Innovative technology transforms rural classrooms

Effective teaching strategies are changing. Costs are rising and teachers' resources are being stretched, often pushing them into teaching subjects for which they are not properly equipped.

In addressing this challenge, there has been a move from 'teacher-centric' to 'learner-centric' education. While most SA teachers are knowledgeable in the theory, in many cases, this is not being extended to the classroom.

Learner-driven teaching systems result in greater learner involvement and meaningful classroom interactic One such solution is the portable iBox which turns any urban or rural classroom into an interactive teaching and learning environment. The compact unit can be stored in a safe place, and because it is portable, can used in almost any environment.

Introducing the iBox

The iBox is the size of a small suitcase and incorporates a projector, laptop, and built-in speakers. When used with the response clickers and mobile interactive whiteboard, the classroom transforms into a multi-media ICT solution for effective and efficient teaching and learning.

Driven by software designed to cover the national curriculum, the iBox projects class notes and other important information about the topics onto a classroom screen. Using a handheld tablet and electronic pe teachers are able to include additional notes and illustrations which are instantly highlighted for the learners to see.
The content of the iBox is useful for keeping in line with the curriculum timeline as well as supporting teachers with less knowledge and experience of the given topic.

A supplementary component of the iBox is the response clickers. These devices which look like remote controls allow teachers to pose questions during the lesson and learners' responses are gathered in real-time with a click of a button.

The clicker feature provides immediate feedback and is used to assess the students' understanding of the lesson. Information from the clicker enables the teacher to identify gaps in learning and revise the lesson accordingly.

The iBox and clickers are being used by the Gauteng Department of Education (GDE). Gauta Legoete, co ordinator for GDE for District 8 in Sedibeng West, says the 2009 pass rate in his district was 28%, this improved to 68% in 2013 which Legoete attributes directly to the use of the iBox and clickers.

"Overall, the iBox has enabled teachers to be better prepared. The clickers used by learners to answer questions takes an enormous load off teachers having to mark test papers after hours and keeps teachers touch with each learner's progress," he says.

In terms of science learning, the Sangari Active Sciences division has developed mobile apparatus kit, curriculum-aligned workbooks, and software for both primary and secondary school programmes. These resources were developed to enable teachers and learners to engage and learn science anywhere and ar used in government and private schools throughout the country.

The mobile laboratory encourages and inspires teachers and learners to gain practical experience through curriculum-aligned experiments. Each portable laboratory includes equipment to enable learners to work independently or in groups.

Compared to setting up a traditional laboratory, the mobile laboratory is cost effective and is designed to store chemicals and apparatus safely. Practical experiments make use of small quantities of chemicals, resulting in less wastage and easy disposal. Little storage space is needed and the unit is lockable.

Included in the Sangari ActiveSciences Mobile Lab are practical workbooks that explain the assembly of th apparatus and guides learners through the process of the investigation. Learners work through the investigative questions and are guided to make scientific claims built on their evidence. The assessment questions are aligned to the outcomes of the lesson and ensure higher-order thinking skills.