A STUDY OF ASPECTS OF SCIENCE EDUCATION IN GIPPSLAND SCHOOLS

Graham W. Dettrick

Monash University College Gippsland
Switchback Rd. Churchill 3842

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ABSTRACT

The Warragul and West Gippsland Community Education Centre funded a project to research aspects of science education in Gippsland schools. A science related attitude questionnaire was administered to 1,346 pupils across years 7-10 in government, catholic and independent schools. One hundred and seventy-three teachers from 81 schools which included government rural, primary and post-primary, independent primary and post-primary and independent primary and post-primary schools returned five questionnaires. Tests surveying teacher attitudes to teaching science, beliefs about the nature of science, and science teaching strategies were prepared specifically for the study. This paper describes some of the outcomes of the Community Centre's aim to obtain some "base data".

INTRODUCTION

Inservice programmes for science teachers in Gippsland schools, which were funded by a Victorian government "5.4 Initiative" grant, led to the development of an increasingly strong perception of a need for information relating to science teaching in the region amongst the consultants involved. These needs were communicated to the management committee of the West Gippsland and Latrobe Valley Community Education Centre, Warragul, which decided to fund a project to investigate aspects of science education in Gippsland. Responsibility for the management of the project was placed in the hands of a Steering Committee representing the Community Education Centre, primary and post-primary State and independent schools, and school support centres. The author of this paper acted as a consultant to the latter committee.

The major aims developed for the project were firstly, to collect information which might target the needs of teachers for on-going professional development and secondly, to take a first step in the establishment of a longitudinal data base for science education in the region. A minor aim was the encouragement of more widespread school-based research in the region through involvement and example.

The Steering Committee deliberately chose not to pursue any inquiries in areas which were likely to produce a perception of high threat amongst teachers, for example, investigation of pupil and/or teacher abilities in the application of science process skills. A decision was taken to investigate pupil and teacher attitude to aspects of science across years five through ten, to
establish a pool of descriptive background information, to obtain information about desired forms of inservice, to describe preferred teaching strategies within a curriculum framework, and to describe teachers' ideas about the nature of science. Years five to ten were chosen for the study because these were to become the principal focus for science inservice in region. The Steering Committee planned to involve consultants from the region's School Support Centres in the research but time and funding restraints successively eliminated this and some other desirable aspects, for example, pilot studies of untried instruments. The Committee chose to sample schools throughout Gippsland on a voluntary basis with 70% of the sample being taken from the area served by the Community Education Centre.

The Steering Committee decided that separate confidential reports would be prepared for government schools and Catholic schools and that copies of the relevant versions were to be forwarded to participating schools, regional offices, and school support centres. Results were made available by level (primary/post-primary), network and by school (to the school concerned), where it was meaningful to do so. In addition, "combined schools" reports which included State Catholic and independent school results were to be prepared for general distribution throughout the region to schools which were not sampled. Combined schools reports are to be made available to any interested person. The Committee required that the reports be presented in a simple, jargon free fashion without detailed statistical analysis and that judgemental statements and comparisons between schools and systems not be included.

The author's role as consultant was to provide the Steering Committee with information obtained from a survey of relevant literature, to provide advice about sampling, to make recommendations about existing instruments which fitted the Committee's project, to develop instruments as necessary where none were available, to produce statistical output, to advise the Project Officer(s), and to write a final report.

School principals, science departments, and science consultants have initiated a range of actions as a result of the information received to date, for example, curriculum reviews, review of teaching strategies, and materials preparation.

Some schools, which were not in the initial sample, have proceeded to develop their own data base.

INSTRUMENTS AND SAMPLES

Pupils

The Test of Science Related Attitudes (TOSRA), was selected as the instrument to describe pupils' attitudes to science. (Some additional details are included in Appendix 1.) This was chosen after a thorough search of the literature because it had been carefully developed and field tested and some results were available. TOSRA was administered to 615 primary and 731 post-primary pupils across years 5 through 10 in state, independent, and private schools including one-teacher schools, larger rural schools, and city schools. One primary school was used to trial TOSRA to ascertain whether it was appropriate for years five and six pupils since the test had been developed and field tested with secondary pupils only. It was found that most
primary pupils coped well. Reading the test to pupils with reading difficulties proved to be satisfactory and teachers administering the test were encouraged to read the test to any pupils with known reading difficulties regardless of year level.

Teachers

Despite work bans and other industrial action at the time, one hundred and seventy three teachers responded to the questionnaires which were mailed to the schools in the sample. Forty-eight of the ninety-eight primary teachers and twenty of the seventy-two post-primary teachers were female. Three teachers did not respond to these questions. Distribution of teachers by school type was: Catholic primary, 18; Catholic post-primary, 11; State rural (small), 28; State primary (large), 48; State secondary, 56; independent primary, 5; independent post-primary, 7.

Questionnaires

The questionnaires dealt with (1) background information, (2) professional development, (3) teaching strategies, (4) attitude to science, and (5) beliefs about the nature of science. Instruments 3, 4, and 5 were developed specifically for the project.

The Professional Development Questionnaire was developed from a model used by Conners (1987) to gather information about the following: (a) the ranking of professional development objectives in science, (b) the areas where teachers have the greatest need for assistance in science, and (c) the preferred manner of delivery of the professional development activity. The results of this questionnaire will not be reviewed in this paper.

The 80 item Strategies in Teaching Science (SITS) questionnaire investigated six aspects of teaching and contrasting approaches to curriculum. A major aim of the test was to determine to what extent teachers' classroom strategies and beliefs about the nature of the science curriculum supported the approach to science teaching suggested in "The Science Framework P-10" (1987). (See Appendix 2 for further details.)

A 60 item Teacher Attitude to Teaching Science (TATS) instrument with six sub-tests was developed for the project. Two of the sub-tests were common to TOSRA. (See Appendix 3 for further details.)

The Beliefs about the Nature of Science questionnaire had 40 items which have been analysed individually. (See Appendix 4 for further details.)

RESULTS

A presentation of all results obtained from the project will not be attempted in this report. Summary reports produced by the Steering Committee are available from:

Rosalie Stewart
West Gippsland and Latrobe Valley Community Education Centre
P.O. Box 249
Warragul 3820

The report dealing with pupil attitudes to science as measured by TATS is
Pupil Results from TOSRA

A comparison of TOSRA field test sample mean scores (1977 data) and the project government school sample mean scores showed little difference on the Social Implications (S), Normality of Scientists (N), and Attitude to Inquiry (I) scales. The project mean scores were lower for Adoption of Scientific Attitudes (-1.8), and higher for Enjoyment of Science Lessons (E: +2.0), Leisure Interest in Science (L: +2.2) and Career Interest in Science (C: +1.7).

Contrary to what popular opinion would appear to suggest, government school sample mean scores for females and males were much the same with means scores for females slightly higher in five of the seven sub-tests. The greatest difference occurred in the Career Interest in Science sub-test where the female sample mean score was higher by 1 scale point. However, the foregoing summary obscures some interesting trends. In primary school years 5 and 6, eleven of the fourteen sub-test mean scores for females were higher than for males. This trend reversed in years 7 and 8 where mean scores for females were higher in two of the fourteen cases. The greatest sub-test mean score point differences for females are E: -5.1, L: -7.0, and C: -4.7. A further reversal occurs in year 9 where the sub-test mean scores for females equals the male score on one sub-test and the other six are higher, viz., A: +3.6, E: +4.3, L: +2.1, and C: +2.7.

Sub-test mean scores for the government school sample show a number of irregular movements across years five through 10 without any particular pattern in S, N, I, and A. Sub-tests mean scores for E, L, and C, tend to decline with increase in year level.

Results from the Background Information Questionnaire

The median age range of the teachers sampled was 30-34 years with the median teaching experience being in the range 9-12 years. Thirteen percent of both primary and post-primary teachers reported more than three years of industrial employment experience. Forty-six percent of the primary teachers and sixty-five percent of the post-primary teachers studied one or more sciences at matriculation level. Sixteen percent of the primary sample and sixty-eight percent of the post-primary sample studied science at tertiary level.

Eighty-three percent of the sample have not enrolled for further science study since graduation. Nine (9%) of the primary teachers and five (6.7%) of the post-primary teachers have upgraded their science studies in the past six years.

Inservice attendance has increased from 11 percent in 1985 to 31.8 percent in 1989. The percentage of teachers attending more than two days of in-service from 1985 to 1989 was 4, 5, 3, 7, and 7 respectively.

Results from the SITS Questionnaire

Because the author had hypothesized before the test was administered that teachers would generally show a reasonably clear preference for one of the three approaches to curriculum (or for NC vs. LP/SC), it was surprising to find that 45 percent of the sample did not establish a preference showing a
difference of 10 percentage points or more. The impression gained from the
distribution was that these teachers were not influenced much in their
identification with a teaching strategy by any consistent underlying
curriculum rationale, but that they used a functional, pragmatic, or perhaps
an experience-based viewpoint to direct their choice. However, 32 percent of
the sample showed a particular curriculum preference with a difference of 15
or more percentage points. Of this group, 10 percent preferred NC with the
remainder preferring either LP or SC or both. Of this latter group, three
teachers showed a very strong preference for LP strategies. When the results
for schools were analysed, the contrast amongst curriculum sub-test categories
was lessened, but it was clear that some schools had a preference for an LP/SC
approach while others showed a preference for NC.

An analysis of schools by type showed that State rural primary, large State
primary and independent primary schools demonstrate a preference for an LP/SC
approach to science. Of these the independent primary schools' preference was
strongest. The Steering Committee requested a range of other analyses which
are not reported in this paper.

Results from the TATS Questionnaire

The pupil sample mean score for TOSRA sub-tests S and A were 36.0 and 36.1.
The teacher sample mean scores for the same sub-tests in SITS were 39.5 (S.D.
4.7) and 1.1 (S.D. 4.4) respectively. The other TATS sub-test means are T:
38.7 (S.D. 4.4); P: 36.4 (S.D. 4.3); H: 37.5 (S.D. 4.2); V: 38.4 (S.D. 4.5).

Comparison of male and female and school level (primary/post-primary) scores
for the whole teacher sample and by school types shows no meaningful
differences.

Review of the response frequency for each item provides an interesting mosaic
of teacher attitude. (Some examples are provided in Appendix 5.)

Results from the BANS Questionnaire

Because of the loss of test integrity by the last-minute 50% reduction in
items, no attempt has been made to produce sub-test results. However,
examination of responses to individual items is of considerable interest. The
frequency distributions for three items are reproduced below.

Question 4: If scientists in the future find that electricity does not
consist of electrons, electrical equipment will have to be
redesigned.

BANV4 CHANGE OF ELECT THEORY WILL CAUSE CHANGE (* preferred response)

<table>
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<th>VALUE</th>
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<th>VALID PERCENT</th>
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<tr>
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<td>7</td>
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<td>4.0</td>
<td>98.8</td>
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<tr>
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<td>1.2</td>
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</tr>
</tbody>
</table>

TOTAL 173 100.0 100.0
Comment: Ignoring the "no response group", and including the "seldom trues" to give the best result possible, this table suggests that 20% of the sample does not have a clear idea of the role of theory or its operation with respect to technological inventions and that a further 5% has an entirely inappropriate idea. Whether or not a toaster, a car battery, a telephone, or a light bulb works or not has nothing to do with the theory of science. If the technology works, it works. A theory explains why something works (amongst other things as well).

Question 15: A scientist should vary many factors simultaneously in an experiment to obtain results faster.

BANV15 MAY SPEED EXPTS BY SIMULTAN CHANGE OF MU (* preferred response)

<table>
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<th>VALUE LABEL</th>
<th>VALUE</th>
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<th>PERCENT</th>
<th>VALID PERCENT</th>
<th>CUM PERCENT</th>
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<td>7.5</td>
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<td>100.0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>173</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comment: Ignoring the "no response" group, 56 percent of the sample holds the viewpoint that there is a possibility an experiment can be speeded by changing a number of variables simultaneously - presumably without invalidating the results.

Question 28: There is good reason to believe that, if astrologers had access to the equipment readily available to astronomers (telescopes, etc) then astrologers would be able to predict future events much more accurately.

BANV28 BETTER EQUIP CAN IMPROV ASTROLOGERS PRED (* preferred response)

<table>
<thead>
<tr>
<th>VALUE LABEL</th>
<th>VALUE</th>
<th>FREQUENCY</th>
<th>PERCENT</th>
<th>VALID PERCENT</th>
<th>CUM PERCENT</th>
</tr>
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<tr>
<td>NO RESPONSE</td>
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<td>7.5</td>
</tr>
<tr>
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<td>87</td>
<td>50.3</td>
<td>50.3</td>
<td>57.8</td>
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<td>4.0</td>
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<td>99.4</td>
</tr>
<tr>
<td>ALWAYS TRUE</td>
<td>5</td>
<td>1</td>
<td>.6</td>
<td>.6</td>
<td>100.0</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>173</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comment: This "for fun" question produced a surprising result.

CONCLUSIONS

The project reported in this paper is noteworthy because of the effort and
interest generated at the "grass roots" level. Despite problems caused by insufficient funds, lack of time and the Steering Committee's inexperience with research management, a considerable amount of data has been collected which has generated a great deal of interest in the region.

The surveys of teachers show that there are needs for in-service for teachers with respect to science and that only a small proportion of teachers is experiencing in-service at present. Teaching strategies still need to undergo considerable change, especially in post-primary education, to reach the "science platform" goals outlined in The Science Framework P-10 (1987, p. 24). Finally, there appear to be problems with the beliefs some teachers have about the nature of science.

REFERENCES


Fraser, B. J. (1981) Test of Science Related Attitudes. Melbourne: ACER.


Appendix 1

Test of Science Related Attitudes (TOSRA)
Author: Barry J. Fraser Publisher: ACER, 1981

TOSRA has seventy items grouped into seven sub-tests:

Social Implications of Science  S  Measures attitudes towards the
social benefit and problems which accompany scientific progress.

Normality of Scientists N Measures attitudes towards scientists, namely that they are normal people and not eccentrics as depicted in the media.

Attitude to Scientific Inquiry I Measures attitude to scientific experimentation and inquiry as ways of obtaining information about the natural world.

Adoption of Scientific Attitudes A Measures attitude towards open-mindedness, willingness to revise opinions, etc.

Enjoyment of Science Lessons E Measures attitude to the enjoyment of science learning experiences.

Leisure Interest in Science L Measures attitude to the development of interest in science and science related activities apart from learning experiences.

Career Interest in Science C Measures attitude to pursuing a career in science.

Each sub-test contains five positive and five negative statements, e.g.,

| I dislike science lessons. (-) | Science lessons are fun. (+) |

The test uses a five-point Likert response scale: Strongly Agree, Agree, Not Sure, Disagree, Strongly Disagree. Field trial results from 1337 pupils from government schools within the Sydney metropolitan area are given in the Test Handbook. The maximum score for each sub-test is 50 (very positive attitude) and the minimum score is 10 (very negative attitude).

Appendix 2

Strategies in Teaching Science Questionnaire (SITS)
Author: Graham W. Dettrick Developed: 1989 (Unpublished)

Eighty items were selected from a pool of items written specifically for the instrument and classified into three groups representing notably different approaches to the concept "curriculum" which are outlined in Kemmis, et al. (1983). The approaches which have been used as the basis for "curriculum preference" sub-tests (briefly) are:

1. Neo-Classical (NC): This approach is sometimes called "traditional". The view is characterized by an approach which sees knowledge residing mainly in books and skills, with pupils acting basically as passive receivers of transmitted knowledge achieving within the framework of what is taught. Teachers generally act as knowledgeable authorities who select, structure, sequence and transmit knowledge. Teachers control progress and have a hierarchical power relationship with pupils. Assessment is based principally upon mastery of skills and facts. Classroom organization is formal with mostly a one-to-many delivery. Curriculum decisions are generally taken at the top. There is subject differentiation and timetabling. Resources are generally differentiated by subject. School/community liaison is school directed. Schooling is generally seen as a process of selecting and fitting people in
to work roles for which they are properly prepared.

2. Liberal-Progressive (LP): This view is often associated with the "open education" movement. The approach emphasizes the attainment of the "educated person" - one who is self-actualizing, reflective, and who, having "learned how to learn", pursues a personal vision of excellence according to developed abilities and interests. The teacher is fundamentally a mentor and facilitator who organizes learning opportunities to allow the pupil to maximize potential. The teacher has a concern for pupil growth and progressively yields control as the pupil achieves autonomy. The ideal relationship is one-to-one. Assessment is descriptive, informal and through projects. The teacher looks for individual growth in a socio-cultural framework. Classroom organization is heterogeneous, mixed ability groups, and may be arranged for independent work, discussion and small-group work. Subject differentiation is weak. The teacher is largely an independent autonomous professional. The school and community are seen as inter-dependent with mutual support and cooperation although the relationship is school controlled. One could consider this to be a philanthropic view of education.

3. Socially-Critical (SC): This approach aims to have pupils become critical and constructive co-participants in the life and work of society. A subtle but important LP/SC difference is the change from an almost complete emphasis on growth through maximizing individual potential according to ability and interest to socially responsible self-actualization (development of self for one's private benefit versus personal growth for the common good). The pupil is a co-learner with others involved collaboratively in socially significant tasks. The teacher generally acts as a project organizer and resource person who negotiates the tasks with pupils and community. The teacher emphasizes pupil emancipation, commonality of concerns, and social justice in many-to-many relationships. Assessment is negotiated, and work (goal) based within negotiated requirements for successful completion. Classroom organization emphasizes mixed-ability groups, cross-age and cross ability tutoring (the notion of "ability", "talent", or "giftedness" is irrelevant), informal classroom arrangements, projects, and a weakening of the school/community boundaries. Control is a communally shared responsibility through democratic structures. Power-sharing and participatory control are important. Status and hierarchy are irrelevant. There are weak subject boundaries and time controls are based on the tasks in hand. The curriculum is school and community based with interchange of resources and resource persons between the school and community. The school and community are committed to continual critical self-reflection and renewal.

The author considers that, in practice, none of the foregoing categories is ever observed absolutely nor that the three views are mutually exclusive in all aspects. However, a reading of the Victoria Ministry of Education "frameworks" documents and Ministerial Paper 6 clearly shows that there is a preference or strong support for LP and SC strategies over NC. SITS has been constructed with this in mind.

The distribution of questions in the "curriculum preference" sub-tests is 50% NC (which should be answered more or less negatively as the preferred direction) 25% LP and 25% SC (to be answered more or less positively). For the purpose of the project, LC and SC scores could be added.

Sixteen questions are assigned to each of five "teaching strategy" sub-tests. The sub-test categories are:
Knowledge Outcomes      (KO)
Classroom Style         (CI)
Teachers Role           (TR)
Pupil Role              (CS)
Curriculum Planning     (PR)

The "teaching strategy" sub-tests are designed to act as indicators of a tendency in the foregoing five aspects of teaching for the teacher's actions or beliefs to support a particular viewpoint, or none, as the case may be. The distribution of questions according to curriculum category is maintained in each of the teaching strategy sub-tests. Response to each question is made on a 5 to 1 Likert "frequency of use" scale where 5 is "very frequent" and 1 is "seldom, if at all".

Sub-test scores are expressed as percentages. The test as a whole and the component sub-tests are designed for general use with science teachers wherever it is useful to investigate the curriculum ideology which forms the basis for teaching.


Appendix 3

Teacher Attitude to Teaching Science Questionnaire (TATS)
Author: Graham W. Dettrick    Developed: 1989 (Unpublished)

TATS has sixty items grouped into six ten item sub-tests. The Social Implications sub-test (S) and the Adoption of Scientific Attitudes sub-test correspond with the same sub-tests in TOSRA. The sub-tests are

Social Implications of Science S Measures attitudes towards the social benefit and problems which accompany scientific progress.
Adoption of Scientific Attitudes A Measures attitudes towards open-mindedness, willingness to revise opinions, etc.
Attitudes to Teaching Science T Measures attitudes to science as a vehicle for the multifaceted development of pupil abilities.
Science as a Personal Threat P Measures attitude to science and/or technology as an influence on customs, life-style, or beliefs.
Science as an Activity Based Experience H Measures attitudes to science as a "hands-on" or inquiry based activity.
Value of Teaching Science V Measures attitudes to the influence
science may have in solving problems or contributing to our sense of well-being.

Each sub-test contains five positive and five negative statements, e.g.,

Technological advancements, like computers, are proving to be of great value. (+)

Science is used by an elite group of people in order to gain control over the majority. (-)

The test uses a five-point Likert response scale: Strongly Agree, Agree, Not Sure, Disagree, Strongly Disagree. The maximum score for each sub-test is 50 (very positive attitude) and the minimum score is 10 (very negative attitude).

Appendix 4

Beliefs About the Nature of Science Questionnaire (BANS)
Author: Graham W. Dettrick    Developed: 1989 (Unpublished)

Initially, the Beliefs About the Nature of Science instrument was designed as an 80 item instrument which was to use two major and six minor sub-tests to produce a "belief profile" for teachers. The development of the test was influenced by the work of Durkee (1975). The major sub-tests were designed to indicate a preference for "philosophical" view of science which could be associated with one of the approaches to curriculum outlined in Appendix 2. The six minor sub-tests were designed to provide more detail across six aspects of science, viz.,

Aims of science
Nature of concepts and ideas in science
Meaning and use of key terms
Processes in science including experimentation
The difference between science and technology
The scientific community and its operation.

The author believes that it is important to gain some knowledge of the profile of beliefs about science because of strong interactions which may occur with beliefs about the nature of curriculum, and the influence a teacher's belief profile may exert on processes of teaching and evaluating science. For example, the author hypothesizes that a teacher with a "logical positivist" or "naive realist" belief profile would be comfortable with a traditional or neo-classical approach and would be uncomfortable with a socially-critical or liberal-progressive approach (fact recall, application and confirmation vs. inquiry).

When the Steering Committee reviewed the finished questionnaire, some concern was expressed that the questions might be threatening to teachers because the responses seemed to require knowledge (although the questionnaire was concerned with beliefs). It was decided that on balance, the questionnaire should be reduced in size to 60 and then to 40 questions. This reduction occurred within such a short time frame that the integrity of the original test was lost. The distribution of questions in the 40 item BANS instrument
is:

Nature of concepts and ideas in science 10 items
The difference between science and technology 5 items
The aims of science 5 items
Processes in science 15 items
The role of theory in science 5 items

The test uses a five-point Likert response scale: Always true, Usually true, Not sure, Seldom true, Never true. A sample question follows: There is good reason to believe that, if astrologers had access to the equipment readily available to astronomers (telescopes, etc.), then astrologers would be able to predict future events much more accurately.


Appendix 5

Frequency Analysis of TATS Items

Question 4: (P) Scientific findings should not be made public if they will create social unrest.

<table>
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<th>VALUE</th>
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<td>1.7</td>
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</table>

TOTAL 173 100.0 100.0

Comment: It seems that 90% of the sample is as open-minded, tolerant, and thirsting for knowledge (even if it is controversial) as the stereotype of science and scientists would wish it to be.

Question 6: (V) Political activity is more likely to save our endangered species than scientific knowledge.

<table>
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TOTAL 173 100.0 100.0
Comment: There appears to be quite an amount of division on this issue, but scientists are ahead of politicians by 49 to 26 (almost 2 to 1).

Question 9: (T) It is a good idea for pupils to have some idea of the likely outcome of an investigation before they start.

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TOTAL 173 100.0 100.0

Comment: The 1s and 2s are likely to be the inquirers in science - the ones who can face uncertainty and questions which are not easily resolved. They would probably be good people to begin the education of our research scientists. The 4s and 5s are the ones who appreciate the certainty of knowing the answer or the outcome. They would probably be good people to train those who do "routine" or confirmatory science tasks which do not end in new ideas or uncertainties.

Question 21: (T) I like to tell pupils facts of science which I know or have found in books.

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TOTAL 173 100.0 100.0

Comment: It is interesting to see the drop in the "not sure"s. I would equate the 1s and 2s in this question with the 1s and 2s in question 9 - and the same for the 4s and 5s also. Perhaps it would be interesting to follow up the tentative hypothesis that there will be a strong correlation in group membership.

Question 5: (H) I feel comfortable using science equipment such as flashlight batteries, wire, bulbs, magnets, hand lenses, simple chemicals, etc.

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Comment: The materials mentioned in the question were chosen rather deliberately so that they would not be messy or slimy or potentially painful, or disgusting (like dead rats or toads or sheep's hearts or cattle's eyes which are used for dissection). On the other hand, I did not include white mice, or rabbits, or guinea pigs or other furry little friends. So, in relatively neutral territory, approximately 80% of the sample feels comfortable. This suggests that, 20% may be uncomfortable (tossing in the "not sures" and the "no responses").