

VOCABULARY DIFFICULTIES OF PAPUA - NEW GUINEAN
HIGH SCHOOL SCIENCE STUDENTS

Paul L. Gardner
Monash University, Victoria, Australia

Summary

Reference: Vol.2 (1969) F2 (p.64)
Vol.3 (1970-71) F1 (p.60)

English which is a second language for most Papua - New Guinea students is the medium of instruction in all secondary schools and may be a barrier to educational purpose. A list of words, non-technical but regarded as essential in the teaching of science, was drawn up by Victoria and Papuan - New Guinea teachers, tested, refined and reduced to 650 which met the criteria. Other tests of picture recognition, synonym recognition, sentence completion and correct sentence usage were tried, and an acceptable test list constructed.

A list of the words included for testing, the contexts in which these words were tested and the difficulties of the items, is attached to the full report (see references).

Report

English is the medium of instruction in all high schools in the Territory of Papua and New Guinea. For most students it is a second language. Difficulties with language therefore represent a major barrier to educational progress for many students. Vocabulary difficulties - unfamiliarity with words frequently encountered in the course of oral or printed communication - represent one, (but certainly not the only) kind of language difficulty.

Project SWNG (Scientific Words - New Guinea), which began in 1968, set out to identify specific vocabulary difficulties of T.P.N.G. high school students in the field of science. In the first phase of the project, a comprehensive, relevant, non-trivial, and non-technical word list was produced. Comprehensiveness was desirable so that all words likely to prove difficult would appear on the list, and was achieved by starting with the Thorndike-Lorge word list of the 20,000 most frequently used English words. Relevance was determined by having a panel of Victorian teachers and educational researchers, followed by a similar panel in New Guinea, systematically select and rate words on the Thorndike-Lorge list for their importance in science; only words regarded as essential or valuable were included for testing. Non-triviality was attained by deleting nearly all words rated as AA or A in the Thorndike-Lorge list; these words (e.g. 'blood', 'circle', 'up') occur with high frequency in English, denote simple concepts, are usually learned early in the pre-school or primary

school years in English-speaking countries, and would probably not present any difficulties to a T.P.N.G. secondary school pupil. Non-technical words were included, and technical terms excluded, on the grounds that the latter would be specifically taught by the science teacher if they were part of the curriculum; it was felt that a list of words of 'ordinary English' frequently used in science teaching but seldom explicitly taught by the science teacher, would be more useful. A list of 600 words meeting these criteria was produced.

In the second phase of the project, multiple-choice test items of various kinds (picture recognition, synonym recognition, sentence completion, correct sentence usage) were written, tried out, and revised. Fifteen final tests of 40 items each were then administered to all Grades 9 and 10 pupils in a random sample of 22 T.P.N.G. high schools, each pupil taking only two tests selected at random from the battery.

Findings

A full report of the project (Gardner, 1971) describes in detail the procedures outlined above, lists the test items used, and presents the findings of the project. Data available are the percentage correct on each item, distractor popularities, and a word list organised on the basis of difficulty level. Space does not permit reproduction of all these data here; however, an alphabetical list of the words included for testing, the contexts in which these words were tested, and the difficulties of the items, may be obtained from the author (see references)

Further Research

A replication of this project was carried out, using samples of Australian secondary school children at Grade 7, 8, 9 and 10 level, late in 1971. A report of this project, (Gardner, 1972) should be available late 1972.

References

- Gardner, P.L. Project SWNG : Scientific Words - New Guinea.
Report to the Department of Education, Territory of
Papua and New Guinea, 1971.
- Gardner, P.L. Words in Science.
Australian Science Education Project, 1972 (in press)