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Computer-Assisted Assessment (CAA): Challenges and Promises¹

Anthony Seow and Chew Lee Chin

Computers have impacted our lives in many ways. Like it or not, we are in the computer age. Since April 1997, computers have taken the educational scene in Singapore by storm with the launch of the Masterplan for IT in Education 1. In its wake, educators have realised the ever-increasing "possibilities for designing new curricula and new methods of assessment to meet educational objectives." (IT Masterplan 1, 1997). The National Institute of Education has moved ahead to develop a computer-assisted assessment system as a more efficient means of testing student performance.

Three NIE researchers, Dr. Anthony Seow (from ELL), Dr. Chew Lee Chin (from PS) and Dr. Luo Guanzhong (formerly from PS), spearheaded the development of an NIE Computerized English Language Test (NIECELT) system capable of administering any number of language tests (or parts thereof) to any number of students at any time. The test system - NIECELT for short - comprises a Wizard, a Server Programme and a NIECELT Client. The Wizard is used for item banking, test construction, creating a list of examinees, and assigning tests to examinees. The Server Programme acts as an interface between the database and the examinees. The NIECELT Client allows the examinees to take computer-administered test(s) from their PCs and to obtain their test scores immediately (if so intended) upon completion of the test(s).

Currently within NIECELT, there are ten, mostly interactive, test formats available. Test format headings and test instructions can be changed according to the needs of the test.

Most tests in Singapore schools still follow the traditional pencil-and-paper mode, and teachers will readily tell you the tedium of managing such a test from beginning to end. After weeks of getting the test items ready, there is the printing of the test papers and, then, the sorting and storage of them. When the test is administered, there is the distribution of the test papers, the giving of explicit instructions, the collection of the papers after the test, scoring them, cross-checking the answers and entering the marks into the computer. Finally, there is the announcement of the results after a week or so. Of course, all this work can be dispensed with when schools are prepared or ready to use computer-assisted assessment or CAA.²

In a way, the Masterplan for IT in Education 2 (2002) has begun to set the directions for CAA to happen in the schools. This vision is embodied in one of the outcome statements in Masterplan 2 to the effect that the "connections between curriculum, instruction and assessment are enhanced using IT", adding that since "the pupil, the teacher, curriculum and assessment are all essential parts of the education system", schools will be empowered "to experiment, optimize,

contextualise and integrate the use of IT to deeper levels" (Masterplan 2).

So what are the promises of CAA for the schools, the teachers and the pupils? Schools can easily capitalize on available computer hardware, replace or complement existing traditional tests with CAA and share item bank resources. Teachers can improve their skills in item writing, easily manage test construction using the item banks, administer tests to pupils quickly via computers, and enjoy the benefits of immediate test scoring and reporting. For the pupils, CAA would mean they now can have an innovative and fun way of taking a test, employ more of their senses through using the multi-media features of the test, and obtain immediate feedback on their test performance.

As with anything new, there are always a few concerns such as whether there are measures to prevent computer failure during the test, whether some pupils would be disadvantaged by their lack of or limited keyboarding skills and whether sufficient computer labs would be available for large scale testing.³ These initial problems are not insurmountable and they will probably disappear when computer-assisted assessment becomes standard practice in the schools.

For the teachers in schools, computers have increasingly become part of their lives. They use computers for entering traditional test scores, for lesson preparation and teaching. Pupils who are computer literate, and even those who aren't, can be guided to use CAA with minimum effort.

Upon feedback from some schools, NIECELT has since been upgraded to include more advanced and more user-friendly features of testing and it has been re-named "NIE Computer-Assisted Assessment System" or NIECAAS to account for its adaptability for use in school subjects other than English Language. A new addition to NIECAAS is a multimedia format for assessing Listening-comprehension or for use in any subject that could exploit its inherent versatility.

Computer technology has swept right up to our testing shores. It only remains for us to harness it more systematically to make CAA a reality in our schools.

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¹ An eight-minute video CD has been produced on this, with the technical support of ACIS/ NIE and the active participation of the Principal, teachers and pupils of St. Andrew's Junior School in November 2001.

² The NIECELT team piloted a simulated CAA on 1st November 2001 in St. Andrew's Junior School. They gauged the efficiency of students taking the test from their school PCs and collected feedback from the Principal, teachers and the pupils. The test was designed around the question types found in the PSLE: discrete grammar items, discrete vocabulary item, comprehension MCQs, grammar cloze, editing for spelling, punctuation and grammar, comprehension cloze, and synthesis and transformation.

³ These concerns were actually raised by some pupils, teachers and the Principal of St. Andrew's Junior School.