
Report on organizing the ROSE survey in England

Professor Edgar W.Jenkins, e.w.jenkins@education.leeds.ac.uk

Centre for Studies in Science and Mathematics Education, University of Leeds, Leeds LS2
9JT,UK
March 2004

1. ROSE team

-

The English ROSE data is being handled by Professor Edgar Jenkins, Emeritus Professor at the University of Leeds, UK. Address as above.

2. School system and science teaching

-

The education system of England differs from that in Scotland and Northern Ireland and, increasingly so, from that of Wales.

Schooling in England is compulsory between the ages of 5 and 16. Primary schooling lasts until pupils are 11 years of age when they move onto secondary education. Most children attend state funded primary and secondary comprehensive schools but a significant minority (about 7%) attend private schools which, at secondary level, are often referred to as 'public schools'. Schools are the responsibility of Local Education Authorities but even within the publicly funded system of schooling there is considerable and growing diversity. In some parts of the country, selective grammar schools have been retained and recent government initiatives have seen the establishment of a number of specialist schools and colleges as well as a few academies which enjoy close links with the business world. Most comprehensive secondary schools are co-educational but many grammar and public schools are for boys or girls only, although some offer co-education in the later stages (16-18) of secondary education. Churches, of various denominations, have played a major role historically in the development of schooling in England and that role remains important today, with many 'church schools' operating within both the public and the private spheres of education. There are also some Jewish and Muslim schools.

A national curriculum was introduced for the first time in 1989 and this has undergone a number of major revisions since that time. Science is a compulsory component of the curriculum for all pupils between the ages of 5 and 16. The national curriculum divided compulsory schooling into four Key Stages: KS1 (5-7 years), KS2 (7-11), KS3 (11-14) and KS4 (14-16). There is national curriculum testing at each Key Stage. At 16, pupils are entered for the General Certificate of Secondary Education examination (GCSE). This is a subject-based examination and most pupils are entered for a GCSE Science examination, rather than separate examinations in physics, chemistry and biology. Pupils entered for the latter tend to come from selective and public schools. Most GCSE science courses last for two years (14-16) and lead to a 'Double Award' i.e. two passes at GCSE level, although a 'Single science' award is also available. The science curriculum itself is constructed around four Attainment Targets, (Scientific enquiry, Life processes and living things, Materials and their properties, and Physical processes). A recent development at GCSE level is the introduction of a GCSE course in 'Applied Science'.

Some schools 'set' or 'stream' their pupils for teaching purposes, especially at secondary level.

Details of the national curriculum are available at www.nc.uk.net

Pupils who remain at school beyond 16 or who attend sixth form or further education colleges may enter for AS and A2 (Advanced) level examinations. Like GCSE, A-level courses are widely available on a modular basis. Advanced level performance is used as a criterion in selecting for university entrance.

Two other developments need to be noted. First, the national curriculum is being further revised and the revision will have the effect of freeing up the curriculum for 14-16 year old pupils. Secondly, government is anxious to encourage more young people to stay on at school beyond 16 and to enter higher education. Part of its strategy is to consider the development of a multi-level Diploma to replace the existing examinations at 16, 17 and 18. An interim report has been produced for consultation ([www. 14-19reform.gov.uk](http://www.14-19reform.gov.uk)) and a final report is expected later in 2004.

3. Translation

Although the original ROSE questionnaire was developed in Norway, it was drafted in English. No translation was therefore necessary.

4. National questions

No national questions were added to the questionnaire.

5. Piloting

[No piloting of the questionnaire was carried out in England.](#)

6. Official permission

Given the small number of background variables and the anonymity of the responses, it was not thought necessary to seek official permission. Such permission would normally be sought from schools and/or Local Education Authorities. In some instances, the latter have assumed responsibility for controlling access to schools by researchers and others.

7. Population

The target population for the ROSE study in England consisted of pupils in the penultimate year of compulsory schooling, i.e. nominally 15 years old.

8. Sample and participation

[In January 2003, there were some 3.3 million pupils in secondary schools in England. Even a 1 per cent sample would therefore have given an unwieldy sample with which to work. Consideration was given to conducting a regional study, for example in the North of England. This was eventually rejected in favour of an attempt to secure a national sample. Using the Local Education Authorities Yearbook as a guide, a sample of 80 schools was selected. The selection reflected as nearly as possible the numbers and type of secondary schools in the different local authority and independent sectors.](#)

[The age distribution of the returned sample is as follows.](#)

Age	Number of pupils
13	10
14	765
15	415
16	86
17	1

9. Data collection in schools

A letter was drafted and sent directly to the Head of Science at the 80 schools, explaining the nature of the ROSE study and inviting them to participate. A first batch of letters to 30 schools was sent in May/June 2003 and the remainder in the following September. It was recognized that because of examinations, the May/June date was far from ideal. Not surprisingly, some schools declined to be involved, with three replying that they wished to be involved at some other time. It needs to be recognized that schools in England carry a massive burden of testing and assessment so that any additional commitment, such as that to the ROSE study, is necessarily viewed with some caution. Most of the completed questionnaires were received from schools in the autumn of 2003 and then sent to the ROSE team at Oslo for coding.

Each school was invited to say whether it wished to have sufficient questionnaires for one class (approximately 30 pupils) or preferred to operate on some other basis. Almost all chose the former.

Receipt of the questionnaires in the schools prompted comments and queries, mainly by email. There was surprise at the length of the questionnaire and the time needed to complete it. This alone caused some schools to decline further involvement. There was some concern about the cost of return postage. Where requested, schools were reimbursed. In other cases, questionnaires were collected via student teachers or with the aid of colleagues. Dr Roger Lock of the University of Birmingham was particularly helpful with respect to a number of schools in the West Midlands area.

A total of 1,423 completed questionnaires was returned from schools. Regrettably, 139 of these had to be excluded subsequently from analysis since the last page of the questionnaire was missing. It is assumed that this arose in the reprographic process.

The 1,423 questionnaires came from a total of 34 schools and the numbers of boys and girls responding do not seem to differ significantly. It is not now possible to identify those schools that received the 139 defective questionnaires but it is known that three of the schools that returned questionnaires were independent (public) schools and that these schools supplied 102 questionnaires that were almost certainly not defective. This suggests that the returned sample of questionnaires is not markedly biased towards the independent sector.

Without a detailed analysis of the location of the various schools that responded to the questionnaire, it is not possible to say whether the returned sample is biased with respect to any part of England. However, more difficulty was experienced in 'recruiting' schools in London than in any other part of the country, partly, I suspect, because of the severe staffing difficulties in the science departments of many London schools. The suspicion has to be, therefore, that the capital's schools are under-represented in the sample. However, a broadly gender-balanced sample of approximately 1,200 replies is likely to be adequate for most statistical purposes.

Finally, it needs to be noted that there is no information about how schools administered the ROSE questionnaires. Some may have invited pupils to complete the questionnaires out of school time, e.g. at home, while others may have devoted lesson time to the task.

10. Feedback and experiences

In several cases, the teachers who had administered the ROSE questionnaires included a short note with the returned questionnaires. The commonest comment was 'too long' but the following were also offered.

'The pupils really enjoyed it'

'Please keep me in touch'

'Fascinating: why has no one asked before?'

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

The English ROSE completed questionnaires were sent to Norway for coding. Please see the corresponding section of the entry under Norway for details.

Leeds, March 2004