Šárka GERGELITSOVÁ, Tomáš HOLAN
Charles University in Prague Faculty of Mathematics and Physics
Malostranské nám. 25, 118 00 Praha 1, Czech Republic
phone/fax: +420 221 914 241 e-mail: Tomas.Holan@mff.cuni.cz
+420 221 914 281

WHAT CAN TEACHERS LEARN FROM THEIR STUDENTS' HOMEWORK

Keywords: *automated learning systems, time requirements, success rate, data evaluation*

Homework as a didactic tool is primarily useful for students because it makes them practice the knowledge acquired, but it can provide teachers with some pieces of information and feedback, too.

In case the homework is processed and evaluated electronically, even more data can be gathered and it can give the teacher even more information.

Solving problems in automated systems usually brings the possibility of gaining the data attached to the solution process itself, which−when evaluated −brings information about this process.

Such features give teachers valuable information about students' understanding the lecture topic, provide them with feedback information about laboriousness of the homework/test and its most time-consuming problems and tasks. They facilitate differentiation between the various causes of failure of individual students, help to reveal the critical moments and the most difficult ideas of the task (for students) and thus enable teachers to arrive at conclusions which can help to form the next steps in the education process.

The isolated observation − the data itself − usually does not bring an explanation of the observed phenomena. But when presented in the context of further data sets, can it provide us with valuable information.

For instance, if a teacher evaluates the success of a student in solving of particular task, she/he does not know to what extend the result is influenced by difficulty of the task or by the student's ability and effort. However, seeing how the task has been solved by other students (time requirements, the success rate...) one can arrive at conclusions regarding the ability of the student.

Combining different perspectives of the data thus allows the teacher to obtain a multidimentional image of the situation.

In this paper we present a wide range of information obtained from the data stored in the system during the process of students' solving of problems. Because the system is designed for solving geometric problems and tasks, we also present some insights into pertaining to solving basic problems of descriptive geometry.