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The Pedagogical Evaluation of the EduPAD Project

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The development and testing of **eduPAD** in a trial school was part of the Ministry of Education effort under the IT Master Plan to bring about a paradigm shift in teaching in Singapore schools, that is, to make the learning process in schools more student-centred. The **eduPAD** development and research was an inter-agency collaborative project involving a number of institutions in Singapore. The Ministry's industrial partners were mainly responsible for the development of the hardware device and the software applications for the device. The Educational Technology Division of the Ministry of Education was in charge of the training and exploration of the use of the **eduPAD** system in the trial school. The National Institute of Education was invited to evaluate the pedagogical use of the **eduPAD** in the classrooms.

The Research Issue/objective

As an IT communication tool, **eduPAD** offers tremendous pedagogic potential for learning both in the classroom and at home. The exact nature of what constitutes the best pedagogic practice for optimizing the use of **eduPAD** in the classroom was the key research question that this whole project hoped to answer. Teachers can use the **eduPAD** to create and carry out class activities as well as facilitate the distribution and collection of class exercises electronically. Pupils on the other hand can use the device as a platform for their work, on which they can carry out hands-on and collaborative activities as it allows learners to communicate with each other's terminal. Pupils can also make use of their **eduPAD** to explore learning resources on their own. The device was tested in **Dunman secondary school** in a number of secondary one classes.

Methodology

Video recordings of lessons taught by the teachers were made prior to the introduction of **eduPAD** device and with the use of the device at the initial and final stage. The pre-**eduPAD** lessons were recorded in January-February 2000. They formed the baseline data for comparison. The **eduPAD** lessons were recorded in July-October 2000. The videotaped lessons were analysed using an episode-time analysis observation form devised by the researchers. The main episodes recorded related to teacher initiated and student initiated events in the lesson. In this manner a picture of the dynamics of the lessons was captured. After the analysis of the videotaped lessons comparison was made between the baseline pre-**eduPAD** lesson data with the

eduPAD lesson data to determine the shift in the way the teachers conducted the lessons with the use of the **eduPAD**.



An eduPAD



Students using eduPad for a collaborative lesson

Focus group interviews were carried out with all the ten teachers who were involved in the trial of the **eduPAD**. Also at the end of trial period we administered a questionnaire to the students and conducted group interviews. A total of 116 pupils responded to the questionnaire. In addition, two focus group discussions were held. Twenty students selected by their respective form teachers joined the discussion sessions, ten students per group.

To date, three conference papers have been generated from the data collected and one article has been submitted for publication in a journal.

Main Findings and Implications

From the review of the nine-videotaped lessons it was observed that the degree of frontal teaching was less in the **eduPAD** lessons where the teachers tried to incorporate the learning facilities of the **eduPAD** device. In the lessons reviewed, the **eduBOOKS** and the Internet link were the features that teachers seemed to favour.

The interviews suggest that both the teachers and the students have a positive view towards the use of electronic communication device to enhance teaching and learning. However, they were apprehensive that the technical problems associated with the use of electronic devices could disrupt the smooth flow of the lesson. Both the teachers and the students have experienced a number of technical problems with the prototype device used in the current experiment.

The teachers were of the view that the TMT (Teacher's Management Tool) was a useful system for teachers to prepare quizzes and worksheets before the class and CMT

(ClassroomManagementTool) to monitor students' progress. They also found the enhancements in the eduBOOK helpful in teaching concepts.

Over 50% of the students were of the opinion that the classroom lessons were interesting with the use of the eduPAD. In particular they found the access to Internet and the enhancements in the eduBOOK as useful features to help them get a better understanding of the subject content. Negative views expressed towards the use of the eduPAD were mainly related to the technical limitation of the proto-type device. Nearly 75% of the students expressed a desire to use such a device as a learning enhancement tool.

On the whole it can be said that the eduPAD device has the

general features and potential to engage pupils in independent and collaborative work but has to be made more reliable and interactive if it is to function as a teaching-learning tool in the classroom setting. Also, it has to be kept in mind that bringing a tool like eduPAD into the classroom alone will not result in changes automatically. Teachers need to modify their teaching strategies to accommodate the unique features offered by the new technology and provide learners with opportunities to access knowledge experts as well as their peers.

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