

Report on organizing the ROSE survey in Czech Republic

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1. ROSE team

- name of contact person
- name of coworkers
- occupation
- name of institution

The Czech ROSE team consists of Assoc. Prof. Martin Bílek, Ph.D., Ph.D. student Olga Řádková and administration worker Jitka Čergetová, all from University of Hradec Králové. Data were collected by partners (colleagues from universities and schools in all 13 regions of Czech Republic). Data collection guaranteed in 13 regions of Czech republic next contact persons: Martin Bílek (Královéhradecký and Pardubický), Hana Čtrnáctová (Středočeský and Praha), Bořivoj Jodas (Liberecký), Marta Klečková (Olomoucký), Petr Koloros (Jihočeský), Jiří Škoda (Ústecký), Irena Plucková (Jihomoravský), Jitka Šedivá (Vysočina), Vladimír Sirotek (Plzeňský), Marie Solárová (Moravsko-slezský), Pavel Groh (Zlínský), Miroslav Svoboda (Karlovarský).

2. School system and science teaching

- (short!)
- number of years with compulsory school
- schools with grouping of pupils according to ability, gender, language, region, religion, special needs, etc.
- how science teaching is arranged at various grades (e.g. one common science subject or different subjects like physics, chemistry, biology, etc.)

The Czech school system has nine years of compulsory education. Children start at school at the age of 6, and are 15 when they leave. Compulsory school is divided into two steps: primary school with grade 1 to 5 and lower secondary school with grade 6 to 9. The school is free and compulsory.

At present are accepted three variants of primary and lower secondary curriculum (for children of 6 – 15 years old) – "Základní škola", "Obecná a občanská škola" and "Národní škola". Parts of primary science education are presented in tables 1 – 3.

Table 1. Science in Subjects – Primary School Curriculum "Základní škola" (used at about 95% schools)

Grade	Subjects (classes weekly)
1.	Primary Science (2)
2.	Primary Science (2)
3.	Primary Science (3)
4.	Natural Science –Homeland Study (3)
5.	Natural Science – Homeland Study (4)
6.	Physics –Biology – Geography (*)
7.	Physics – Biology – Geography (*)
8.	Physics – Chemistry – Biology – Geography (*)
9.	Physics – Chemistry – Biology – Geography (*)

(*) At grades 6. – 9. altogether: Phy 6, Che 4, Bio 6, Geo 6

Table 2. Science in Subjects – Primary School Curriculum “Obecná a občanská škola”

Grade	Subjects (% of week appropriation)
1.	Primary Sciences (9-13)
2.	Primary Sciences (9-13)
3.	Primary Sciences (16-20)
4.	Natural Science – Homeland Study (15-19)
5.	Natural Science – Homeland Study (14-18)
6.	Physics (1)–Biology (2)–Geography (1)*
7.	Physics (1) – Biology (1) – Geography (2) *
8.	Physics (2) – Chemistry (1) – Biology (1) – Geography (1) *
9.	Physics (1) – Chemistry (2) – Biology (1) – Geography (1) *

* classes weekly

Table 3. Science in Subjects – Primary School Curriculum “Národní škola”

Grade	Subjects (classes weekly)
1.	Primary Science (2)
2.	Primary Science (2)
3.	Primary Science (3)
4.	Natural Science (2)–Homeland Study (1)
5.	Natural Science (2) – Homeland Study (2)
6.	The Cognition of Nature (Phy-Bio) (3) –Geography and History (3)
7.	The Cognition of Nature (Phy-Bio)(4)–Geography, History (3)
8.	The Cognition of Nature (Phy-Bio-Che)*- Geography and History **
9.	The Cognition of Nature (Phy-Bio- Che) * - Geography and History **

* 4 classes in 8. - 9., ** 2 classes in 8. - 9. + facultative subjects

New situation in the Czech Republic (new curricular reform) is characterized by preparation of so-called "two-level curriculum", which includes the "general curriculum" developed by Pedagogical Research Institute of Czech Ministry of Education and "school curriculum" constructed by a school. The "general curriculum" – in this example "Core Curriculum for Primary and Lower Secondary Education (RVP ZV – Rámcový Vzdělávací Program pro Základní Vzdělávání)" – does not mention learning subjects but learning areas. Team of scientists, educationists and teachers organized by Pedagogical Research Institute has defined nine basic areas:

- Language and Communication,
- Mathematics and its Application,
- Information and Communication Technology,
- Man and His World,
- Man and Society,
- **Man and Nature,**
- Arts and Culture,
- Man and Health,
- Man and World of Work.

For specific goals so-called "cross-curricular topics" were prepared: Education to Democratic Civics, Education to Personality and Social Adaptation, **Environmental Education**, Medial Education, Education to Thinking on European and Global Connection and Multicultural Education.

The learning area "**Man and Nature**" is characterized by the following aspects that possibly introduce ecological and environmental approaches:

- Subject matter of physics, chemistry, biology and geography,
- 22 classes weekly (minimum for 6th – 9th Grades),
- Possibilities for integration, for traditional or new subjects,

- School curriculum as a school product by RVP ZV or modification of so called pattern curriculum,
- The beginning at 1. 9. 2007 as a maximum (now there is time for preparation of school curricula - New School Law).

3. Translation

- description of the process
- at what time the translation was done
- any particular difficulties?

In the Czech Republic the cooperation on the ROSE project started in July 2004 at the World Symposium IOSTE in Lublin, Poland. During the autumn the Czech version of questionnaire was prepared by Martin Bílek in co-operation with Slovak colleague Soňa Bendíková, M. A. (Ph.D. student at Comenius University in Bratislava). Revision of Czech version of ROSE questionnaire was provided by team of Department of Teaching Chemistry Faculty of Natural Sciences Charles University in Prague led by Prof. Hana Čtrnáctová, Ph.D.

4. National questions

- additional questions for background of the home (parents education or occupation, etc.)
- additional survey questions

In first page of questionnaire were added four national items:

- VAR1** - **the region of Czech republic** - values: 1 = Královéhradecký (H); 2 = Středočeský and Praha (S); 3 = Jihočeský (C); 4 = Plzeňský (P); 5 = Karlovarský (K); 6 = Ústecký (U); 7 = Liberecký (L); 8 = Pardubický (E); 9 = Moravsko-slezský (T); 10 = Olomoucký (M); 11 = Zlínský (Z); 12 = Jihomoravský (B), 13 = Vysočina (J),
- VAR2** - **kind of school** - values: 1 = Základní škola (Z, like „Hauptschule“ or „Realschule“ in Germany); 2 = Gymnázium (G, like „Gymnasium“ in Germany, selected pupils),
- VAR3** - **size of locality with school** - values: 1 = to 10 000 inhabitants; 2 = from 10 000 to 50 000 inhabitants; 3 = over 50 000 inhabitants,
- VAR4** - **size of locality with residence of respondent** - values: 1 = I live in village; 2 = I live in town to 10 000 inhabitants; 3 = I live in town over 10 000 inhabitants; 9 = without respond.

5. Piloting

- pilot testing of the questionnaire, if any
- experiences, feedback and results

Pilot testing was not provided in the Czech Republic.

6. Official permission

- permission needed from authorities
- restrictions and difficulties, if any

General official permission was not necessary in the Czech Republic. In each school the director was asked about permission for realization of survey. No problems were detected with permission at schools.

7. Population

- demarcation of the target population (the population to be represented)
- accessible population

The ROSE target population in the Czech Republic was the cohort of 12 – 17 years old Czech pupils living in our country in 2004 – 2005 (directions were: pupils in 9th grade of basic school or 4th grade of lower grammar school; mostly pupils in age 14 – 15 years). As ROSE samples school classes and not individual pupils, the target population was more precisely defined as the pupils at the grade level where most 14-year (43,44%) and 15-year (51,02%) old pupils were likely to go. This means the grade level with most pupils born in 1990, which corresponds to grade 9 in lower secondary school. Average age of respondents was 14,56 years.

8. Sample and participation

- how the sample was drawn, random sampling?
- response rate, percentage of positive responses
- how good does the sample represent the target population?
- possible weaknesses connected to the sample

The questionnaires were assigned in the 9th year of a basic school and 4th year ("quarta") of an eight-year grammar school in each region in municipalities under 10,000 inhabitants, in a basic school and a grammar school in municipalities from 10,000 to 50,000 inhabitants and in a basic school and grammar school in municipalities over 50,000 inhabitants. The number of pupils in each class was 25 as a minimum. Figure displays numbers of respondents from each region. Total number was 2005 respondents: 1097 girls and 908 boys, 1024 basic school pupils and 981 grammar school students, 631 pupils/students were from municipalities under 10,000 inhabitants, 606 pupils/students were from municipalities from 10,000 to 50,000 inhabitants and 768 pupils/students were from municipalities over 50,000 inhabitants.

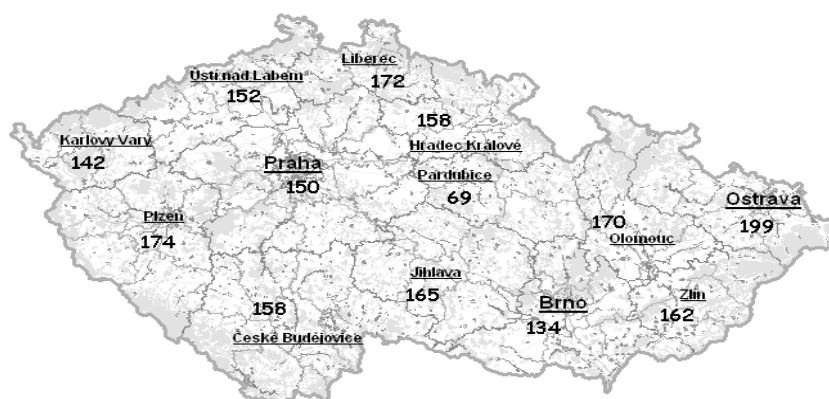


Figure Number of Respondents in Regions of the Czech Republic

Data were sampled by co-workers in all regions (they selected 3 basic schools and 3 lower grammar schools by large of place) and coded by administration worker Jitka Čergetová on MS Excel worksheet prepared by organizers of ROSE.

9. Data collection in schools

- how the contact with schools was established
- how the questionnaire was duplicated
- how the questionnaire was distributed
- persons involved in conducting the survey at schools
- what instructions the persons got
- practical problems, if any
- at what time the data was collected

The class sets of questionnaires were sent to the coordinators in regions and by them next in the schools.

With the questionnaires we attached a letter with some instructions and descriptions of practicalities for conducting the survey: ca. 40 minutes would be sufficient for most pupils, the school could preferably carry out the survey in a science lesson, the questionnaires should be kept unnamed and anonymous, etc.

10. Feedback and experiences

- reactions from the pupils, if any
- reactions from the persons who collected the data
- ROSE team's general feeling of how well the survey was conducted

To each participating school we sent a written acknowledgement for recognition of their work and their help.

After data collecting we organized workshop with co-workers from regions during the 15th Conference about Chemistry Education (September 2005 in Hradec Králové). At the workshop were presented results and international comparison (by published articles and presentation of S. Sjoeborg and C. Schreiner at ROSE-Web).

11. Coding (also of the open-ended I question)

- how the coding was done
- who coded the questionnaire
- problems with the coding, if any
- how flippant or incomplete responses were handled
- proofreading and checking of the coding, if any
- at what time the coded file was finalized

All the Czech responses were coded by Jitka Čergetová. She coded directly into the MS Excel empty data file that was distributed to all participants and according to the guidelines in the "ROSE Handbook".

In some questionnaires the respondents had obviously not taken the task seriously, e.g. by making symmetric patterns in the response categories. Such questionnaires were excluded. In cases where only minor parts of the questionnaire were not satisfactorily filled in, the variables were coded with 9 (missing). Otherwise the whole questionnaire was excluded from the MS Excel file.

At the end of March 2005 the coding was completed.

In the end of March the Czech MS Excel file was finalized - with 2005 respondents evenly distributed on

- 1097 girls
- 908 boys
- 13 12-year-olds (0.65 %)
- 25 13-year olds (1.25 %)

- 871 14-year olds (43.44 %)
- 1023 15-year olds (51.02 %)
- 72 16-year-olds (3.59 %)
- 1 17-year olds (0.05 %)

The coding of the open-ended questions were done later, and in a separate file, based on the file provided by ROSE on the home page.

Next ROSE survey was started in December 2005 as "Prague perspective" – about 500 questionnaires are providing in different parts of Czech capitol (lead Prof. Hana Čtrnáctová, Charles University in Prague).

12. Acknowledgment

The survey in the Czech Republic was provided with the financial support of Prof. Svein Sjøberg and the financial and organizing support of Pedagogical Faculty University of Hradec Králové. Many thanks!

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