

[Research Programme for Public Education Development of the Hungarian Academy of Sciences](#)
[MTA-ELTE Research Group on Inquiry-Based Chemistry Education](#)
[Inquiry-Based Chemistry Education and Systems Thinking project](#)

This longitudinal research project is investigating the effectiveness of the development of experimental design skills by using a scheme that consists of questions concerning the control of variables, choice of materials and equipment and the order of the steps of the experiment. 931 Grade 7 students from 25 Hungarian schools were involved in September 2021. [Members of the research group and schools participating in the project](#) can be downloaded from the [website of the research group](#). The students' 4-year compulsory chemistry education is influenced by six student worksheets in each school year, provided by the research group. These also contain context-based and systems thinking tasks to maintain the students' interest.

The impact of the intervention in terms of experimental design skills (EDS) and disciplinary content knowledge (DCK) is measured by structured tests in the beginning of the project ('T0') and in the end of each school year ('T1' – 'T4'). Background data and answers to attitude questions are also collected. All data are statistically analysed by using the SPSS Statistics software (ANOVA and ANCOVA) to calculate Cohen's *d* and *Partial Eta Squared* (PES) effect size values.

Photographs taken about the students doing the experiments are grouped according to the numbered student sheets and are available on the following website: [Természettudományos Oktatásmódszertani Centrum \(elte.hu\)](#)