Exam in primary school in a form of practical open tasks

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Abstract. Noticing disadvantages of written individual exams we have conducted research by developing practical test with group work. We wanted to determine whether it is possible to make that kind of test in class and evaluate pupils independently. Moreover we have examined other advantages of that form of test such as opportunity to learn during exam and higher engagement. Our test counted only sixteen pupils, but it is scalable to larger classes. To conclude group practical tests are harder to conduct, but by observing work of children it is possible to evaluate them instead of checking written exams at home.

Introduction

In my work as a physics teacher in Montessori primary school I am trying to make learning this not easy subject both likeable and effective. For this purpose I have developed some alternative learning techniques and methods. One of those researches was focused on exams. Students find written tests as one of the main sources of stress in school [1], but they are crucial for evaluating learning progress so they cannot be avoided. Children also find them boring and pointless. Therefore my idea was to make exams practical and useful.

Method

One of the most frequent objection regarding physics exercises we have faced is that they are unpractical and learning them will not be useful in students' further life. To meet the expectations, the aim of this project was to create practical tasks that will be able not only to check whether students have mastered the material or not, but also can develop useful skills such as cooperation in team work or managing with complex problems.

Results

The test we have prepared was for eighth grade at the end of electrostatics and current chapter. It consisted of four open and practical tasks that were solved in groups of four pupils within forty-five minutes lesson. Team members were randomly selected. The problems were designed to cover as many topics as possible. For example one of the tasks was to connect two different lightbulbs designed for lower and higher voltage once series, once parallel and explain why one of them glows brighter. On average, student managed to solve three out of four tasks. Importantly they were significantly more engaged to do the exercises and simply had fun during the exam. In each group students also teach themselves so they have another opportunity to learn. Basing on Dale's cone [2] having real experience and teaching others have the greatest impact on learning. To fulfil evaluation aspect of test, grades were issued on the basis of observation of work and workbooks.

Conclusions

Within this educational experiment, basing on collected evidences, we conclude that it is possible to do practical exams in groups in the frame of physics lessons. That form of test has variety of advantages from giving students opportunity to learn themselves by teaching others to lower level of stress reported by pupils after test. We highly recommend this kind of exam and we hope that will be widely used in other schools.

References

[1] D. W. Putwain, Assessment and examination stress in Key Stage 4, *British Educational Research Journal* **35**(3) (2009) 391–411. https://doi.org/10.1080/01411920802044404

[2] E. Dale, *Audio-visual methods in teaching*, New York: The Dryden Press, 1946.