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Case Study

From Blackboard To Blackbaud

Woodstock school in Mussoorie, which aims at providing “a world-class international education,” is arguably the nation’s most wired school

Philip Malayil

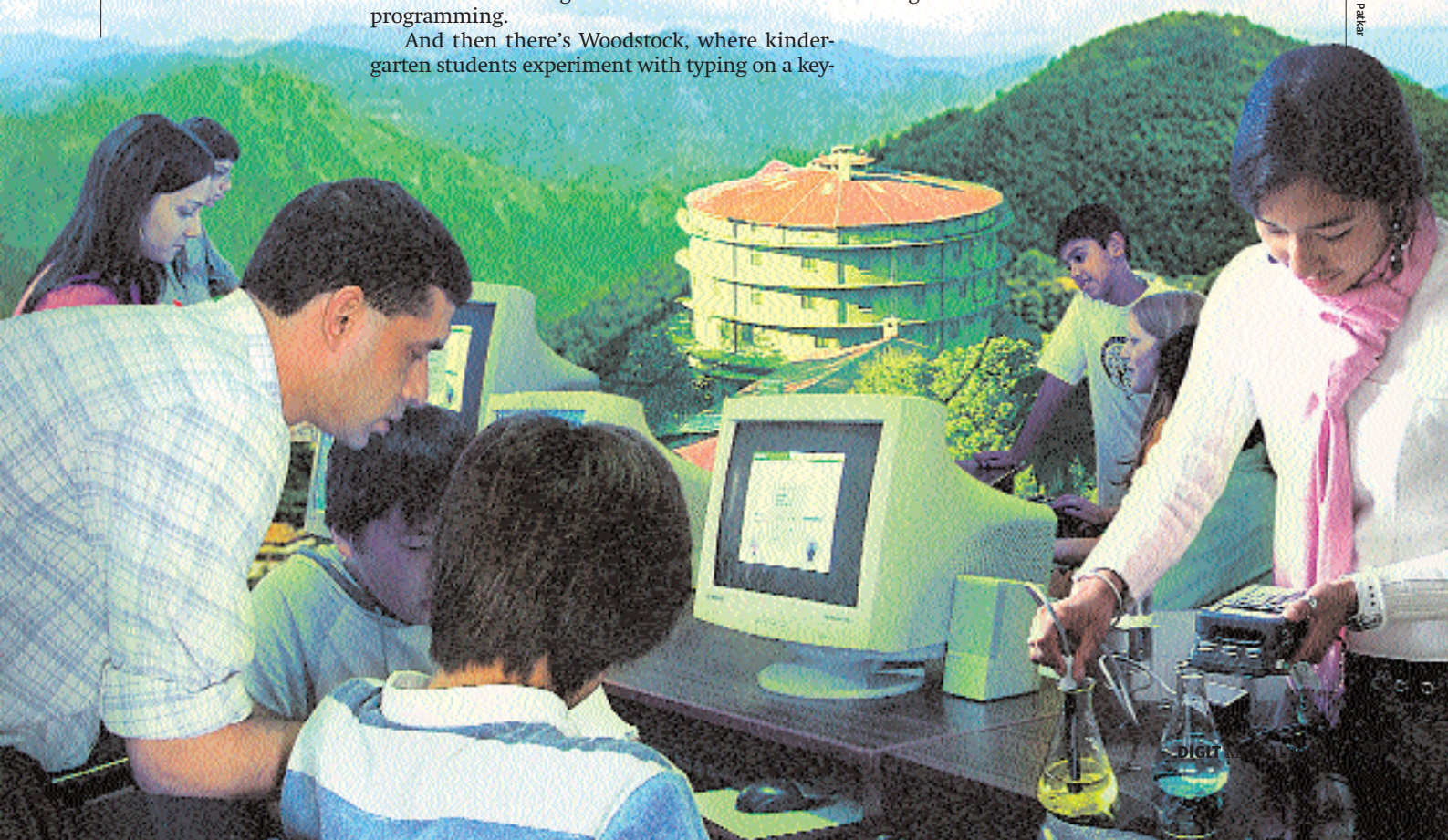
At the century-old Woodstock School, sitting on a spur between the Ganges and Yamuna rivers at around 2,000 metres above sea level, what you’re likely to first notice is the snow-covered ranges, whose peaks rise to more than 6,500 metres. But it’s not just a pretty school. It’s very wired. And those wires enable a very different way of life for the students as well as the teachers. School Principal David Jeffery has gone on record stating that the only Indian institutes to outdo Woodstock in terms of IT infrastructure would be the IITs.

It’s true that many of our schools have come some way from the days of question papers with “fill in the blanks” and “expand acronyms” being the only measure of a student’s competence. There are labs where kids can actually work on a PC, and some students even get to learn the rudiments of programming.

And then there’s Woodstock, where kindergarten students experiment with typing on a key-

board, learn to read using WiggleWorks, weave their own stories using Storybook Weaver Deluxe, and learn the rudiments of counting with Treasure MathStorm. As they move into middle school, Rosetta Stone equips them with Hindi vocabulary; a custom-designed Focus on Grammar program helps to bring on par those learning English as a second language; and a MathLab Toolkit replaces MathStorm.

Founded in 1854, Woodstock is an international, kindergarten to grade 12 school that prepares students for entry into colleges throughout the world. Its core subjects—English, Mathematics, and the Physical and Social Sciences—are supplemented by particular strengths in music, art, drama, journalism, environmental studies and outdoor education. Here, IT is “a medium in which students can work out and express their thoughts.”



Imaging: Sri Krishna Patkar

Software, Hardware, Everywhere

Programming begins in high school with Visual Studio.NET and MS Access. Algebra, that scary phenomenon, is tamed with Derive, while Geometer's Sketchpad opens up the monitor as a visualisation tool to help grasp the concepts of lines, planes and much more. Electronic book-keeping is taught using MYOB, and Environmental Science projects use Front Page Editor. Measuring data for experiments in physics, chemistry and biology are done with handheld devices—the results are uploaded onto a network folder, and analysis can be done from the comfort of one's dormitory using Vernier LabPro!

The use of software is not limited to the classroom. Publisher 2000 enables the newspapers brought out by the students in the journalism class, while the VHS editing room is used to compile an audio-visual news magazine, with the international section being sourced from CNN, BBC and local happenings shot around the campus. The yearbook, again produced in-house, is created using the Adobe DTP Suite.

Sibelius Orchestration and Finale Orchestration are tools used to teach music skills across all three sections—the kindergarten, middle school and high school. Not only do the software make provision for the students to write music, they offer exercises in creating "missing parts." For those looking to master improvisational techniques, Band-in-a Box allows one to "solo" behind a band. And after hours of practice, when a young aspirant wants to apply to music college, Sonar Recording Software helps cut that master.

305 workstations, 15 servers, a 1 terabyte Storage Area Network (SAN) set to scale up to 2 TB in the next two years, a robotic tape library, 2 Mbps Internet connectivity, and 14 km of fibre-optic cable criss-crossing a location challenged by lightning, rain, fog and monkeys—along with the associated hubs and switches—comprise the infrastructure that enables all this and more.

The Man Behind The Machines

Overseeing mission critical e-mail—often the only link for the community, gathered from 25 Indian states and 35 countries, with the outside world—is a job in itself. So is the smooth functioning of the BlackBaud ERP suite (See box *Blackbaud*) on which the entire school administration runs. There's also the backup of the enormous amount

The use of software is not limited to the classroom. Publisher 2000 enables the newspapers brought out by the students in the journalism class

of data generated on the SAN to be managed. And there's one man behind all this—fifty-one-year old Steve Ediger, Director-ICT (Information and Communication Technology) at Woodstock.

Ediger, married to a Woodstock alumnus, came to Mussoorie nine years ago after selling his business in Los Angeles. A veteran in the field of IT right from 1978—when there were 50,000 micro-computers in the US—he started out as a distributor for systems and peripherals with a company that later became Ingram. Ediger remembers Bill Gates walking in and out of offices trying to peddle the compilers he had written prior to DOS!

When Ediger came to Woodstock in 1997, the school had 100 computers running multiple versions of DOS, Windows, and WordPerfect on a LAN. There were two Intel servers and a 64 Kbps Internet link shared between 300 users.

The Upgrade

The existing discrete storage method, where the two application servers also doubled up as storage, had its disadvantages. For example, teachers had to store both lesson plans and personal data on a single network drive. When a teacher left, someone would have to sift through all that teacher's data, pulling out what was needed by the teacher who came in. Also, from the system administrator's point of view, e-mail maintenance meant shutting down a common server, which would naturally hamper other applications running on it.

The use of IT in the classrooms was increasing: e-yearbooks began to take up entire drives. When the biology class completed study of a stream ecology, the data and pictures would take up another drive. And the Internet was being used much more as a research tool. All this meant information at Woodstock was exploding. And so, in January of 2004, plans to upgrade the infrastructure were made. The approach had to factor in e-mail, ERP, MIS and classroom requirements. At the end of the upgrade, Woodstock was truly wired. While the final cost came to more than Rs 3 crore, the initial costs included Rs 50 lakh on the servers, SAN and tape; Rs 10 lakh for the additional hardware; Rs 12 lakh for new software; and Rs 10 lakh for the 14 km of fibre-optic cable.

Ediger's comments on this venture are worth noting: "We believe we have investment protection because we can get even faster performance, continuous availability and data integrity, and increased scalability—from five to 240 drives in a modular, pay-as-we-grow increments. This allows me to plan not just for next year, but for at least the next five years, which is a true luxury when it comes to information technology."

"A Twenty-Fold Improvement"

For the residents of the school, the upgrade meant that each classroom got a computer, used primarily for presentation. The science rooms together got 100. There were 25 for each of the three labs, while the Internet library and the study room together got 18. The dormitories were not neglected: while the high school dorms managed a 1:10 ratio, middle-school dorms got a lower 1:15. Elementary school dorms, where the little residents have many other concerns, make do with a 1:50 ratio.



There's no dearth of computer lovers here

In terms of space, each student gets 2 MB of e-mail and 100 MB for personal use. This is further supplemented by space allotted for different activities and clubs.

For the system administrator, too, it was very different after the upgrade. There was now the ability to create storage facilities according to requirements. A staff member could have separate drives for personal and department use. Access rights could then be managed; for example, a department head could access and manage the entire “department data” drive. Similarly, each class could have a drive with read-write privileges for the teacher and read-only for the students; this would be where the students handed in assignments. Configuration possibilities became as varied as the requirements of different teams.

Multiple servers meant that now, when the e-mail server needed maintenance, for example, there was no reason for applications such as the ERP or accounting suites to stop functioning.

Data backup was another area where having a SAN really helped. “Trying to take backups of our information from 18 servers and 300 desktops was such a nightmare that we chose to only back up our mission-critical infrastructure on a monthly basis. Our exposure was high, and our information was at risk,” says Ediger. “Today our information is not just safe; it is more effectively shared, protected, backed up and leveraged. It takes a huge load off of my servers, and I am able to use them and utilise them far more effectively than before. Backing our data up is just so easy now—I can see at least a twenty-fold improvement!”

The process is fully automated to boot. Once scheduled, using a Veritas storage solution software, the administrator can literally take a walk or a nap. The 20 robotic slot tape changers automatically replace tapes. The EMC/Dell CLARiiON CX 300 system is a RAID 5 setup, which in this case means there are nine drives on a storage server.

The Use Of The Internet

Asked about students accessing the Internet and whether any monitoring or censorship is exercised, Ediger reasons, “Apart from the prohibitive cost of filtering software, we realise they often don’t keep people out from where they shouldn’t be. So the students’ access is restricted to the Internet centre in the presence of supervisors.”

In any case, at Woodstock, the Internet is not the primary source of information for the stu-



The young take to IT at Woodstock

Blackbaud

Blackbaud is an ERP suite. It comprises several modules designed for not-for-profit organisations. Those implemented at Woodstock are Education Edge, Financial Edge and Raiser’s Edge.

Raiser’s Edge helps organisations of all types and sizes to raise money. This solution supports traditional and diversified fundraising methods, automates administrative processes, and provides insightful reports.

Financial Edge provides the power to develop budgets, control spending and achieve accountability.

Blackbaud’s total school solution, including Education Edge, provides all who need to know—including parents, teachers and supervisors—with instant, secure access to up-to-date

student and financial information. The solution also allows schools to extend their communication efforts to the Web, keeping parents, students and alumni in the loop at all times.

A typical application of Education Edge is in scheduling exams. In a school such as Woodstock, which offers 50 electives to a high school student, ensuring that every student need not take more than two papers a day within the stipulated exam date becomes an involved permutation and combination problem, which is effectively solved by the software. Providing parents with real-time access to student records is another complex archiving activity handled by the suite.

dents. They have the 37,000 volumes in the library and the 80-odd reference CDs and DVDs to exhaust first! This, according to Ediger, is primarily to develop a “right learning strategy,” while keeping in mind the costs of bandwidth.

Why So Much Tech?

Coming to learning strategies, one might ask, what is the need for so much tech in a school? Why is there such prolific use of computers, right from the kindergarten level? What exactly is the philosophy behind the IT investment?

“Computers are nothing more than the slate and chalk of today,” is how Principal Jeffery understates what he calls “the contemporary learning tool.” He adds, “Education is not about filling an empty receptacle—the learner—with information, but equipping him to think for himself. To this end, the use of computers offers many opportunities.”

Besides that, Jeffery goes on to say, “We are an international community drawn from 35 countries around the world. And communication is essential for students and staff alike. A robust infrastructure serves this critical purpose.”

IT is being harnessed to its optimum at Woodstock, acting as an enabler to “opening up the mind.”

To this end, an assessment to optimise the use of technology in education is being carried out. Some of the issues of immediate concern being discussed include revisiting the proposal of providing students and teachers with laptops, which is currently on hold, coupled with that of setting up a Wi-Fi network that would cover all of the 300 acres.

At The End Of The Day...

It’s remarkable how an institution more than a hundred years old has kept pace and transformed itself into something of a precedent-setting school for the 21st century. Of course, not everyone can afford the kind of infrastructure here, but any modern school would do well to take a cue from Woodstock’s wired philosophy. ■

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