LEARNING WITH ICT
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Snapshots from the Classroom

INTRODUCTION
As we announced in November last year, SCEGGS will be introducing a 1:1 Tablet PC program over the next three years, where every girl in Years 5-12 will have their own laptop. We will also expand access to technology in our K-4 classrooms. This will begin with the introduction of these Tablet PCs into Year 5 and Year 9 in Semester 2, 2012.

The 1:1 program will create many exciting possibilities for learning in a 21st century classroom including increased flexibility and more authentic and connected learning experiences. In this second newsletter, we provide glimpses of these new possibilities in Mathematics, History and Music, with other subjects to follow in future editions of this newsletter. As these examples illustrate, the provision of the right learning tool in the hands of every girl, in every lesson, will allow our teachers to expand the power of what is possible in the learning environment on a daily basis – to utilise real world data, to solve more complex problems, to create simulations and ask deeper ‘what if’ questions.

However, it is also very clear that technology can only ever be just one of the tools that will form part of a SCEGGS education. We will continue to develop the broadest range of skills in our girls, and the skills of discernment to know when a technological solution is most effective – and when it is not. In all classrooms, our girls will continue to discuss, debate, create, analyse, synthesise, communicate and evaluate – with and without the use of technology.

We look forward to the exciting opportunities this 1:1 Tablet PC program will create for teaching and learning at SCEGGS. If you have any questions about the program at SCEGGS, please don’t hesitate to contact us at any time.

Ms Holly Gyton
Deputy Head

MATHMATICS
Ms Barrett notes that “technology and the web have changed the world from the point of view of communication and information. Mathematics has played a huge role in bringing about these changes. Many argue that Mathematics is now more relevant and important to the world we live in than it has ever been in the past.”

What is exciting you about using the Tablet PCs in your classroom with the girls?

It will be exciting to explore Mathematics in greater depth and with greater spontaneity. Many difficult concepts will be visualised with animation programs, consolidation will occur with fun-to-do programs that provide immediate feedback to students, learning will become more reflective, mathematical explorations will be more interactive and there will be more options available for the use of different media to deliver mathematical content.

Can you give an example of a specific lesson (or unit) that will be possible with the Tablet PCs that hasn’t really been easy/possible until now?

The ability of a computer program to animate will have a huge impact on the understanding of many areas of Mathematics. In junior years animations that demonstrate algebraic patterns and concepts with the use of tiles and balance beams have enhanced algebraic thinking. In the middle years interactive geometry programs have allowed first hand observation of geometrical concepts that were previously difficult to illustrate and in the senior years complex concepts such as projectile motion and volumes of revolution can be viewed in dynamic rather than static form. The Tablet PC will give all students the opportunity to explore these concepts more deeply rather than to merely observe them.

Is there any particular subject-specific software that you are planning on using with the students? If so, how will this enhance teaching & learning?

The Mathematics Department has been fortunate to have a large number of mathematical programs available to them and their students. These range from Microsoft Office programs such Excel to Hotmaths, Mathletics, Geometer’s Sketchpad, Geogebra, Edudata, Etope, Autograph and many more. The students will continue to use these programs, not only as observers, but as active and frequent participants. Through the Remote Access facility that will be available on the Tablet PCs, students will be able to continue to use most of these programs from home. This will provide them with unparalleled opportunities to enhance their learning experiences.

Our Tablet PCs come with a pen and digital inking features. What additional opportunities does this provide to enhance student learning in your subject?

When using a computer, students of Mathematics have always been hindered by the uniqueness of mathematical symbolism – even a concept as simple as ‘a half’ is difficult to enter using a standard QWERTY keyboard! Entering more complicated mathematical equations and solutions into a document by way of the conventional keyboard has been a tedious and frustrating process. It is wonderful that students will now have a pen to use with their Tablet PC so that they will write their questions and solutions using the inking features with speed and precision. This aspect of the Tablet PC will greatly enhance communication between student and teachers.

What IT skills have you learnt/explored yourself as a teacher in the first part of 2012?

During the first part of 2012, the Mathematics Department explored several programs. Of special interest has been a screen-capturing program called Camtasia that has greatly enhanced the provision of feedback to students, particularly after their major examinations. The program enables the preparation of a video of the process of arriving at the appropriate solution, together with audio of the teacher discussing the reasons for the solution and the likely pitfalls and misconceptions that were observed during the examination process. With the rewind and fast-forward features of a video, all students can manage the tempo and content of their learning.

Additionally, Mathematics teachers have been exploring OneNote and the myriad of features it offers the student of Mathematics. The collaborative opportunities and the organisational potential of this program have very much attracted our attention.

What possibilities do you see in the future with the technology?

The delivery of mathematical knowledge to secondary students will be enhanced “incalculably” from these new sources of information and new means of communication. Additionally, a student’s work will be stored electronically providing her teacher with easy inspection and the student with immediate feedback on her progress. It is difficult to predict what the future holds, but it is exciting to embrace opportunities for wikis, blogs, videos, forums, GPS positioning, “flipped” classrooms and online programs and to add them, on occasion, to the existing resources that Mathematics teachers have conventionally employed in delivering the curriculum to students at SCEGGS.
HISTORY

Student access to Tablet PCs will provide increased flexibility in lessons, allowing students to access technology to support and enhance their learning of History. Ms L’Estrange, Head of the History Department, maintains that it is “important to incorporate a variety of teaching and learning strategies in the classroom, and technology is an important tool to facilitate this”.

Students will be able to access a variety of source material more readily to facilitate their research of History. Tablet PCs will enable students to have greater spontaneous access in class to research databases, electronic journals, History websites and digital archives. This will allow students to explore a variety of materials to complement excellent library resources and ultimately make their research of History even richer.

Access to Tablet PCs will also provide students with the ability, where appropriate, to watch audio-visual stimuli and documentaries on ClickView/DVC at the students’ own pace. This access to educational multimedia will facilitate research lessons as well. Year 11 Modern History students are already able to use Tablets to research key concepts and personalities of the Romanov Dynasty. They are also able to watch a range of documentaries on Click View as part of their research of this era. Year 10 Australian History classes have used Tablets to easily access popular music from the 1960s as part of their Decade Study in Australian History.

The History Department is also creating resources to develop students’ writing skills and conceptual understanding by linking extended responses to key historical concepts and ideas. Technology has provided a useful tool to enhance the ability to pack and unpack ideas and concepts with extended pieces of writing. The inking tool on the Tablet PCs takes this a step further as it allows the students to engage with digital sources and readings in an interactive way.

Students will be able to have an electronic copy of booklet materials to highlight and annotate. Year 12 Modern History students have access on SCEGGSnet to a range of classwork sheets and Extension Readings that they can complete and annotate electronically and next semester Year 9 Elective History will be able to have an electronic copy of their booklet materials on Slavery to annotate. The ability to use the inking tool to make notes on material with the girls also enhances whole class discussions and activities. The inking facility is also very useful in providing feedback from teachers on homework and practice tasks that have been submitted electronically.

Ms L’Estrange has also welcomed OneNote as a valuable educational tool in conjunction with the Tablet PCs. “It has made for a more fluent and organised way to deliver material, using technology, in the classroom.” OneNote has been particularly useful for Year 12 Modern and Ancient History this year allowing Ms L’Estrange to plan and store lessons and key teaching materials in syllabus sections for students to access. The ability to incorporate additional PowerPoint tools, such as inserting video and audio files, as well as Excel for sequencing and chronology activities, are further powerful teaching and learning tools.

MUSIC

Mr Jewitt in the Music Department explains that the Tablet PCs present an excellent way to interact differently with the students in the classroom and differentiate their learning. “It certainly enhances the learning environment and has the potential to make lessons more fun, engaging and meaningful. The possibilities in the classroom are endless.”

Mr Jewitt maintains that the use of the Tablet PC will have a significant impact on the work Music students do with composition in particular. “We obviously use other music software programs for the actual composition but in terms of research, analysis and evaluation the use of OneNote opens up new possibilities for us.” Year 11 students are required to complete a short composition for a string quartet as part of their formal assessment. OneNote facilitates this process as investigations of music extracts, scores, samples of ideas and their own musical ideas can all be linked into one document which has not been possible before. The students and staff can share this more efficiently and therefore communication between students and staff is enhanced. The techniques learnt in this task prepare the way forward for the girls’ HSC compositions and provide them the opportunity to be very creative with their ideas, challenging themselves in a way they might not have previously been.

The digital inking features also provide additional opportunities for students of Music. Being able to analyse music on the Tablet PC is a very useful feature for small excerpts or extracts of pieces. Also being able to notate music theory, compositional ideas and complete aural questions at ease is very valuable to the learning environment.

Music teachers have also been excited by the possibilities of new programs such as Captivate to create video tutorials and of music specific software such as Sibelius and GarageBand. “It is always important to remember that students learn in different ways and using technology helps this as well as developing the independent learner.”