

Gosford Christian School

Handheld Computers are Improving Results and Getting Students More Excited About Learning.

Overview

Access to computers has become fundamental to education even at the primary level. For most schools, providing this access has meant either fitting out labs of computers or providing notebook PCs for students to purchase or hire. However Gosford Christian School (GCS), a 700-student institution located at Narara on the New South Wales Central Coast, has found a better solution with a much different approach based on smaller, handheld computers.

With computer ownership patchy and students mainly serviced by computer laboratories, in 2002 the school recognised that it needed to institute a more formal plan for putting technology into the hands of its students. The school's IT and educational leaders considered a number of options, initially focusing on the conventional wisdom that has assumed notebook PCs are most appropriate in a classroom setting.

Notebooks had their shortcomings, however: their short battery life, high acquisition and management cost, long startup and shutdown times, large size, and potential to be damaged all presented significant obstacles in the effort to make them students' constant companions.

With the launch of handheld computers based on Microsoft's PocketPC 2002 operating system, however, it soon became clear to GCS staff that the school finally had a viable alternative to consider.

"There is a realisation that education is heading in the direction of having personal computing solutions, but in comparison laptop technology is not appropriate for that," explained Stephen Babbage, IT Manager, Gosford Christian School.

"I was always interested in applying a handheld computing solution to an educational environment, because I believe it's a much more appropriate technology. A laptop is effectively just a desktop computer that's been developed to be portable. Handhelds are cheaper, offer longer battery life, turn on instantly and are far more portable than laptops."

Testing a new paradigm

During 2002, GCS set about evaluating various handheld computers to assess their suitability for classroom learning. After evaluating various vendor products, the school began talking with Hewlett-Packard (HP) to identify the best handhelds for the trial.

Ultimately, the school sourced a dozen including five Compaq iPAQ 3760s, and four iPAQ 3850s. Since their small size made it clear a better solution for data entry was necessary, the iPAQ 3760 handhelds were paired with full-sized external keyboards while users of the iPAQ 3850 used its keyboard, which both fold to the actual size of the handheld, for greater ease of use.

"We looked at other brands, too," said Babbage. "But we needed something with long battery life that would be robust. Many of the other models we examined just didn't meet the standards we required, so we decided to standardise on the HP iPAQ."

Over the course of the trial, the units were rotated through the school. The rotation included Babbage, the church's senior pastor, and five students each from years five and nine, each of whom used the devices for one term.

Throughout that term, anecdotal evidence and observations of student usage confirmed that the handheld computers were indeed being heavily used in everyday learning. Students were taking the HP iPAQs with them to class, taking both handwritten and typed notes as well as drawing graphical information directly on the iPAQ screen. The task and calendar functions of the iPAQ were heavily utilised by students for organisational purposes, while additional third-party applications strengthened the iPAQs usefulness in specific areas. GCS teachers are enthusiastic about the improvements to learning that the iPAQs enable. "It was fantastic to be able to have students beam me their work while they continued on with other material or even the same piece of work," reported year five teacher Stewart Sutton.

"It meant I could provide helpful feedback or comments while they were still working. This meant the advice I could give was not too late for that piece of work! Teaching with the iPAQs actually made my job easier. At the same time, it gave the students an increased number of learning opportunities and methods which I could use to help them to learn the material we were covering in class."

These learning opportunities were clearly not being lost on students: the trial's biggest benefit was confirmation that the iPAQs seem to help students learn better. Teachers reported a 20 to 30 per cent improvement in results among students who had been struggling academically but used the iPAQ during class. Using the iPAQ for notes, summaries and assessment tasks was saving time. Students with the iPAQ reported that they enjoyed their subjects more, and were spending more time working on their subjects outside of school hours.

"My daughter had never opened Microsoft Word at home before the trial," reported the father of one year five student involved in the trial.

"Since the trial, she not only used Word but she, by herself, learned how to use the spellchecker and all kinds of advanced features."

Charting GCS's mobility future

Having tested the use of iPAQs within its classrooms, GCS was convinced the smaller devices were significantly better learning aides compared with conventional notebooks. In late 2002, they set about putting the results of the trial into action.

Beginning in the first term of 2003, Gosford Christian School students have been getting access to iPAQs in much larger numbers. Some 150 HP iPAQ 3950s are now circulating the halls of the school, with additional units projected to come online throughout the rest of the year. Two-year payment plans let students purchase the devices for \$185 per term

(including extended warranty, insurance, carry case and additional software), a much more manageable amount than the thousands of dollars required up-front to buy a notebook PC.

The HP iPAQ 3950, an improved model that was released after the initial trial had commenced, has been paired with Think Outside Stowaway external keyboards and an extended battery pack that also incorporates a CompactFlash expansion slot. This not only provides enough battery life to last students throughout an entire day, but provides the option for future addition of expansion devices such as an 802.11b-compliant wireless LAN (WLAN) card.

Wireless LAN connectivity will become important later in 2003, when GCS begins to roll out WLAN access points across its campus. Staff will initially use the WLAN to access intranet applications such as time and attendance records. However, as students gradually add WLAN capabilities they'll be able to access the Internet and the school intranet no matter where they happen to be - putting increasingly digital learning materials literally at their fingertips in any classroom or public space on the school grounds.

Proliferation of HP iPAQ 3950s has delivered many benefits that were not immediately obvious given the limited scope of the trial. For example, students often use the iPAQs' infrared communications ports to exchange notes or other information by simply pointing the devices at each other. The iPAQs are proving easy to maintain and update, and have become preferred tools for the taking of both text and graphical notes. Faithful to the school's vision, the iPAQs have truly become students' full-time digital companions.

Summary

Industry: Education

Hardware: HP iPAQ 3950 with extended life battery, Think Outside Stowaway external keyboards

Software: Microsoft PocketPC 2002

Challenge: Identify the most appropriate portable computing technology to help primary and secondary students improve their organisation and classroom learning.

Benefits: The HP iPAQ 3950, combined with full-sized add-on keyboard, has proven to be a robust, powerful and convenient personal computing solution that's motivating students to learn better and longer. Longer battery life, a more robust design, better form factor and improved convenience have demonstrated handhelds can be a much better computing device for schools than conventional notebook PCs.