Information and Communication Technology (ICT) is Transforming Healthcare Education in the Philippines

Putting notebook and desktop PCs in the hands of teachers and students means better healthcare and a stronger economy.

In the Philippines, the effectiveness of nursing education has large impacts on healthcare and more. With a population of 90 million, every citizen is affected by the quality of nursing in hospitals, clinics, and traveling healthcare teams.

In addition, 690,000 Filipino nurses working outside of the Philippines repatriate over US$170 million each year, which represents a full 1 percent of the nation’s GDP. For both health and wealth, the citizens of the Philippines depend on the quality of the nursing force.

Recent worldwide trends have reduced the demand for Filipino nurses as other countries produce increasing numbers of healthcare professionals; this puts even more demands on the Filipino nursing education system to produce high-quality graduates that can compete.

The capabilities of Filipino nurses are most affected by the nursing education delivered in more than 450 nursing programs to over 500,000 students nationwide. The President’s Commission on Higher Education (CHED) has recognized the need for nursing schools to increase the overall quality of nursing graduates, and to that end is encouraging and tracking the increased use of informatics in nursing programs. The wider use of informatics in nursing curriculums is seen as essential to improving the quality of the nursing education that schools are delivering.

Joel Cruz, officer-in-charge at the College of Allied Health Professions at Good Samaritan Colleges, has noted that the informatics challenge is a matter of keeping up with changing conditions worldwide. “The emerging rise in the use of technology is prompting nursing colleges to adopt ICT solutions,” he says. “Otherwise, they’ll be left behind.”

Informatics is key to increasing the return the nation gets from its investments in nursing education.
Deploying ICT Solutions to Improve Educational Outcomes

As ICT plays an ever-increasing role in developed and now developing countries, building 21st century skills to meet the escalating demands on healthcare resources is a strategic imperative for nations. Leading Filipino nursing schools are taking a multi-faceted approach to incorporating ICT solutions into their educational processes. While strategies vary from school to school, key elements are:

- Wireless networks
- Instructor notebook PCs with specialized instructional software
- Affordable student notebook PCs with self-paced learning content
- Multimedia and computer-enabled classrooms and labs

To assist nursing schools and students adopt the technology tools that will help them succeed, Intel is partnering with leading nursing colleges and key private sector companies to increase usage of ICT tools in nursing programs. Intel often takes a leadership role in public/private partnerships that accelerate education and healthcare transformation worldwide through technology, programs, and policy leadership. Getting the right ICT tools in the hands of both teachers and students is proving to be a catalyst for better, more immersive education that develops graduate nurses who have broader skill sets and are better prepared for the evolving challenges of today’s and tomorrow’s healthcare settings. At leading nursing colleges, these ICT tools – including multimedia classrooms, educational software, broader access to the Internet, and student PCs – are being deployed to transform nursing education. (See the chart Nursing Schools Leading the Way with ICT on page 3.)

Intel has been an active participant in formulating strategies to meet these challenges. Discussions at the Health Informatics Seminar held at the Asian Institute of Management and multiple summits for college administrators held in Cebu and Manila identified a strategic opportunity to increase PC ownership by nursing students. Intel, in partnership with Asianic Distributors, Radiowealth Finance Corporation, and leading Filipino nursing schools, launched the PC Acquisition Financing Program in 2010. This innovative approach extends low-cost financing to nursing students and faculty who would otherwise not be able to purchase a PC. The program makes a key component of ICT-enabled education – the learners’ and instructors’ own PCs – much easier to accomplish. In the program, the schools enter into a Memorandum of Agreement with Asianic (the PC dealer) and Radiowealth (the financing provider). Students and faculty are then presented with a range of affordable choices for netbook, notebook, and desktop PCs. “The financing component of the program provides students with options for PC ownership that they normally would not have,” says Carlo Subido, business development manager at Intel. “That gives them access to possibilities and information that they’ve never had before.”

Strategic Capabilities that Produce Better Nurses

Executive leaders at many of the leading Filipino nursing schools see clearly that meeting the challenges facing them will require expanding the role of ICT on campus. “The growth of ICT in higher education is showing that traditional instruction is slow, time consuming, and provides limited access to information,” says Dr. Norma Simborio, dean of the College of Nursing at Cagayan de Oro College-Phinma. “Teaching with ICT tools in the classroom and in the students’ hands is dynamic, innovative, and creative. And it extends the student’s learning experience to any location with access to a wireless network.” Dr. Nancy Erasga, dean of the College of Nursing at Araullo University-Phinma agrees. “We have a significant advantage in that all our nursing faculty members are also computer literate. It makes the classroom teaching environment more seamless and effective.”

“With a PC and through the Internet, I have access to a much wider set of sources. I’m able to gather information that is relevant to the task at hand and much more up-to-date than traditional resources.”

– Keith Petrola, senior student, College of Nursing at the University of Pangasinan-Phinma

Photo courtesy of Wesleyan University-Philippines
These schools are preparing highly skilled and competitive nurses by deploying ICT solutions in the classroom and helping nursing students purchase a PC through the PC Acquisition Financing Program.

<table>
<thead>
<tr>
<th>Schools Currently Participating in the PC Acquisition Financing Program</th>
<th>Number of Nursing Students Enrolled</th>
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</thead>
<tbody>
<tr>
<td>University of Perpetual Help System</td>
<td>4,000</td>
</tr>
<tr>
<td>Wesleyan University-Philippines</td>
<td>2,700</td>
</tr>
<tr>
<td>Good Samaritan Colleges</td>
<td>600</td>
</tr>
<tr>
<td>University of Pangasinan-Phinma</td>
<td>2,100</td>
</tr>
<tr>
<td>University of Iloilo-Phinma</td>
<td>1,400</td>
</tr>
<tr>
<td>Cagayan de Oro College-Phinma</td>
<td>400</td>
</tr>
<tr>
<td>Araullo University-Phinma</td>
<td>460</td>
</tr>
</tbody>
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Whether it’s instructors delivering lectures from a notebook PC, student teams collaborating on a nursing assignment in a computer lab, or students accessing research information wirelessly across campus, each of these capabilities improves the students’ learning experiences. ICT solutions enhance the teaching and learning of medical concepts as well as their applications in clinical settings. “New technology can deliver medical information faster and more comprehensively,” explains Prof. Peregrin De Guzman, president of Good Samaritan Colleges. “These tools assist faculty in making lessons easier to comprehend, more organized, and better illustrated in specific, concrete situations.”

Administrators measure the impact of ICT tools through improvements in faculty effectiveness, students’ academic performance, national achievement tests, and licensing board examinations. Even at the end of their education, nursing students are assisted by access to online review tools to prepare for their board exams. “Our ICT tools allow us to keep pace with technologic advances in the world around us,” notes Fria Demaisip, dean of the College of Nursing at University of Iloilo-Phinma. “They’re helping us to produce nurses that are better trained, competitive globally, and equipped with the technology skills needed in today’s healthcare settings. Without these tools, we would be left behind.”

Making Teachers More Effective

Using ICT tools helps teachers deliver better education throughout the teaching process – from development of course materials and new ways to package content to enhanced in-class delivery and collaborative clinical simulations.

In developing course material, faculty at leading nursing schools are using a variety of commercial and free, open-source software applications to increase their effectiveness in the classroom. Presentation software (such as Microsoft PowerPoint®) is a basic tool, but many open-source applications are utilized for customizable E-Learning tools, student assessment, critical thinking exercises, graphical illustrations, and video. “These tools not only allow faculty to present more attractive content, but to combine content in new, more effective ways,” says Dr. Nemuel Fajutagana, professor at the National Teacher Training Center for Health Professions at the University of the Philippines, Manila. “With ICT tools, instructors can deliver lessons in small packages and in interactive or collaborative ways. These tools also allow faculty to deliver teaching anytime anywhere, removing geographic barriers.” Campus-wide wireless networking makes it possible for faculty to access resources from anywhere and keep in-classroom experiences up to date. According to Dr. Rosalie Armando, IT director at the University of Perpetual Help System-Dalta, informatics fundamentally changes an instructor’s teaching capabilities. “Faculty members can broaden their research-based activities, create various lesson designs, and bring more innovation into the classroom,” she says. “Adaptable courseware, online examinations, and interactive computer-based training all become possible. Instructors are given a much better tool kit to work with.”

In the classroom, the multimedia presentation of lessons using a notebook PC, multimedia software, and an LCD projector is the most visible impact of ICT. “The delivery of lessons is comparatively more creative and more effective,” says Joel Cruz of Good Samaritan Colleges. “Using computers in the classroom makes presentations more fluid and illustrations more vivid. Students understand concepts faster and more completely.” Multimedia presentations also help faculty to arrange teaching components in new ways, using video, animation,
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“...A basic principle of medical education is multimedia to present clinical material: explains the effectiveness of using Training Center for Health Professions in.” Dr. Fajutagana of the National Teacher

actual clinical situations we’ll be working under and understanding and appreciation of the cardiac stenting give us a much better understanding of video for improved self-paced learning, test-creation tools that enable spot testing, and Web sites to share content with students earlier for better class preparation.

Outside the classroom, ICT tools benefit the teacher by enabling increased teaching skills. Instructors have access to the latest nursing research as well as pedagogical best practices and trends. “Informatics is significantly enhancing instructors’ skills,” notes Cruz.

Empowering Students to Excel

For nursing students, informatics transforms their education through richer course content, improved access to information, and new learning methods that take advantage of independent, collaborative, and interactive techniques.

“Before the adoption of PCs in the classroom, instruction could be flat or one dimensional,” says Keith Petrola, a senior student at the College of Nursing at the University of Pangasinan. “Multimedia instruction combines visuals, animation, and audio to make the material much more engaging.” According to Petrola, the use of video is particularly valuable in learning clinical procedures. “Videos of procedures such as MRIs, open-heart surgery, and cardiac stenting give us a much better understanding and appreciation of the actual clinical situations we’ll be working in.” Dr. Fajutagana of the National Teacher Training Center for Health Professions explains the effectiveness of using multimedia to present clinical material: “A basic principle of medical education is ‘see, hear, do’ in sequential order. In an ICT-enabled classroom or lab, you have all three happening simultaneously, which increases the level of encoding and results in better recall.”

In addition to a greatly enhanced classroom experience, students with PCs also have access to a broad range of tools and material that previously were not available to them. “With a PC and through the Internet, I have access to a much wider set of sources,” says Petrola. “I’m able to gather information that is relevant to the task at hand and much more up-to-date than traditional resources. For example, I recently used the Internet to research the latest developments regarding Severe Combined Infant Syndrome, which is related to my current training assignment in a Neonatal Intensive Care Unit. The ability to do that research means that I can bring more to my own education.” Instructors are noticing an increase in independent learning on the part of students with PCs. A notebook PC’s wireless access means that students can study virtually anywhere on campus and are not restricted to the library. “This allows us to have brainstorming or collaborative sessions anytime or anywhere,” notes Petrola. According to Petrola, the results of having ICT tools both in and out of the classroom are simple: “Better learning and better grades.”

As students exit their nursing school and enter the workforce, ICT tools and the technology skills they’ve gained continue to serve them. Computer-based review courses help them prepare for board exams, and online refresher courses help them continue their education even if they’re working overseas. And on the job, they’re better prepared and more competitive. “Our students are more confident when they face the real world,” notes Daisy Montinola, chief finance officer of the

“...Better Nurses

Ultimately, the payoff from using appropriate technology tools in the delivery of nursing education in the Philippines is better nurses and the societal and economic advances they bring. “By leveraging informatics, we’re giving our students individualized, customized instruction that is much more immersive,” says the University Iloilo’s Demaisip. “You can see that just by observing the processes. But underneath the surface, we’re also developing nurses who are better able to find, organize, analyze, and effectively communicate information. That’s the power of technology in a nursing school setting. We’re producing nurses that are more innovative and more globally competent.” In addition, healthcare delivery institutions can significantly reduce their training budgets as well as deploy nurses into clinical functions faster. Considering the high rate of attrition of nurses, this can have a significant ROI impact on the healthcare system in the Philippines.

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– Fria Demaisip, Dean of the College of Nursing, University of Iloilo-Phinma

Phinma Education Network, “and they have an edge compared to other graduates who were not exposed to this type of technology.”

The Return on Investment: Better Nurses

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Expanding the Benefits
The initial set of schools participating in the PC Acquisition Financing Program see expanding their use of informatics as central to their continued competitiveness. Typical areas of expansion include:

• Expanding Wi-Fi coverage to entire campuses
• Broader adoption of PCs by students and instructors
• Increasing the number of computer-enabled classrooms and labs
• Additional E-Learning software tools
• Adoption of dedicated Virtual Nursing Laboratories

Broader adoption of PCs by students is central to these strategies. “The cost-effective acquisition of student laptops through the PC Acquisition Financing Program will enable us to provide a stronger and more inter-connected learning community for our students,” says Prof. Alessandra Leyva De Guzman, vice president for administration at Good Samaritan Colleges. In addition, the skills gained continue to pay dividends long after graduation. “The demand for ICT skills will only continue to grow in all fields of healthcare specialization, including nursing,” notes Raymundo Reyes, chief operating officer at Cagayan de Oro College. “Institutions like ours must continue to grow our ICT solutions in order to enable our graduates.”

Intel envisions that this accessibility program in the Philippines will continue to grow as more PC dealers form alliances with other micro-financing firms. It’s quite possible that schools will eventually embed the cost of affordable PCs into their tuition structures to standardize the students’ experience. Intel also sees this program as a powerful model for government, private sector, and NGO decision makers looking for a public/private partnership approach to increasing the use of ICT to tackle significant societal and economic challenges.

For More Information
Improving healthcare promotes human happiness and citizen satisfaction. Since poor health and poverty are tightly linked, better healthcare also expands economic opportunity and reduces income inequality.

What is your vision for healthcare in the world ahead? Talk to Intel and let’s start now for a healthier tomorrow.

Contact your local Intel representative, and see the world ahead: www.intel.com/worldahead.

“This decade we will create and extend computing technology to connect and enrich the lives of every person on earth.”

– Paul S. Otellini, President and Chief Executive Officer, Intel Corporation