Science Education CUrriculum REsearch

secure

SCIENCE EDUCATION CURRICULUM RESEARCH

NEWSLETTER 3   February 2013

The SECURE project has so far gathered all data described in the proposal. They are being analysed now. Preparations for large scale dissemination are ongoing.

The work package "Scientific coordination"

This work package deals with the overall coordination of the scientific part of SECURE. Monitoring procedures closely, the project has not encountered any difficulty concerning **ethical issues**. The focus of this workpackage, lead by D. Sokolowska from Krakow (PL), lies now in the coherency of the analysis and results, the recommendations to be formulated and the communication in the scientific world of research.

The work package "Design and Analysis" is at the centre of all SECURE activity now.

Newsletters 1 and 2 have given an overview of all instruments SECURE uses for its research. The "field work" is finished now: partners have interviewed teachers and collected questionnaires.

The "Curriculum Spider Web" *(Van den Akker, 2003)*, depicts 10 components that built up curricula. Since SECURE needs to research perceptions of teachers and learners, the partnership decided to add one component: "Motivation and interest" for analysis. This component has come forward as being important both for teachers and learners.

Data on three fields of interest in the research of SECURE: curricula, teachers and learners have been gathered.

Each country collected **data on curricula** for mathematics, science, technics/technology and in some cases geography. Each **Curriculum Country Report** analyses each of the spider web components for all four age groups. The over all **cross country** comparative report analyses horizontally the spider web components for all disciplines and ages. This report is in it's final stage.

The **data coming from questionnaires** are gathered in Excel files. There is one file for each age of learners of each country and one file for the teachers.

Questions/answers related to the same spider web components are grouped and put in a graphic presentation. Not all components occur for each age.

The number of persons that take part is of the order of hundreds. The data are gathered in a Likert scale which is not suitable for numerical analysis. Hence the data are presented in a way that gives compact but enough information on the answers given by teachers and learners. All graphs are based on detailed Excel tables with statistical calculations.

Materials and resources

Legend: Some lessons, Never, Half the lessons, Almost Always
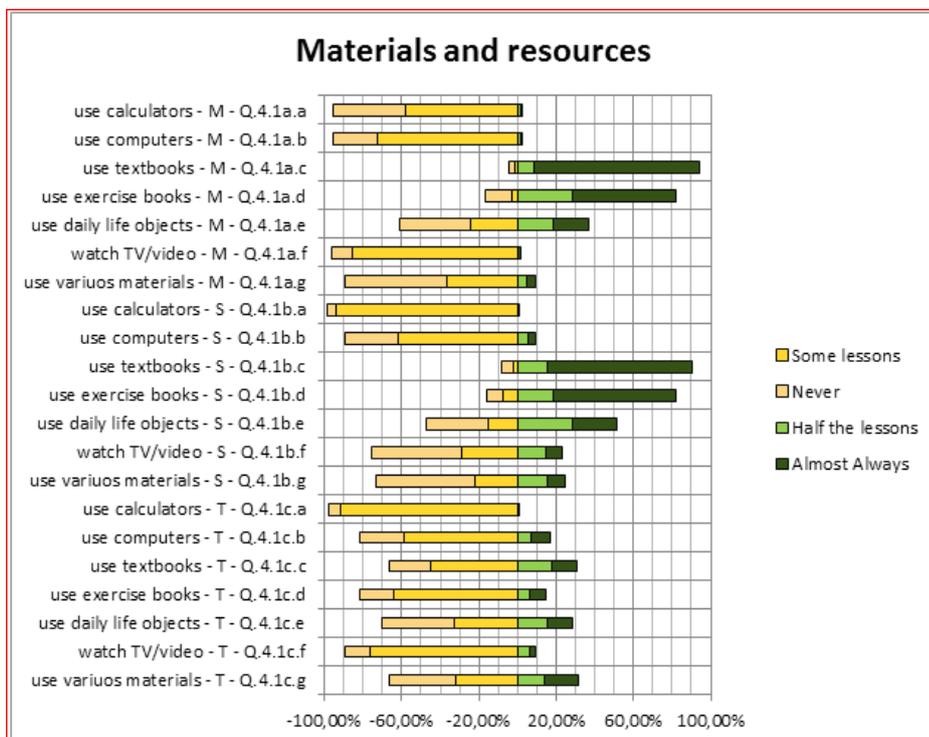
Across the three subjects the vast, majority of students report that they do not use calculators with never more than 2% reporting use in half of their lessons. The situation is similar with the use of computers with never more than 17% reporting use in half of their lessons.
Across the three subjects the use of both exercise and text books, in at least half of their lessons, is varied, with 82% and 94% and 81% and 90% in mathematics and science. This falls to 14% and 31% in technology. 36%, 52% and 28% of students across mathematics, science and technology report using 'objects from daily life' in at least half of their lessons with 2%, 23% and 10%, respectively, reporting use of television or video.
Across the three subjects the majority of the students do not report using 'various materials' in at least half of their lessons. This varies from 10% in mathematics to 32% in technology with the figure for science being 24%.

Screenshot: an example (draft) of how data are presented. The series of questions starting with Q4.1 relates clearly to the spider web component "Materials and resources". The four possible answers are indicated as percentages of the total. The text describes in a general way the remarkable tendencies that come out of the graphs. M= mathematics, S = science, T= technology

Data coming from interviews are analysed again on the basis of the curriculum spider web. Partners coded all interviews and related people's remarks to the different components. The summary of this is a report of about 40 pages per country.

Due to the spider web structure the three kinds of reports (**curricula, questionnaires and interviews**) **can be linked** to each other. Findings in the curriculum analysis can be related to analysis of the same component of the questionnaires and of the interviews. All this can be done per discipline or across diciplines. For each component of the spider web three dimensions are under consideration: discipline, age and country. The data are very rich as such. The limited magnitude of the project however (money, time, number of participants) should continouesly be taken into account.

The priority task of SECURE is . Other correlations or analysis need not be done although data are available and it is tempting to do. It is a very important deliverable for SECURE to provide these data for further analysis if desired. In Esera for example two countries – Austria and Cyprus- will illustrate this in apresentation named "Perceptions of teachers and learners about the Mathematics, Science and Technology curricula in two European countries"

In the same line of reasoning an important outcome of the research are a set of recommendations that SECURE will formulate. These will also be based on the three types of analysis, providing solid scientific research arguments for each of them.

The work package "Valorisation and dissemination"

Two main tasks for this work package remain. Firstly **to inform "Europe"** on the outcomes of the SECURE project. Each partner has the duty to inform local, regional and national stakeholders on the results of the SECURE research. In June, in Antwerp, a three day "**International expert group**" meeting will take place. Between 20 and 25 experts of some 20 countries are selected and got an invitation to discuss, confront and reflect on the SECURE goals and results.

Some numbers on interviews: more than 600 children from kindergarten (5 years old) were interviewd, and about the same amount for all other ages.

The "expert group meeting" takes place in Antwerp from June 3 to June 6, 2013. If you think you can help SECURE in this, please contact us.

The SECURE project results can be presented on a large number of international conferences. Selection is necessary: at the moment ESERA (Nicosia), ICPE (Prague) and IASSEE Annual Conference (Dublin) are planned. Contact us if you are interested in the SECURE results for the event you organise.

SECURE submitted a proposal for a symposium during the ESERA conference in Cyprus in September. There will be FOUR presentations, and the discussant will be the external evaluator, Rudi Schollaert.

The last official large scale action of SECURE will be **the final conference**. All stakeholders from all countries are kindly invited to take part. The first day (23rd of September) will be dedicated to discussions and interactive workshops for highly interested stakeholders. The second day the project results will be presented during an academic session.

SECURE's FINAL CONFERENCE will take place in LEUVEN, Belgium, on 23rd and 24th of SEPTEMBER 2013.

The work package "Management"

SECURE meetings took place in Krakow, Amsterdam and an extra one in Graz. The involvement of partners is very big; feedback and cooperative work motivates and leads to a more in dept analysis of data and better conclusions and results in general. Cross country analysis needs continoues input from all partners. The next meeting in Dresden will also aim at those goals.

Picture: at the end of some selected meetings, the external evaluator Rudi Schollaert (right, with red sweater), presents his findings on the process of the project. He bases his evaluation on the EFQM principles.

Contact all participants from SECURE via the website www.secure-project.eu where you can find all information. Any question on outreach, valorisation, meetings or expert group will be answered by wim.peeters.int@telenet.be.

www.secure-project.eu

The SECURE team thanks you for reading about our project!