

MEET "STEPHEN," A COMPUTERIZED DIAGNOSTIC CASE STUDY

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When Stephen was in third grade he enrolled in the Michigan State University reading clinic to receive help with his reading difficulties. His reading problems were diagnosed by an expert clinician who then planned and implemented a remedial program for Stephen. Since that time, "Stephen" has been helping learning disabilities specialists, classroom teachers, reading specialists and prospective diagnosticians become more reliable in their diagnostic judgements. How can an eight year old child improve the reliability of diagnostic decision-making? A microcomputer disk has made this possible.

"Stephen" is one of five computerized diagnostic case studies developed at the Institute for Research on Teaching (IRT) at Michigan State University. The case studies were developed for use in a series of studies focusing on the diagnostic reliability of educational practitioners. The first series of studies showed that reading specialists and classroom teachers did not agree with themselves or with one another in their diagnostic judgements about simulated cases of children with reading problems (Vinsonhaler, Weinshank, Wagner, & Polin, 1982; Weinshank, 1982; Vinsonhaler et al., 1983; Weinshank & Vinsonhaler, 1983). A second series of studies attempted to improve reliability through training (Vinsonhaler, et al., 1983). In this series of studies, the subjects were ten classroom teachers and five graduate students in reading, all with minimal experience in reading diagnosis. They worked with simulated cases presented on a microcomputer disk, together with diagnostic decision aides. Each disk contained test scores, test description and examiner comments. Audio tapes and completed test booklets were included in an accompanying study guide. Results indicate that this specialized clinical training improved diagnostic reliability in reading.

The successful use of the minicomputer case studies led to the development of an Apple II Plus microcomputer reading diagnosis training system for prospective diagnosticians and classroom teachers. The training system is comprised of five simulated case studies of "real" children. "Stephen," one of the microcomputer case studies, was recently field tested at Hood College. The purpose of the field test was to determine whether "Stephen" could improve the quality of training offered to student-clinicians preparing to diagnose reading problems. This paper describes and discusses the field test.

Procedure

"Stephen" was incorporated into the training of three graduate student-clinicians enrolled in a clinical diagnosis and prescription course. This course prepares graduate students

for diagnosing the reading problems of prospective clinic students. First, diagnostic procedures and testing instruments were discussed. The student-clinicians then "met Stephen" and diagnosed his reading problems. Finally, the student-clinicians diagnosed the reading problems of "real" children.

Since all three student-clinicians were inexperienced in the use of microcomputers, a brief introductory lesson/demonstration focused on how to run "Stephen" on the Apple II Plus. The student-clinicians then spent approximately twelve hours completing the three operating subsystems of the program: (1) collection of data, (2) diagnosis, and (3) comparison of diagnosis with a criterial diagnosis stored in memory.

Each student-clinician requested test data from the computer for seven critical reading performances: instant word recognition, decoded word recognition, word meanings, oral reading, silent reading comprehension, listening comprehension and attention/motivation. Test scores, test descriptions and examiner comments were presented via the computer. Completed test booklets, audio tapes and other written documentation were included in the accompanying study guide. When this information was requested, the computer program referred the student to the appropriate section of the study guide.

On the basis of data collected, each student-clinician then diagnosed "Stephen's" reading problems using diagnostic decision aids which forced the student-clinician to make decisions about the critical reading performances. When the decision aids were completed, the student-clinician returned to the computer and entered performances. The diagnosis was then stored in the computer memory. Each student-clinician's diagnosis was then automatically compared with the criterial diagnosis stored in the computer memory. The computer listed both diagnoses, noting areas of disagreement and calculating percent of agreement.

The student-clinicians were encouraged to confer with each other as they collected data. The investigator observed and interacted with the student-clinicians as they discussed "Stephen's" reading problems. Practice diagnoses made by the student-clinicians were discussed in class. The investigator and each student-clinician kept a log of comments about "Stephen's" reading problems and the use of such a computerized case study as a training device.

Results and Discussion

Results indicate that the use of the computerized case study improved the quality of training offered to student-clinicians preparing to diagnose reading problems. The program enabled each student-clinician to (a) become familiar with administering, scoring and interpreting a diagnostic test battery, (b) make diagnostic decisions with a thorough understanding of the likely underlying factors causing the reading problems, and (c) gain self confidence as a diagnostician.

The student-clinicians became familiar with several testing instruments as they were administered to "Stephen." A great deal of time was spent reviewing and discussing each test, the data and the audio tape recording of the test administration. On several occasions the student clinicians disagreed with the testing and scoring procedures. For example, the student-clinicians commented that Stephen's errors on the oral reading subtest of the *Durrell Analysis of Reading Difficulty* should

have been qualitatively analyzed. Also, on several occasions the student-clinicians felt that Stephen sounded tired and should not have continued with the testing. In-class discussions frequently focused on test administration and scoring procedures that seemed questionable to the student-clinicians.

The decision aides were particularly effective in directing the student-clinicians to consider systematically all reasonable diagnostic categories and the likely underlying causal factors relative to Stephen's reading problems. The decision aids, which were later used when diagnosing the reading problems of "real" children, helped the student-clinicians become more reliable in their diagnostic judgements.

Student-clinician comments revealed that "Stephen" improved the self-confidence of each student-clinician. The student-clinicians said they felt more confident when diagnosing reading problems of "real" children because they had "practiced" administering an entire test battery and interpreting the test data beforehand. The program also made it possible for group discussions to focus on one set of data. In reality, it would be impossible for each student-clinician to diagnose the reading problems of a single "real" child for the purpose of group analysis and review of one set of data.

Conclusions

Results of the field test indicate that the use of computerized diagnostic case studies could improve the quality of instruction provided in reading methods courses for preservice teachers, and special education diagnosis courses. The program would help these students (a) prepare for classroom diagnosis of reading problems, and (b) better understand clinical diagnosis of reading problems.

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