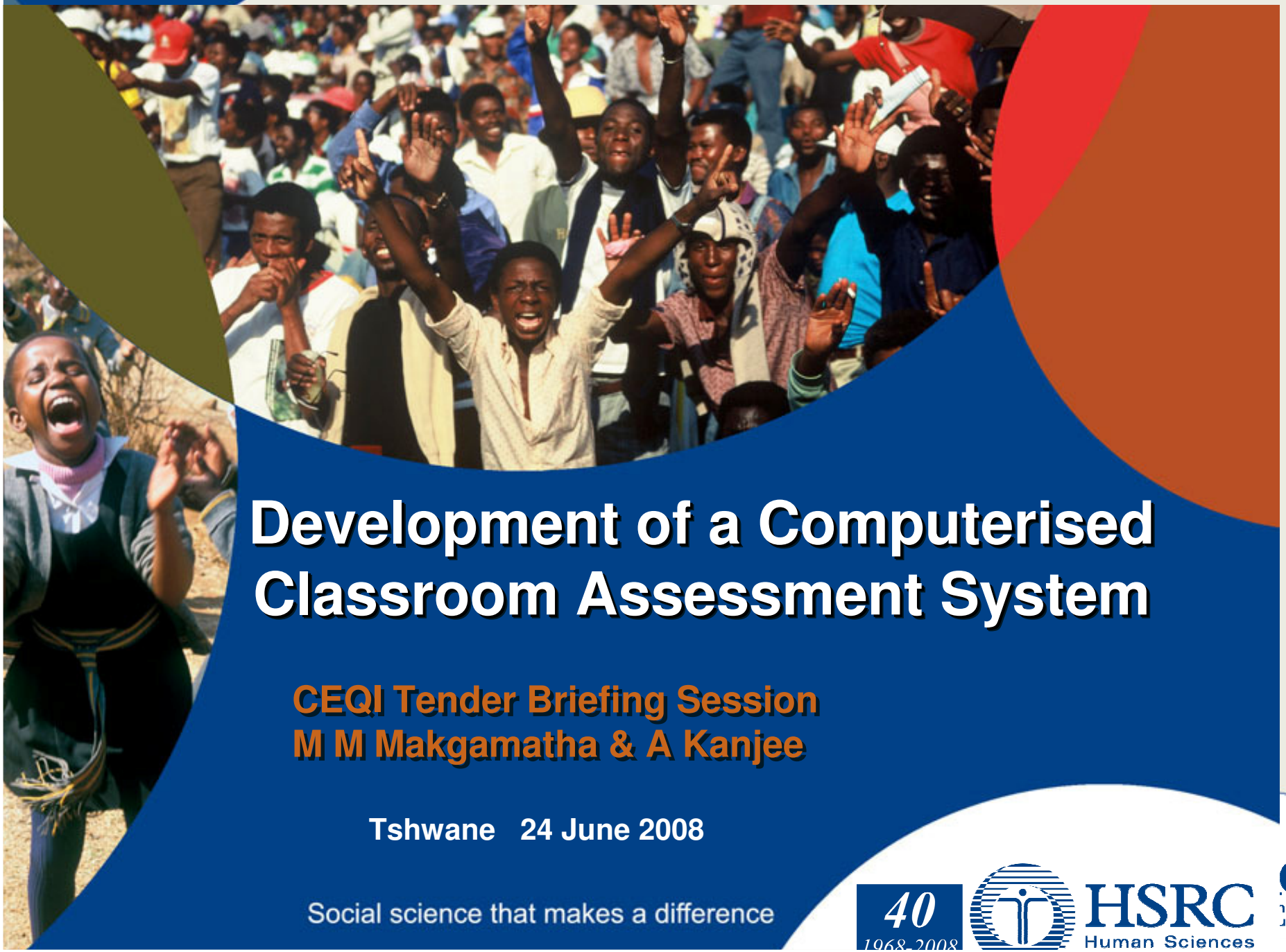


Development of a Computerised Classroom Assessment System

CEQI Tender Briefing Session
M M Makgamatha & A Kanjee

Tshwane 24 June 2008

Social science that makes a difference

40 1968-2008

HSRC Human Sciences

Overview of presentation

- Background
- Specifications of the computer system
- Scope of the service required
- Information to be provided by CEQI

Background

- The Centre for Education Quality Improvement of the HSRC would like to appoint a competent ICT service provider to develop a computer system to improve teaching and learning in the Intermediate Phase (i.e. grades 4 to 6).

- The computer system will be developed for the following two learning areas: English-First Additional Language (FAL) and Mathematics

Item bank process

- HSRC will develop a bank of items
- All items will be based on the National Curriculum Statements
- Item information will be provided on learner performance by each Assessment Standard
- All items will be piloted on a national sample of learners and will have the following information:
  - Item difficulty
  - Item discrimination
  - Scores of specific sub-group – e.g. females, school type or location, language group, etc.

Example of items developed

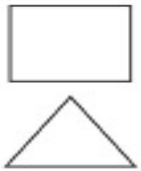
P2. 17 + 2 = _____

P3. Draw a circle around the picture that has exactly 3 apples.

P4. Draw a line to match the sentence with the correct shape.

I have 3 sides.

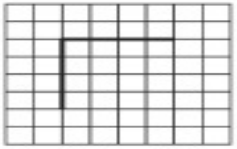
I have 4 sides.



P5. Write the answer in the box.

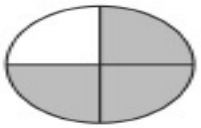
7 - ☐ = 2

P6. Complete the drawing of the square on the grid below.

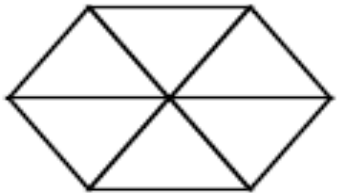


P7. What fraction of this circle is shaded?

Shaded area = ☐



Example of items generated



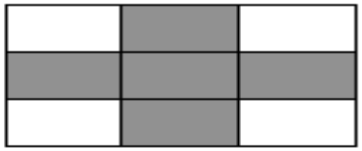
The figure above is divided into six

A. triangles
B. squares
C. pentagons
D. rectangles

In what distance is road distance measured?

A. Litre
B. Metre
C. Kilometre
D. Centimetre

Part of the figure is shaded.



What fraction of the figure is shaded?

A. $\frac{5}{4}$
B. $\frac{4}{5}$
C. $\frac{6}{9}$
D. $\frac{5}{9}$

HSRC Human Sciences Research Council

Uses of the Computer System

The computer system will be used by the teacher to do the following:

- To generate curriculum based tests from the assessment item bank
- To enter and record learner responses and scores for each test
- To generate diagnostic reports on learner levels of performance
- To track learner performance levels over time

Steps in using the system - 1

Teacher will have a CD (containing software + item banks) which will be installed onto a computer. S/he will start the program and then

1. Select the Grade level at which they want to work – i.e. Grade 4 or 5, etc, (max of 3)
2. Select one learning area of interest – i.e. Maths or English, etc
3. Select Learning Outcomes (max of 3) – i.e. Algebra, Geometry, etc
4. Select the Assessment Standard(s) - (max of 3)
5. The program will then generate the items for the test

Steps in using the system - 2

- The tests will be administered by the teacher to the learners in the classroom
- Tests will be marked by the teacher:
  - Only open ended questions are scored
  - Scores are either 0 or 1
  - Multiple choice questions are entered as per learner response
- The teacher will enter the learners' responses onto the computer

Steps in using the system – 3

The teacher will have the option to generate a series of reports to do the following:

- Overall performance levels by selected learning areas and assessment standards
- Comparison of average class scores against selected sub-groups –
  - National, provincial or district sample
  - Gender, similar schools, etc,

Steps in using the system – 3

Reports – continued

- Performance profile of the class as per the four levels of performance given in the National Curriculum Statement (not attained, partly attained, attained & outstanding).
- Performance profile of each learner as per the same four levels of performance
- Reports on classroom and individual learner performance trends over time
- Ideas for follow-up lesson plans to guide what teachers should do next, based on learner responses

Scope of the Service Required

The service provider is required to develop and deliver:

- **A fully functional user-friendly computerised classroom assessment system.**
- **Complete software with the necessary supporting documents (e.g. operating manuals, references etc.).**
- **Conduct 3 field trials to ensure the applicability of the system in different types of schools**

Specifications of the System

The computer system should meet the following specifications:

- It should be compatible with the different types of computer models and software available in South Africa, especially ones used in schools.
- Although the present emphasis is to have a system operating using English, the system should be set up to be able to operate in the other 10 official languages.
- It should be user friendly to all teachers in South African schools.

Information to be provided by CEQI

CEQI will provide the following:

- **Bank of English-FAL and Mathematics assessment items**
- **Cut-off scores for comparisons determining the curriculum performance levels.**
- **Results of the field trials.**

Contact Details

Matthews Matome Makgamatha
Centre for Education Quality Improvement
Human Sciences Research Council
Private Bag X41
Pretoria
0001
South Africa

Tel: +27 +12 302 2320
Fax: +27 +12 324 2183
Mobile: 082 673 9603
E-mail: mmmakgamatha@hsrc.ac.za