# ICTs as a Transversal Competency in Nursing

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The development axis of the nursing training program focuses on the acquisition of certain interpersonal skills such as communication abilities, the ability to establish a patient-caregiver relationship (01Q5), professional skills (01QF), social skills (01Q5), and technical and organizational skills (01Q4). Some competencies proposed in the program cover a wide array of specializations (e.g., care for specific client groups such as the elderly (01QM), children (01QJ), neonates (01QH), and so on). On the opposite spectrum, among the professional competencies there is no specific reference to the ability of the student to assume a role in the contemporary digital world.
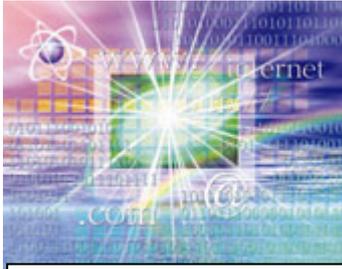
Source: www.fotosearch.fr

Status of ICTs in the training of nurses in CEGEPs

The more recent cohorts of students have greater experience with computerized devices than the preceding ones. Hidden behind this reality is the fact that the use of technology by young people is often limited to personal interests or recreational activities such as blogging, tweeting or streaming videos on YouTube. Some nursing students are even avid on-line gamers. Many students were already accustomed in high school to writing their assignments with word processors or other similar programs and to preparing in-class PowerPoint presentations.

On the opposite end of the spectrum, nursing teachers often have limited knowledge on how to incorporate ICTs in the classroom. In the Information Age, teachers and their more technologically oriented students are increasingly being called upon to make use of software and the net. It is subsequently essential that pedagogy reflect this reality to make learning and skills acquisition more enticing in an increasingly connected world.

Needs of the educational milieu

Just like society at large, the world of education is undergoing a social and technological transformation whose impact is being felt in the workplace.[i] Nursing studies prepare students for the exercise of their profession and for life in a complex society in which change is constant and in which technological and on-line progress are increasingly growing and dominant forces. In the future, the amount of information and the number of variables requiring processing and interpretation will require professionals to be increasingly flexible and capable of adapting to IT change as part of the decision-making process. Whenever possible, our pedagogical methods should also follow the trend so that promising strategies which encompass IT can be implemented.

A diversified and demanding student clientele

Most nursing students today belong to *Generation Y*, the group born between the mid-1970s and the 1990s. Depending on sources, they are also referred to as the *Millennial Generation*, *Generation Next* and *Net Generation*. For this generation, the learning process has taken on a whole new dimension. Its members are accustomed to being constantly stimulated, as shown by their widespread use of video games, the Internet, and cell phones, which they consider essential tools, and their absorbing habit of texting messages.

The teacher who fails to adapt his pedagogy to their requirements and preferences will soon find that many of these students consider books and classrooms to be the epitome of boredom. They have grown accustomed to perpetual stimulation in their environment and to an intense lifestyle which they seek to reproduce in the classroom. Failure to find appropriate teaching strategies may result in boredom and dropping out.

Four generations of nurses are currently working together in health care institutions.
Silent Generation (pre-War): born before 1945;
Baby-boomers: born between 1945 and 1961;
Generation X: born between 1962 and 1976;
Generation Y: born between 1977 and 1989.

Gen Yers are even more comfortable with IT than preceding generations. Students belonging to this group are driven by a need for self-fulfillment, to make their learning meaningful, to find a captivating field of study, and to be constantly stimulated, in this case, with the communication tools that were designed for them. These students also expect pedagogy to encompass dynamic learning projects, interactive learning, streaming video content, and personal, on-line involvement by their teachers.

A socio-constructivist program which encompasses a methodology oriented on active skills development should help students to acquire the communication skills, autonomy and teamwork abilities that they need as well as to facilitate their insertion in the workplace in the profession of their choice. When properly implemented, IT strategies provide a good platform for this type of renewed pedagogy. "[Translation] *Every collegial training program (pre-university and technical) has a set of competencies or ministerial objectives associated with the use of ICTs which students must master, including: finding information, processing it and presenting it in accordance with source attribution standards, as well as the know-how to execute distance communication and collaboration.*"[ii]

Health care necessities

Health care institutions are also subject to technological change. Many health-related software tools have been developed, including those used to note the patient's progress in his record in the Therapeutic Nursing Plan (TNP), to search for laboratory results, to file medical and pharmaceutical prescriptions, to manage stretchers and patient care in the emergency room, as well as to perform various types of follow-ups. This computer-savvy generation also requires certain adaptations for their clinical training. From the onset of their training, they must be

given the opportunity to put their skills into practice and to become familiar with health care software and programmable devices in health care settings so that they are comfortable with their use once they enter the labour market.

They will subsequently be able to keep up with their senior peers who have different skills and expectations, but also broad experience in the technological context of their profession even if their mastery of computer skills is narrower.[iii] For the first time and in the same departments, four different generations of nurses with different personal and professional experiences are working together. The younger Generation Y graduates may have less experience, but they will be more familiar with electronic and computerized devices. That will make them better adapted to their duties.

Major roadblocks

There are many roadblocks in the integration of ICTs in nursing training programs. There is a certain type of conservatism in this mostly feminine discipline in which teachers must divide their time between the classroom, labs and patient care. Keeping up-to-date in their fields leaves them with less time to perfect their computer skills.

There is also a high turnover rate among nursing teachers, which means that the learning curve is constantly being repeated. New teachers must spend a considerable amount of time adapting to their pedagogical role while continuing to exercise their clinical duties. The scope of an already overloaded program is another major hurdle which they must overcome.

Source: www.fotosearch.fr

The competency-based program has mobilized nursing teachers. They have spent considerable time and energy familiarizing with this method, time which was not spent on ICT skills acquisition. Nonetheless, in order to meet ministerial guidelines, to train students to master ICTs more effectively, to respond to research requirements, and to enhance information processing and communications in the CEGEP network, working on the ICT profile of students is essential.[iv]

ICT Competencies for College Students

Using ICTs for learning purposes consists in:
▶ Mastering the work environment;
▶ Searching for information;
▶ Processing information;
▶ Presenting information;
▶ Communicating and collaborating on the Internet;
▶ Evaluating projects.

Perreault, Nicole (April 2009). InukTIC: exploiter les TIC pour apprendre (et prévenir le plagiat!), *Clic*, 70. Retrieved January 20, 2010 from http://clic.ntic.org/cgi-bin/aff.pl?page=article&id=2126

A necessary reflection

In order to respond adequately to the needs of nursing students and to those of the workplace, we should consider which exit ICT profile is preferable, and at the very least, identify what skills are required to exercise their profession upon graduation. This

reflection should be extended throughout the collegial network. Many CEGEPs have already integrated ICTs in their training, but up to what level as regards skills development? Knowing this would be useful in order to develop a practical description for all CEGEPs which integrate ICT training. Students would subsequently have access to ICT competencies, as illustrated in the chart below.

(For further information, please consult *Le modèle de plan d'intégration des TIC pour le réseau collégial*).[v]
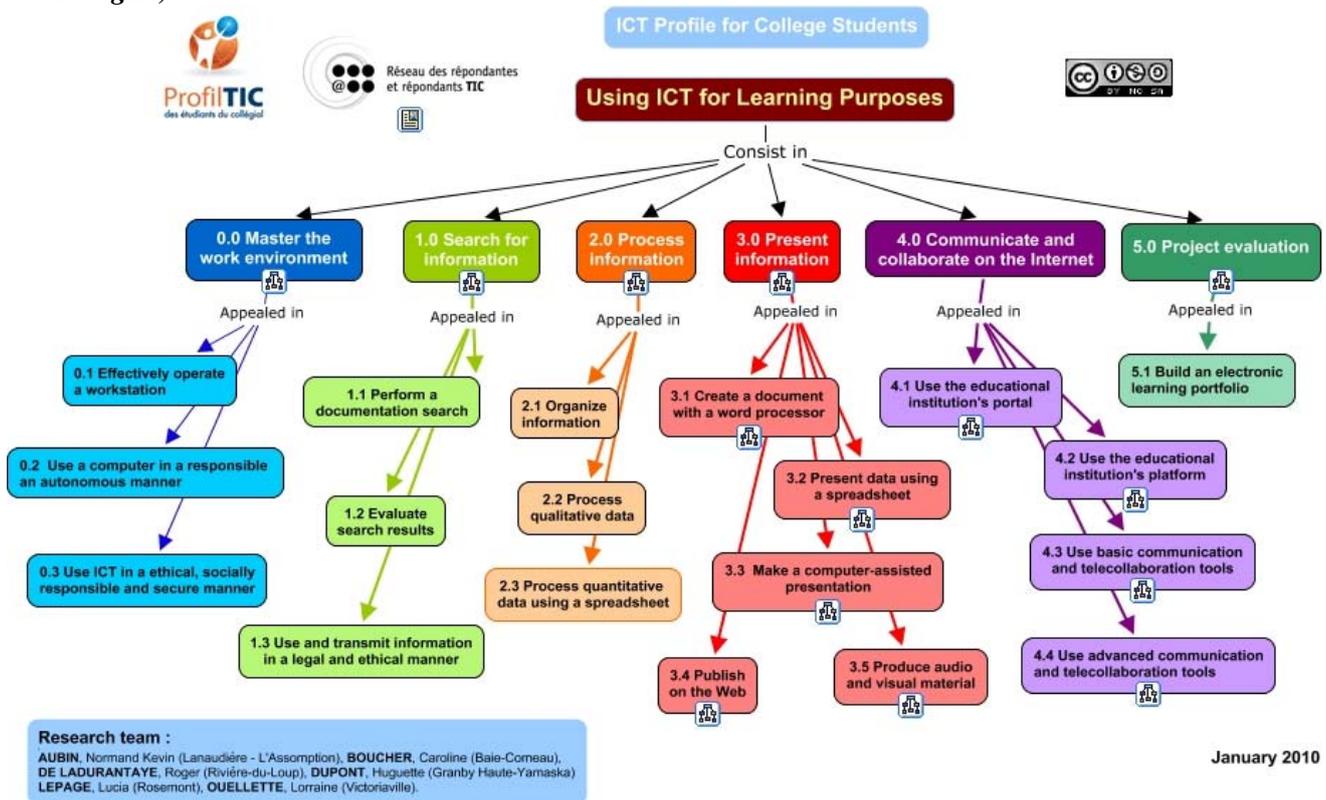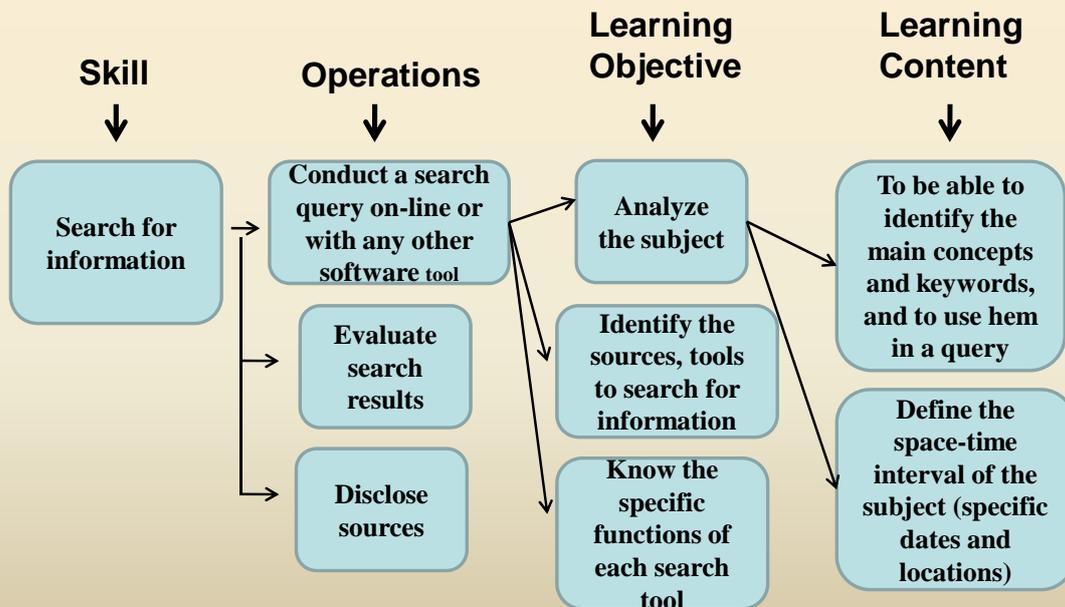
The ability of nursing teachers to use ICTs should also be examined. It is recommendable to pursue a global reflection in order to plan effective and standardized training throughout the collegial network.

Potential avenues

Pedagogical measures to promote ICT integration are widespread in Quebec. Our colleges provide many resources in this area. Classes are organized locally or through APOP (http://www.apop.qc.ca), whose mission is to build a quality education network and to help teachers develop the skills to "*provide computer-assisted education* [Translation]."[vi]

Skill: Search for Information

Skill	Operations	Learning Objective	Learning Content
↓	↓	↓	↓
Search for information	Conduct a search query on-line or with any other software tool	Analyze the subject	To be able to identify the main concepts and keywords, and to use hem in a query
	Evaluate search results	Identify the sources, tools to search for information	Define the space-time interval of the subject (specific dates and locations)
	Disclose sources	Know the specific functions of each search tool	

The above table provides an example of the development of a skill contained in the *Profil TIC des étudiants du collegial* (ICT profile of CEGEP students) developed by the Réseau des répondantes et répondants TIC.[vii]

Each CEGEP has a pedagogical advisor whose duty is to provide guidance and assistance to teachers in the acquisition and development of their ICT skills. Experienced technicians are also on location to provide technical assistance and to install the software provided by the colleges. All of these tools and personnel are available to help us. It is up to us to take advantage of these opportunities.

Assistance to introduce ICTs in pedagogy

The Ministère de l'Éducation, des Loisirs et du Sport (MELS) is putting emphasis on the introduction of ICTs in the classroom. Nursing programs are no exception. The guidelines and motivations are clear, and the support required for this electronic transition is being implemented in a variety of well-defined projects. **L'aide à l'introduction des TIC en pédagogie** (assistance to introduce ICTs in pedagogy) aims to facilitate the acquisition of ICT skills and their use in the classroom for searching for information, connecting students and teachers together, organizing class content, and so on.

This guide is based on the works of the Réseau des répondantes et répondants TIC (REPTIC, http://www.reptic.qc.ca/), which offers an *adapted on-line training window*.[viii] The REPTIC

has made many on-line resources available which, from other projects supported by the MELS, guide CEGEP teachers in creating a learning community based on ICTs.

The ICT profile of CEGEP students *"offers a path for students to help them achieve the required level of mastery of ICTs, procedures, and tools to conduct a bibliographical search. [… It contains] a description of the skills level of new students [… and mentions that] an entry exam, a workshop or a seminar to update their skills may be considered [Translation]."*[ix]   InukTIC (http://inuktic.qc.ca) provides on-line resources to develop the skills contained in the student's ICT profile.

Profweb (http://savoirfairetic.profweb.qc.ca) is an exceptional resource, *"a diagnostics tool to identify the ICT training requirements of teachers [translation]."* It is a web site "initiated by the Ministère de l'Éducation, du Loisir et du Sport (MELS) and used to establish a ICT competency profile and to provide access to a customized training plan translation]."[x] The self-assessment statements contained at http://savoirfairetic.profweb.qc.ca are based on the repository of techno-pedagogical competencies for college teachers developed by Bérubé and Poellhuber (2005).[xi] It is particularly inspiring to identify the variety of competencies which teachers need to develop in a context in which ICTs are omnipresent.

Projet Eurêka (eureka.ntic.org) provides learning and teaching resources. *"The Eureka project is an initiative of Vitrine Technologie-Éducation within the framework of a Quebec-Wallonia-Brussels joint venture. It provides a collective catalogue of teaching and learning resources gathered by various organizations involved in the production of ICT educational resources."*[xii]

Le bulletin Clic (http://www.clic.ntic.org) is a bulletin available in both electronic and paper formats. This collegial bulletin on ICTs is made available *thanks to the combined initiative of four Quebec-based organizations involved in the field of ICTs in post-secondary education*.[xiii]

Other references follow.

i.   The Centre collegial de materiel didactique (http://www.ccdmd.qc.ca) provides a wide variety of valuable resources.[xiv]
ii.   Cégep@distance (http://www.cegepadistance.ca) is a great site to conciliate family life, work and studies; in addition, users can consult it at their convenience.[xv]
iii. Profweb (http://www.profweb.qc.ca) is a Quebec College Crossroad for IT integration which provides *"links to different sources for in-depth information dealing with an aspect of IT integration produced by our IT partners."*[xvi]
iv.   Vitrine Technologie-Éducation (http://en.ntic.org), as aforementioned, has a mission to promote and support ICT integration in teaching.[xvii]

All of these projects reflect the interest of the MELS in having students appropriate ICTs in the various collegial programs. Over the years, the concerted efforts of the aforementioned organizations have resulted in the generation of a remarkable abundance of tools and resources. They now remain to be discovered and used by teachers to implement high quality training and to expand their pedagogical strategies through innovative and attractive methods.

Reflection on the ICT profile of nursing students

Courtesy of www.fotosearch.fr.

Why is so much effort being extended to integrate ICTs in the classroom? What is required to train nurses? Which pedagogical adaptations are necessary? These questions require some thought. In order to initiate this reflection on the desirable competencies of future nursing graduates, we can refer to the aforementioned ICT profile of college students. We must then consider the skills which are both practical and necessary in a clinical setting for our future graduates. Some skills required in health care are practically, if not identical to those of other college programs, whereas others are unique to the nursing profession. The evolution of the clinical and hospital setting is largely sustained by technology. This creates a need for graduates to develop the skills which are in demand and to feel comfortable with them – so that they become the masters of and not the slaves to technology.[xviii] [xix]

The chart below contains a few ideas worth pondering and has no scientific claims. It is neither the result of a consultation nor an ICT competency repository. It is simply an attempt to group a few skills of interest within a student profile. Some of these skills have been covered in high school and require perfecting whereas others need to be acquired in accordance with the student's personal trajectory. This list is not exhaustive. It is a shared reflection which can be both improved and completed.

Suggestions for a Reflection on Exit ICT Profile for Nursing Students		
Skill	**Target**	**Practical Applications**
Typing	**Mastering a variety of keyboard functions.**	**Saving, deleting, copy-pasting, highlighting, tabulating, spacing, justifying, inserting punctuation marks, cancelling, texting, etc.**
Word processing	**Preparing documents in accordance with basic grammar and formatting rules.**	• **Typing assignments and note-taking.** • **Using an automatic corrector, etc.**

Word processing	**Creating tables, illustrations and statistical graphs.**	• **Creating tables required for assignments and research purposes.** • **Inserting illustrations.**
Using the internet	**Performing relevant and targeted searches.**	**Gathering on-line information for courses and broadening the learning base.**
	Finding proven care-related data.	**Gathering information required for care or research.**
Consulting leading information sites	**Consulting on-line dictionaries, encyclopedias, departmental sites (e.g., Health Canada), etc.**	**Correcting and improving assignments and communications, gathering academic or health-related information.**
Using peripherals	**Working with DVDs, CD-Roms.**	**Supplementing information with other documents or programs.**
Using a spreadsheet	**Creating tables and statistical graphs.**	**Building the tables required for academic work, research reports, and to assume a leadership role in the care team.**
Preparing a PowerPoint presentation	**Preparing a summary or illustration of a document.**	**Making a multimedia presentation in the classroom or at work.**
Using a software program to make cards, illustrations and folders	**Preparing information documents on health care.**	**Educating patients with folders and posters.**
E-mailing	**Maintaining academic-oriented communications. Respecting e-mail format. Using a spellchecker.**	**Communicating with peers, having the teacher perform on-line supervision, submitting assignments, providing information, providing corrections and feedback.**
Participating in a forum	• **Maintaining academic-oriented communications.** • **Requiring student participation.**	**Communicating with peers and teachers, cooperating on-line, stating opinions.**
Participating in a wiki	**Adding information to a common subject (wisdom of the crowds).**	**Conducting assignments, preparing for the OIIQ exam, submitting a project report, reporting on an internship.**

Using a recommended portfolio	Grouping assignments and corrections.	• Following up on and consolidating learning. • Performing academic self-assessments. Developing meta-cognition.
Acting responsibly	Respecting copyright regulations. Avoiding plagiarism. Protecting personal identity and information.	• Providing sources. • Banning plagiarism. • Analyzing in-depth how much personal information could be revealed on-line.
Using software employed in the clinical environment	Developing knowledge of program functions.	Reading information, recording relevant patient data, preparing a Therapeutic Nursing Plan (TNP), finding test and examination results, filing requests.
Using IT skills to improve care	Consolidating and updating skills.	Using conclusive evidence, anatomic drawings, and documents provided by reliable on-line sources.
Operating electronic devices used in a care setting	Becoming familiar with monitors and other devices.	• Performing observations and the clinical follow-up outlined in Bill 90. Monitoring alerts. • Making the appropriate decisions.

Conclusion

Integrating ITCs in education may be a source of stress for some, but it is a necessity – an urgent one at that – as well as a powerful incentive for learning which can be used abundantly for supervision. The apprehensions and fears of some should not be dismissed when implementing this transition. Many teachers have not had the opportunity to follow up on the changes in the IT field. The multiplication of teaching tasks is considerable and conciliating all of them can be a colossal endeavour for those who are teaching at the CEGEP, teaching in a constantly evolving clinical environment, completing university studies or balancing work and professional life. Social progress cannot be contained; neither can the field of education, its very reflection. We should focus on this issue.

Some teachers have already enjoyed success in using ICT resources in the classroom. Hopefully, they can share their knowledge with their coworkers. After all, an idea that is shared is one which leads to others.

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Another interesting source is http://site.profweb.qc.ca/fr/dossiers/plan-d-integration-des-tic/etat-de-la-question

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