The aim of this software and accompanying documentation is to introduce educators and educational researchers to the potential benefits of using Item Response Theory (IRT) to construct local variables rather than rely on standardized measures. In the booklet, "Charting Student Progress," we discuss the construction of:

1. an elementary-school fractions chart;
2. a high school reading chart; and
3. an attitude chart concerning the quality of school life.

Using these examples, we describe the steps taken to develop the items that represent the variable, how to check that the psychometric model and the data are in concordance, and how to interpret the IRT estimates for both groups and individuals. These examples are drawn from our common backgrounds in education, but the technique is applicable wherever sums of dichotomous items (e.g., test scores) are used to mediate between latent variables and empirical responses. We intend that the learner will have a conceptual rather than statistical understanding of the technique. The accompanying software does the book-keeping, analysis and reporting in graphical format, and provides examples of the major components of the technique, such as calibration of items, checking model-data misfit, interpreting the variable, and diagnosing individual misfit. A test construction and administration package is also supplied which can be used to generate computerized tests, to administer them to students, and to organize the student responses for the analysis.
MATERIALS

1. Booklet: Charting Student Progress
2. Software (on floppy disks) and User's Guide called "CHARTS"

PROCEDURES

Learners attend a half-day workshop that follows the booklet "Charting Student Progress" and several examples using a microcomputer. The materials are designed to be self-explanatory, however, with sample data that allow the reader to work through each of the examples him/herself.

DISCUSSION

The best way for someone to learn how to use the program is to apply it to a real problem. With this in mind we encourage workshop attendees to bring along a data set that can be analyzed on a consultative basis after the workshop (i.e., in the afternoon). Typical data sets would be composed of curriculum-based achievement tests that had been locally developed, results (item-level) from standardized achievement tests where local calibration and validation are needed, and locally developed checklists and attitude scales.

The IRT methods introduced by the above materials extend also to polytomous response data such as Likert scales and partial credit rating schemes. A computer analysis package (PC-CREDIT) and accompanying materials for this important area are available from Mark Wilson.

BACKGROUND READING


SOFTWARE INFORMATION

1. CHARTS presently runs on the Apple IIe/c (running under PRODOS); an IBM-PC version (running under MS-DOS) is under preparation (the analysis package is now available, the test-administration package will not be ready until later.)

2. It is distributed on two single-sided floppy disks, one for example data and outputs and one for the actual program.