

Report on administering the ROSE survey in Estonia

Researchers and support

The following researchers from the Department of Science Education, University of Tartu, organized the ROSE survey:

- Miia Rannikmäe, PhD (senior researcher)
- Moonika Teppo, MSc student (manager of the ROSE project)
- Anne Laius, MSc (PhD student)

The ROSE survey was supported by the Estonian Science Foundation.

Translation of the ROSE questionnaire

- 1) The first translated version into Estonia was made by Moonika Teppo.
- 2) Other researchers read the translation, compared this with the original questionnaire and improved the wording.
- 3) Miia Rannikmäe and Moonika Teppo made the second version based on comments and suggestions by the researchers.
- 4) The second version of the questionnaire was piloted with 32 9th grade students.
- 5) The final version of the ROSE questionnaire was modified by Moonika Teppo and Miia Rannikmäe based on comments by students.

The Estonian version of the ROSE questionnaire had the same layout (A4 format, page breaks) and font (Arial) as in the original English form. It was not possible to simply replace all the English text by Estonian because this would have led to misunderstandings. Therefore some questions were slightly modified so as to retain the meaning of the questions.

National variables

No national items or new questions were added to the ROSE questionnaire. However a further survey was carried out related to control the context of science lessons using teaching scenarios. The study involving the scenarios was carried out on another day.

Sampling and data collection

The ROSE target population was Estonian 9th grade students (age 15-16). The 9th grade is the last grade of Estonian compulsory school. At the beginning of 2002/2003 school year there were 20 500 9th grade students with schools in 15 counties. We randomly selected two Estonian-speaking schools (altogether 525) from each county (from the schools database). Altogether we sent the ROSE questionnaires to 30 schools. By the end of the school year (May 2003) we received back 671 completed questionnaires from 25 schools. Estonian sample is thus formed from 671 (344 girls and 327 boys) 9th grade students – this is approximately 3,3 % of all nine grade students with an 83% response rate.

Students and teachers experiences with the ROSE questionnaire

Science teachers were very pleased to know about Estonian students' interests, experiences and attitudes towards science. Most of the teachers agreed to take part in the survey but most of all they are interested in the ROSE outcomes especially about the comparison with other countries.

Estonian students and teachers indicated the following negative experiences with the ROSE survey:

- The ROSE questionnaire was too long to answer. Student got tired and didn't fill correctly the questions towards the end of the questionnaire.
- Chemistry teachers indicated that there were fewer questions in chemistry compared to physics or biology.
- There were several "old-fashion" questions which Estonian students considered historical and thus not relevant.

The Estonian ROSE outcomes have been presented at several teachers meetings. Science teachers were very pleased to know about Estonian students' interests, experiences and attitudes towards science. Moonika Teppo presented the ROSE outcomes to during a chemistry teacher's conference in January 2004 and also to students on preservice courses for future science teachers.

An overview of Estonian Education System

Basic education (from grade 1 to 9) is the minimum general education that is obligatory for everybody. Children who attain 7 years of age by 1 October of the current year are obliged to attend school. It is compulsory for students to attend school until they complete basic education or attain 17 years of age.

Secondary education (from grade 10 to 12) builds on basic education and it is divided into general secondary education and secondary vocational education. Acquisition of general secondary education gives the right to continue studies at the higher education level.

In the academic year 2002/2003, 636 general education schools offered daytime study of which

- 65 were nurseries-primary schools
- 52 were primary schools
- 279 were basic schools (grade 1 to 9) and
- 240 were secondary and upper secondary schools (grade 1 to 12).

Of these schools, 525 are Estonian-speaking, 89 are Russian-speaking, 21 are both Estonian- and Russian-speaking and 1 is Estonian- and Finnish-speaking. 572 schools are municipal, 32 are state and 32 are private. The number of schools for children with special needs is 45.

The total number of students studying at the basic school level in general education schools in the academic year 2002/2003 was 165,486 (82,55% of the number of students studying in the form of daytime study), of whom

- 125,704 students studied in Estonian-speaking schools/classes
- 39,774 in Russian-speaking schools/classes
- 8 students in Finnish-speaking classes

3,811 students from the total of 165,486 studied in private schools (1,9 % of students of general education in daytime study and 12 students studied in the evening or through distance learning).

Science teaching in Estonian schools

From grade 8, Estonian students begin to learn different science subjects (biology, chemistry, physics and geography) separately. This means students have different teachers for each science subject, but some teachers teach more than one science subject, especially in small countryside basic schools.