

How does the use of one's own notes during tests affect students' performance in physics?

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Abstract. As part of the STAMPED project, an educational survey was conducted using the Practitioner Inquiry (PI) strategy. Attempts were made to answer the research question during the implementation of two sections: Mechanical vibrations and waves and Electrostatics in classes of 14-year-olds. To sum up each section, the students wrote tests to check their knowledge - once using their own notes, and once without them. The average results of the students were compared with each other. When conducting the evaluation survey, the focus was on obtaining information regarding students' opinions on the forms and methods of conducting tests.

Introduction

As part of the STAMPED project, from October 2022 to March 2023 at Primary School No. 62 im. kmdra. por. F. Dąbrowskiego in Krakow, an educational study was carried out in the Practitioner Inquiry (PI) strategy, during which attempts were made to answer the research question: How does the use of one's own notes during tests affect students' performance in physics?

Method and Research

The study was conducted in three 8th-grade classes (14-year-olds) during the implementation of two sections: Mechanical vibrations and waves and Electrostatics. At the end of each chapter, students wrote a test to test their knowledge. For the test on vibrations and mechanical waves, students could write using their handwritten notes. Students were informed about the possibility of using notes during the first lesson on this topic. Due to this fact, they could make substantively correct and accurate notes according to their idea.

The second electrostatics test was written twice - the first time without using notes, and the second time the students received a similar test with slight modifications. On the second attempt, which took place in another lesson in the same week, they could take out their notebooks with the notes they had made during the lesson. The students were not informed about the possibility of using the notes during this check, so the notes were made with varying degrees of care.

During the educational research, the research tools used were:

- a test:
 - test on the topic Vibrations and mechanical waves with notes (students informed a priori).
 - test on the topic Electrostatics 1 without notes.
 - test on the topic Electrostatics 2 with notes (students not informed a priori).
- an evaluation questionnaire,
- observations,
- lesson notes.

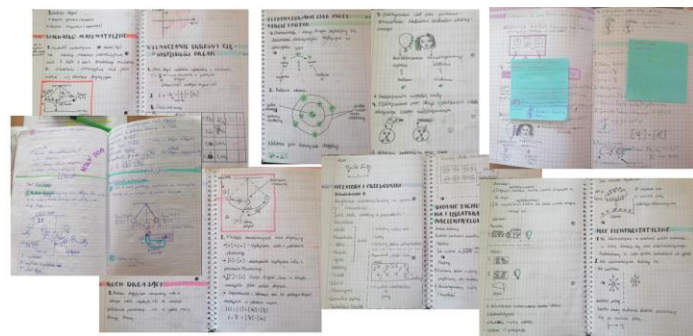


Fig 1. Student's notes - Mechanical vibrations and waves & Electrostatics

The average results of students in tests conducted at the end of the departments were compared with each other. Attention was paid to the impact of the use of notes on the results obtained, and an analysis was performed on individual students. When conducting the evaluation survey, the focus was on obtaining information on the students' opinions on the forms and methods of conducting tests.

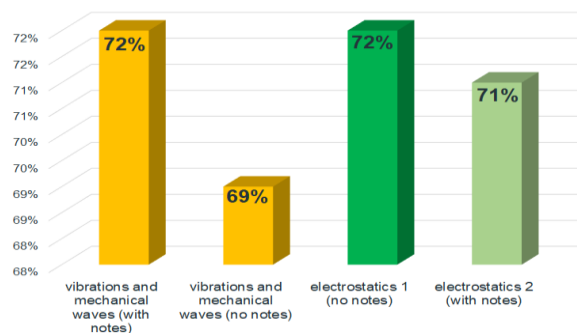


Fig 2. The average of students' test grades

Analysis and Conclusions

The comparison and analysis of the results obtained by students allowed us to draw the following conclusion:

- The use of notes does not have a significant impact on the average class results, but for individuals (individual students) it is of great importance.

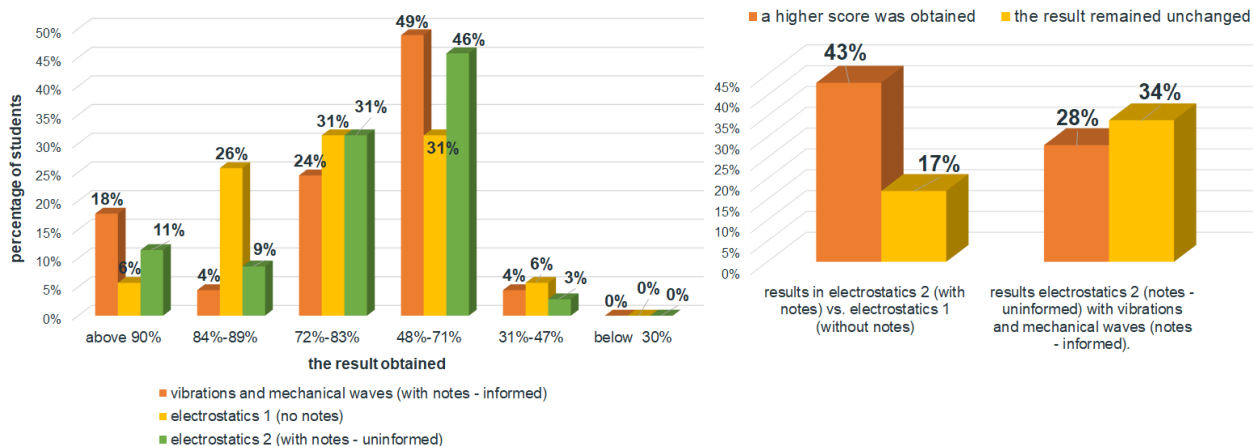


Fig 3. Test results - the percentage of students who obtained a given result in the indicated ranges. Comparison of tests – analysis of the results of individual students in terms of the results obtained

The analysis of the survey conducted among students allowed us to draw the following conclusions:

- Most students admit that using their own notes helped them when writing tests.
- Students emphasize how important it is that these are their notes, which they will analyze and supplement with their observations during the study.
- The respondents also pointed out that even if they do not use the notes, the mere awareness of the possibility of using them calms them down and allows them to focus on tasks.

References

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