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To: All National Centers
Husén, Postlethwaite, Pidgeon, Hall and Comber

From: Richard Noonan

Date: 13th February 1970

Re: Science Teacher Attitude Scales

Enclosed please find the Science Teacher Questionnaire/Views on the Teaching of Science/Views on Practical Work (IEA/SCI/20).

We regret the delay in the completion of the Science Teacher Attitude Scales (Views on Science Teaching and Views on Practical Work) and realize that they cannot at this time be made a part of the mandatory testing program. They can, however, be regarded as National Options. Will those National Centers deciding to use the scales please be sure to include details of where the data will be recorded in the National Option information they send us.

Two scales are involved. The first is Views on Science Teaching, which includes items 2, 3, 5, 7, & 9. The second is Views on Practical Work, which includes items 1, 4, 6, 8, & 10.

SCIENCE TEACHER QUESTIONNAIREVIEWS ON THE TEACHING OF SCIENCEVIEWS ON PRACTICAL WORK

Below are given 10 statements on the teaching of science. We are interested in obtaining information on how teachers regard the job of science teaching, will you therefore indicate against each item the extent to which you agree or disagree with each statement. Please answer by blackening in the appropriate space on your answer card.

1. Open-ended investigations are possible, and desirable, from the very beginning of science education.
 - A. Disagree strongly.
 - B. Disagree.
 - C. No opinion.
 - D. Agree.
 - E. Agree strongly.

2. Practical experience is not essential for the acquisition of scientific knowledge.
 - A. Disagree strongly.
 - B. Disagree.
 - C. No opinion.
 - D. Agree.
 - E. Agree strongly.

3. There is so much to learn about science nowadays that it is better not to take up time with practical work.
 - A. Disagree strongly.
 - B. Disagree.
 - C. No opinion.
 - D. Agree.
 - E. Agree strongly,

4. A pupil may forget all he learned at school about the facts and principles of science but the experience he gains in carrying out his own practical investigations will last him in good stead for ever.
 - A. Disagree strongly.
 - B. Disagree.
 - C. No opinion.
 - D. Agree.
 - E. Agree strongly.

5. A teacher's time is better employed in giving lectures and demonstrations than in preparing for laboratory work.
 - A. Disagree strongly.
 - B. Disagree.
 - C. No opinion.
 - D. Agree.
 - E. Agree strongly.

6. The difficulties of providing opportunities for practical work of an investigational nature are so great that teachers should be advised not to undertake such work.
 - A. Disagree strongly.
 - B. Disagree.
 - C. No opinion.
 - D. Agree.
 - E. Agree strongly.

7. A pupil's science education is not complete unless he has had opportunities for carrying out investigations on his own.
 - A. Disagree strongly.
 - B. Disagree.
 - C. No opinion.
 - D. Agree.
 - E. Agree strongly.

8. However hard-pressed a science teacher is, the top priority in his work should be to provide opportunities for his pupils to carry out their own original investigations.
 - A. Disagree strongly.
 - B. Disagree.
 - C. No opinion.
 - D. Agree.
 - E. Agree strongly.

9. At least half a pupil's time in science should be spent on practical work preferably in a laboratory or in the field,
 - A. Disagree strongly.
 - B. Disagree.
 - C. No opinion.
 - D. Agree.
 - E. Agree strongly.

10. Pupils gain little of value from carrying out their own investigations.
 - A. Disagree strongly.
 - B. Disagree.
 - C. No opinion.
 - D. Agree.
 - E. Agree strongly.

Accompanying Notes (IEA/1K, IEA/5K, and IEA/12K)

Notes for interpretation and translation

Population I, II and IV

Item 1 "marks" may be translated as "grades" or some other indication of the quality of work.

Item 3 If the study of Science is not optional, a National Center may wish to substitute a statement "I look forward to studying Science after"

Item 5 "exhibition", "exposition" or "library" may be substituted for "museum" if more appropriate.

Item 6 "club" here means any gathering, formal or informal, at which attendance is voluntary.

Item 8 It is understood that this is an uncommon activity, and it should not be replaced merely for this reason. If it seems clear that only 2% or fewer of 10-year-old students are likely to be able to respond positively to this item, then an alternative should be substituted, although it is requested that the substitute be also a fairly complex scientific activity.

Item 11 National Centers may substitute any type of Science book or magazine other than school text book.

Item 12 If telescopes are rare or unknown, then any deliberate astronomical activity is acceptable.

Populations II and IV only

Item 18 "the world" here may be taken to mean the general natural and cultural environment of mankind.

Item 19 This item deals with the jargon and other unfamiliar words required by academic Science.

Item 21 The intent of this item is that Science is a subject that is difficult to study, not necessarily that the student obtains poor grades for it.

Item 22 This is somewhat colloquial; and a literal translation may not be appropriate.

Item 23 "listening to the radio" may be substituted for "watching T.V."

Item 25 This refers to the study of Science in school.

Item 28 National Centers may substitute other words for "slaves" and "machines" to avoid the translated form appearing clumsy. The idea to get across is that machines are becoming the masters of the human race.

Item 29 This item implies that the student or teacher carries out experimental work or demonstrations, and not that the Science that is learned is composed of descriptions of experimental work carried out by other people.

Item 30 The item is intended to imply that the teacher regards the content of the text book as being adequate coverage of his curriculum, and regards the text book as important.

Item 31 This question may be reworded to include forms of written source material other than the Science text book.

Item 32 "We have" could be translated as "We use".

Item 33 If this item seems inappropriate to the local conditions, it may be replaced by a statement which implies that the Science homework is devoted to Science related activities separate from learning material in the text book or solving problems taken therefrom.

Item 34 We are interested here in the allocation of time between the two modes of activity to the extent that they can be distinguished.

Item 35 Note that this item has been revised. The new form is given in the errata section of the yellow bulletin.

Item 37 "outside school" can include both outside regular school hours and outside the school classroom. It covers all extra-mural or extra-curricular scientific activities.

Item 39 In those countries using the English language, we suggest that the word "using" be replaced by "the use of".

Item 40 This item differs from item 38 in that it does not imply necessarily that a laboratory is available.

NOTE: The test administrators should decide whether questions 41 - 48 are appropriate or not for the whole class and an appropriate instruction to this effect should be included in the instructions to test administrators (that is, Manual 3).

Item 45 This item implies that the students do carry out the experiments after they have been demonstrated, and this point must be made clear.

Item 47 The intent of this item is to discover if while allowing the students considerable freedom the teacher helps to structure the situation by posing questions which are intended to help the student direct his activities.

Item 48 This question is different from question 42 in that it suggests not merely a written outline of the experimental work is provided, but detailed instructions covering every piece of student behaviour.