Recently, there has been an upsurge of interest in test improvement. Teachers are updating their know-how in test construction and test analysis. Item analysis, which is a useful tool for test improvement, is the analysis of students' responses to multiple choice items. It enables one to identify items which may be too difficult or too easy and which may for other reasons fail to discriminate between the better and poorer students. The traditional method of item analysis is tedious and time consuming, dampening the teacher's well-meaning intentions to analyse test results. A computer program has been written for APPLE microcomputers to help in item analysis.

The Program

Designed to be interactive and user friendly, the program:

1. marks the responses of an objective test
2. determines the mean and standard deviation of test scores
3. determines the facility and discrimination indices of the items
4. computes the reliability of the test.

Running the Program

The program runs when booted. Inputs are asked for the following:

Name of Teacher/Examiner
Title of Test
No. of Students taking the Test
No. of Items in the Test
No. of Alternatives per Item
The user will then type in the key responses and thereafter enter the name or serial number of each student and his answers to each item of the test. For each item omitted, X is entered instead. Entries which are entered wrongly can be corrected easily.

After all the scores have been entered correctly the computer will process the results and display the names or serial numbers of the students, and their raw and percentage scores. The mean raw score, the mean % score, and the standard deviation are computed. Following these, the facility index, and the discrimination index for each item are computed.

The facility index (F.I.) is defined as the percentage of students who gave the correct response to an item. The program computes F.I. using the results of all the students. The discrimination index (D.I.) is an indication of how much the item can discriminate between the good and the poor students. For computing the D.I., the item score – total score correlation (point biserial correlation) for the whole sample is used. This method is more stringent than the classical method of taking the top and bottom 27% scorers. The program ends with the computation of the Kuder-Richardson 20 (KR 20) reliability coefficient.

Printing

The computer will ask if the printer is on. If it is ‘YES’, the results of the students will be printed out. If the user requires a printout which includes the entries of responses to the items, PR#1 should be typed followed by LIST before running the program.

Extension to the program

The program designed can accommodate an item analysis involving 150 students, 50 items and 6 alternatives for each item, running on a 64 K Apple computer. With a larger memory computer, a program line can be amended to analyse the results of more students, items or alternatives.
Conclusion

It is hoped that this program will prove useful to teachers in item analysis. Those who are interested in obtaining a copy of the program may write to the authors at the Institute of Education.