

Report on organizing the ROSE survey in Spain

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1. ROSE team

- name of contact person Ángel Vázquez-Alonso
- name of coworkers A research team of colleagues and a long list of collaborator teachers in schools
- occupation Inspector of Education
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2. School system and science teaching

- The Spanish school system has ten years of compulsory education. Children start at school at the age of 6, and are 16 when they leave. Compulsory school is divided into two steps: primary school with grade 1 to 6 and secondary school with grade 7 to 10. The school is free and compulsory. The 3-year-old children can start at school freely, and compulsory at 6. In fact, almost all the population attends school between 3 and 6. The students can stay 10 courses in compulsory education until their ordinary graduation (16), or until they are 18 year-old, in case of learning difficulties, and course repetition.
- The compulsory education is comprehensive for everybody: all pupils learn the same curriculum until the end of stage (16); in the last course the students can choose some subjects (Science is one of them). In Spain there is no streaming or grouping of pupils according to ability, gender, language, region, religion, special needs, etc. Instead it is actively promoted the mixture of students in all the schools and all the groups within a school. For instance, special need pupils are integrated in ordinary public or private schools, and attend the same classes and schools as non handicapped peers, but they receive special attention depending on their needs. The Spanish school system has to different networks, public (2/3) and concerted (private, mainly Catholic schools) schools; both are funded and ruled publicly, and 98% of students attend these two kinds of public schools, which are free for students. There is also a few private schools, where the students must pay the schooling.
- Science is integrated in a wider subject called Social and Natural Environment in Primary Stage (6-12). Science is a specific subject in Compulsory Secondary Education, but its curriculum content varies across years: the content of the first two courses deals mainly about biology and Earth science; third year content is a mixture of physics and chemistry. The last year of compulsory Secondary education students can choose between two different science subjects, called Physics and Chemistry or Biology and Geology. Information about the Spanish school system is available from <http://www.mecd.es/> or Balearic school system from <http://www.weib.caib.es/>
- There are a few special schools for children with very weak abilities (autistic, sound disabilities, ...). Nowadays in Spain the main significant minority group is lots of immigrant children coming mainly from Africa, South-America and EAST Europe. This a significant problem in the Balearic Islands, where the foreign people is about 20% of the population, and an increasing mean flow that amounts over 2,000 new children per year. So our classes are really crowded and mixed.

3. Translation

- description of the process. The organizer and the team of colleagues developed the translation into Spanish, piloting and revisions of the ROSE instrument in October 2002 from the English version of the ROSE. The criterion in translating it was to keep the reliability to the original English version, and the wording simple and clear.
- at what time the translation was done. The Educational Local Authority gave the team a small grant to apply the instrument, which started in September 2003, and must end by June 2004; so we were in a hurry to start the application, and in fact the Spanish translated instrument was the previous to the last one. The differences are minimal and all of them have been taken into account on the final data Excel sheet to fit exactly the demanded content.
- any particular difficulties? The Educational Local Authority imposed a time limitation to access the classroom to test the students that impede us to apply in a single session the entire questionnaire. This decision meant to reduce the instrument to fit them into the allowable time to test the students. The Spain instrument applied lacks C and D parts.

4. National questions

- additional questions for background of the home (parents education or occupation, etc.) A new question requesting the students for their choice of science subject (Yes / not) the year of application.
- additional survey questions. Any.

5. Piloting

- pilot testing of the questionnaire, if any. The organizer piloted a group and interviewed the group about timing, reading, comprehension, difficulties, and so on. The main conclusion from piloting was that the period time of a lesson was insufficient for many pupils to complete the whole questionnaire. Any other special hindrance was detected.
- experiences, feedback and results. A close control of joking, flippant, foreign, or special needs students was protocolled to proceed. Usually these questionnaires were eliminated from valid responses.

6. Official permission

- permission needed from authorities. The Educational Local Authority gave the team a small grant to apply the instrument, which started in September 2003, and must end by June 2004.
- restrictions and difficulties, if any. The Educational Local Authority imposed a time limitation to access the classroom to test the students that impede us to apply in a single session the entire questionnaire. This decision meant to reduce the instrument to fit them into the allowable time to test the students. The Spain instrument applied lacks C and D parts.

7. Population

- demarcation of the target population (the population to be represented) As ROSE samples school classes and not individual pupils, the target population is the pupils at the grade level where most 15-year old pupils were likely to go.

- accessible population. This means the grade level with most pupils born in 1987, which corresponds to grade 10 in secondary school (the 4th course in Secondary Stage).

8. Sample and participation

- how the sample was drawn, random sampling? A number of schools were selected randomly to fit the required final number of students. Any of the schools had problems for their reduced number of students or any other inconvenient.
- response rate, percentage of positive responses. The schools were contacted personally by the members of the research team. There were no negative responses, but some cases needed to fit the test day adequately.
- how good does the sample represent the target population? The sample represents the population of the selected age cohort (15 year-old).
- possible weaknesses connected to the sample. As was told above we prevent the inclusion in the data some children who do not understand Spanish correctly (special needs, immigrant children, joking students, etc.) eliminating their questionnaires "a posteriori", according to the advice of the teacher. So there may be some weakness in our sample due to these issues, like missing some respondents and immigrants, but our overall impression is that the quality of the sample is high. We believe that we can regard the sample being representative for the Balearic target population.

9. Data collection in schools

- how the contact with schools was established. At each school, the members of the team contacted directly the collaborators teachers who could apply the questionnaires.
- how the questionnaire was duplicated. The organizer made the copies of the questionnaire maintaining the same format of the original.
- how the questionnaire was distributed. The members of the team delivered the questionnaires to the collaborator teacher in each school.
- persons involved in conducting the survey at schools. One collaborator teacher in each school contacted by a team member.
- what instructions the persons got. The collaborators were given the printed questionnaires and some instructions to apply them: selecting the specific class, maintaining the questionnaires unnamed and anonymous, controlling correct answering, etc..
- practical problems, if any
- at what time the data was collected During November and December 2002 the majority of schools had conducted the survey. The remaining schools were urged to apply the questionnaires and within the end of February 2003 we had completed the sample.

10. Feedback and experiences

- reactions from the pupils, if any some pupils were curious about the aim of the research and displayed feelings of proud to share the work with so many youth around the world.
- reactions from the persons who collected the data. Any special reaction, but some comments about feeling worth to participate in this kind of studies.

- ROSE team's general feeling of how well the survey was conducted. Everything was OK.

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

- how the coding was done All the Spanish responses were coded by the organizer according to the guidelines in the "ROSE Handbook".
- who coded the questionnaire A student of the organizer, confident with data typing.
- problems with the coding, if any --
- how flippant or incomplete responses were handled Just a few flippant responses; the majority have been identified within the classroom by the collaborator, who knew deeply their students. The main problem was the questions with two responses; each response was revised, and the decision was made about rejecting both or accepting one, according with the clues on the questionnaire. The incomplete questionnaires were incompletely coded, if they were not excluded by the collaborator.
- proofreading and checking of the coding, if any Some of the background variables (science – non science) were empty and coded as missing, and the same applies to responses in some singular items. The data were checked randomly in search for typing errors in the data (2 mistakes were found); they were also checked for not having responses out of range.
- at what time the coded file was finalized February 2003

In the end of February 2003 the Spanish SPSS file was finalized - with 774 respondents evenly distributed on

443 (57%) girls
331 (43%) boys

32; 4% 14 year-old
466; 60% 15 year-old
223; 29% 16 year-old
53; 7% 17 and 18 year-old (course repeaters)