

Cognitive Diagnostic Assessment System (CoDiAS) for Singapore's Secondary Schools

Toward Individualized Learning and Assessment in Language Education

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KEY IMPLICATIONS

- A pre- and post-test was developed to measure reading skills of secondary school students.
- Specific feedback was developed and provided to the students.
- Participating students found the feedback provided useful.

BACKGROUND

To date, several computerized diagnostic systems have been developed. These systems are limited in their feedback delivery and assessment scopes as well as in the delivery of remedial programs. For example, the Diagnostic English Language Needs Assessment (DELNA), developed by the University of Auckland, and the Diagnostic English Language Assessment (DELA), designed by the University of Melbourne, function primarily like placement tests where feedback is delivered to the learners but the tests aim to place students in different language learning programmes (of course, one could argue that this is the treatment that follows

the diagnosis, albeit not highly differentiated at the individual level).

Similarly, the Diagnostic English Language Tracking Assessment (DELTA), designed by Hong Kong Polytechnic University, and the Diagnostic Language Assessment (DIALANG), produced by Lancaster University, provide feedback to learners but without specifying skill mastery profiles, differentiated remedial programmes, or actionable plans. These systems are also limited by their inability to provide fine-grained information on learners' growth over time.

FOCUS OF STUDY

Overall, there were three major goals for CoDiAS to achieve: (1) to assess and determine students' reading comprehension through the application of quantitative techniques; (2) to deliver diagnostic feedback along with remedial programs to the learners as an alternative to summative assessments; and (3) to examine the progress of learners over time, while considering the needs and perceptions of target stake-holders.

KEY FINDINGS

The data from the administration of the test and treatments showed that:

1. the pre-test had good measurement qualities;
2. students perceived the feedback provided to them useful; and
3. participating in longitudinal reading treatments could have a considerable rate of attrition, especially if the participation in the study is voluntary. It should also be added that students' performance on the tests and treatments did not count towards their grades at schools. This could be another reason why many students decided to opt out of the study. Those students who participated vigorously in all treatments made significant achievements. Motivation should be considered as a possible contributory factor.

SIGNIFICANCE OF FINDINGS

Overall, the study provides some evidence that diagnostic assessment of reading could be useful for improving reading skills of secondary school students. However, the diagnostic system should be embedded coherently and seamlessly into the teaching system, rather than appear like an imposition to the students.

PARTICIPANTS

The participants were from two secondary schools in Singapore.

RESEARCH DESIGN

A number of assessments, test items, and relevant feedback were developed. These were administered to students and the progress of the students who opted to remain in the programme was monitored. The administration of tests and provision of feedback were facilitated by online assessment platforms.

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