathematics – informatics class other ways of learning are preferred.



biological-chemical class

mathematics and informatics class

Answers on the second question suggest that learning in a group with their peers has a large number of followers and it doesn't depends on the type of class.



biological-chemical class

mathematics and informatics class

Additional remarks

In order to increase the readability of the results of the survey responses were grouped into three classes:

- a) yes, rather yes,
- b) I do not know,

c) no, definitely not.

Five-step scale is rather difficult to interpret.

In a questionnaire there is no explicit reference to the historical and philosophical elements and attempts to sound out opinion on their advisability in the classroom. in my opinion is difficult. This type of study should preferably be made after the series of classes conducted in an innovative way. One lesson is not enough to cause significant changes in the awareness of students. This analysis can be treated as a first attempt to study opinions of students on topics having a scientific nature.