

This article is (c) Emerald Group Publishing and permission has been granted for this version to appear here (<http://epress.lib.uts.edu.au/research/handle/10453/9881>). Emerald does not grant permission for this article to be further copied/distributed or hosted elsewhere without the express permission from Emerald Group Publishing Limited.'

# BORN DIGITAL? PEDAGOGY AND COMPUTER ASSISTED LEARNING

**Thomas CLARKE**

University of Technology Sydney  
Sydney, Australia

**Elizabeth CLARKE**

University of Technology Sydney  
Sydney, Australia

## ABSTRACT

**Purpose** – This article examines the impact of the shift to a knowledge society, where information and communication technology (ICT) and the widening spread of internationally distributed information are creating a ‘*skill revolution*’, as O’Hara (2007) suggest, there is a widening culture mismatch between what members of the knowledge society need to succeed and what current systems of higher education are geared to offer and to adequately prepare people and communities to thrive in the global knowledge society.

**Approach-** For universities, as the scope and complexity of the actual business environment grows, the changing landscape of business education needs to come to terms with a developing global environment that has impacted on business, demographics and culture which demands a change in managerial skills to lead sustainable enterprise.

**Findings** - Students need to master higher-order cognitive, affective, and social skills not central to mature industrial societies, but vital in a knowledge based economy that include ‘*thriving on chaos*’ [making rapid decisions based on incomplete information to resolve novel situations]; the ability to collaborate with a diverse team—face-to-face or across distance— to accomplish a task; creating, sharing, and mastering knowledge through filtering a sea of quasi-accurate information (Dede, 2007).

**Originality** - These skills according to Galarneau and Zibit (2007), are ‘*the skills for the 21 century*’, as they are ‘the skills that are necessary for to succeed in an ever changing global society where communications is ubiquitous and instantaneous, and where software tools allow for a range of creative and collaborative options that yield new patterns and results that we are only beginning to see’.

**Keywords-** Knowledge society, Digital natives, Pedagogy, Computer Assisted Learning

**Paper type** THEORETICAL PAPER

## EVOLVING BUSINESS EDUCATION NEEDS

A number of trends which have influenced the development of the business curriculum skills development; stress the need, according to Augier and March (2007) for a *flexible education* that is *relevant* and that *reflects the evolving and changing conditions* of the world and advances and progress in technology that has impacted on all aspects of our lives and education. O’Hara (2007) proposes that changes in education *away of the industrial age* from which they were founded, should address mission, curriculum content, pedagogy and modes of inquiry. This is in order to be able to achieve a ‘*shift in the deep structures of consciousness*’ towards the ‘*development of trans-disciplinary expertise*’, which demands new literacies and approaches to learning that are more attuned to the socio-cultural, psychological and spiritual needs of an emerging global knowledge society.

Profound changes to established patterns of life, root metaphors, necessary expertise and habits of mind are occurring as a consequence of globalization, information and communications technologies and the shift to a knowledge society. As a result, there is a widening culture mismatch between what members of the knowledge society need to succeed and what current systems of higher education are geared to offer to adequately prepare people and communities to thrive in the global knowledge society (O’Hara 2007) Table 1 illustrates the seismic shifts of a changing world, changing organisations and changing mindsets impacting upon business structures and operations, and the implications for business education.

Table 1. The Changing Landscape of Business Education

	BUSINESS IMPACTS	BUSINESS EDUCATION IMPACTS
The Changing World	International Digital Networked Sustainable	Market and cultural awareness Business simulations Innovation Performance and Social Responsibility
The Changing Organisation	Workplace Flexibility People Businesses Resource Strategies	Managing Flexible Environments Managing People Businesses Utilizing technology Effectively Maintaining Financial Performance Balance Scorecard

The changing Mindset	Serving all Stakeholders	Understanding, aligning and balancing Stakeholders
	Team focus	needs
	Personal expertise matters	Problem formulation and solving Building and maintaining personal expertise

Some of the central dimensions of the changes that are taking place in the global economy, technology, skills, demography, and education include the following:

### Globalization and ICT

New information technologies, and new business processes are changing business practices. Training has become an indispensable part of adaptation and change (Summers 2004). As education is becoming a constitutive element of the knowledge society, education together with ICT, information, knowledge and innovations are seen as a foundation of a new global knowledge economy. The impact on education is that it will change the cultural context of education as well as the language of learning, and if that language of learning changes, our thinking, identity and culture are also expected to change (Pulkkinen, 2007).

### Raising the bar on competencies and skills

Information and communication technologies (ICT) are raising the bar on the competencies needed to succeed in the knowledge society. Students need to master higher-order cognitive, affective, and social skills not central to mature industrial societies, but that are vital in the knowledge based economy. These include: thriving on chaos (making rapid decisions based on incomplete information to resolve novel situations); the ability to collaborate with a diverse team—face-to-face or across distance— to accomplish a task; creating, sharing, and mastering knowledge through filtering a sea of quasi-accurate information (Dede 2007).

The need for reform should go beyond changes in curriculum content, technological infrastructure, business models and governance. It goes to the need to create learning contexts that will result in new kinds of mind altogether. Different cultures produce not only differences in the externals of life –patterns of behaviour and social norms- but differences in individual psychology such as self structure, perception,

motivation, reasoning and emotional valence and the fit between inner and social life' as a result, 'the future education must go more deeper than it has so far' (O'Hara 2007:933).

The emergence of the knowledge society on curriculum developments need to be addressed at the level of education processes, content and on educational management of institutions, 'ICT can offer many possibilities to practice these skills in everyday situations in schools as this changing landscape of information and skills revolution has a huge impact on education processes, content and on educational management and institutions, that educators should constantly develop new ways of using ICT in a more human and more critical way in education that could help us to expose the learners in schools to inter-cultural communication. This does not mean more internationally distributed standardized content but cross-border and cross-cultural collaborative elements in education, that can be organized by utilizing social technologies'. (Pulkinen, 2007)

### Demographics

It has been suggested that the various generations of students enrolled in today's higher education institutions as well as different generations of employees in the corporate workplace require a different approach to education and training (Reeves and Oh 2007).

According to Prensky (2001) the N (net)-gen, D (digital) –gen, or Digital natives, are 'native speakers of the digital language of computers, video games and the internet' and those who are not born into the digital world are referred to as 'Digital immigrants' as they learn to adapt to their environment they always retain., the disconnect is evidenced in that: Digital natives are used to 'receiving information really fast, they like to parallel process and multitask, prefer graphics before text, random access (like hypertext) and function best when networked and Digital immigrants typically have little appreciation for these new skills'. Today's teachers have to learn to communicate in the language and style of their students, this doesn't mean changing the meaning of what is important or of good thinking skills, instead it means to reconsider the methodology and content of education.

Pedagogy must address 'the disconnect' between 'how students learn and how teachers teach' by recognizing that today's students, 'process information fundamentally different from their predecessors and these differences go far further and deeper than most educators suspect to realize'. This disconnect, as stated by Dosaj, (2007), is the result of poor communication between "digital natives" (today's students) and "digital immigrants" (many adults), and their differences on how digital students learn and how non-

digital teachers teach (Table 2).

Table 2 How Digital Students Learn and How Non Digital Teachers Teach

Digital Native Learners	Digital Immigrant Teachers
Prefer receiving information quickly from multiple multimedia sources.	Prefer slow and controlled release of information from limited sources.
Prefer parallel processing and multi-tasking.	Prefer singular processing and single or limited tasking.
Prefer processing pictures, sounds and video before text.	Prefer to provide text before pictures, sounds and video.
Prefer random access to hyperlinked multimedia information.	Prefer to provide information linearly, logically and sequentially.
Prefer to interact/network simultaneously with many others.	Prefer students to work independently rather than network and interact.
Prefer to learn “just-in-time.”	Prefer to teach “just-in-case” (it’s on the exam).
Prefer instant gratification and instant rewards.	Prefer deferred gratification and deferred rewards.
Prefer learning that is relevant, instantly useful and fun.	Prefer to teach to the curriculum guide and standardized tests.

Source: Ian Jukes and Anita Dosaj, The InfoSavvy Group, February 2003, Cited in Dosaj, A. (2007)

This new generation with lives immersed in multi-tasking in technology rich cultures are assumed to be active experiential learners employing social technologies for accessing information and communicating with others. “Commentators claim these characteristics raise fundamental questions about whether education is currently equipped to meet the needs of this new cohort of students. Tapscott (1998:131) for example described education in developed countries as already in crisis with more challenges to come: “There is growing appreciation that the old approach (of didactic teaching) is ill-suited to the intellectual, social, motivational, and emotional needs of the new generation”” (Bennet et al 2007:776).

Dede (2005; 2008) has called for higher education institutions to base their strategic investments on developing emerging educational technologies to match the increasingly neomillennial learning styles of

their students. “Based on ‘mediated immersion’ in ‘distributed-learning communities, ‘ these emerging learning styles include:

- Fluency in multiple media and in simulation-based virtual settings;
- Communal learning involving diverse, tacit, situated experience, with knowledge distributed across a community and a context as well as within an individual;
- A balance among experiential learning, guided mentoring, and collective reflection;
- Expression through non-linear, associational webs of representations; and
- Co-design of learning experiences personalized to individual needs and preferences.”

Dede proposes the necessary strategic investment in technical infrastructure includes infusing wireless networking throughout the campus and creating multi-purpose habitats personalisable by students (Table 3).

Table 3 Neomillennial Versus Millennial Learning Styles

Neomillennial Learning	Millennial Learning
Fluency in multiple media, values each for the types of communication, activities, experiences, and expressions it empowers.	Centers on working within a single medium best suited to an individual’s style and preferences
Learning based on collectively seeking, sieving, and synthesizing experiences rather than individually locating and absorbing information from some single best source; prefers communal learning in diverse, tacit, situated experiences; values knowledge distributed across a community and a context, as well as within an individual.	Solo integration of divergent, explicit information sources
Active learning based on experience (real and simulated) that includes frequent opportunities for embedded reflection (for example, infusing experiences in the Virtual University simulation	Learning experiences that separate action and experience into different phases

<<http://www.virtual-u.org/>> in a course on university leadership); values bicentric, immersive frames of reference that infuse guidance and reflection into learning-by-doing.

Expression through nonlinear, associational webs of representations rather than linear stories (for example, authoring a simulation and a Web page to express understanding rather than writing a paper); uses representations involving richly associated, situated simulations.

Co-design of learning experiences personalized to individual needs and preferences.

Uses branching, but largely hierarchical, multimedia

Emphasizes selecting a precustomized variant from a range of services offered

We have been here before of course, in the delineation of dramatic generational changes in response to changing social technologies that are assumed to possess immense social consequences. Table 4 illustrates some of the many generational categorisations there have been in the last 50 years, some with a substantial resonance, others fleeting in their social significance. As with many other generational labels the categorisation of the Net-gen may prove an over-generalisation concealing a more complex and nuanced reality.

Table 4 Generational Labels and Dates Reported in Different Sources

Source	Labels			
Howe and Strauss (2000)	Silent Generation (1925- 1943)	Boom Generation (1943- 1960)	13th Generation (1961-1981)	Millenial Generation (1982-2000)
Lancaster and Stillman (2002)	Traditionalists (1900-1945)	Baby Boomers (1946-1964)	Generation Xers (1965-1980)	Millenial Generation; Echo Boomer; Generation Y; Baby Busters; Generation Next (1981-1999)
Martin and	Silent	Baby Boomers	Generation X	Millenials (1978-



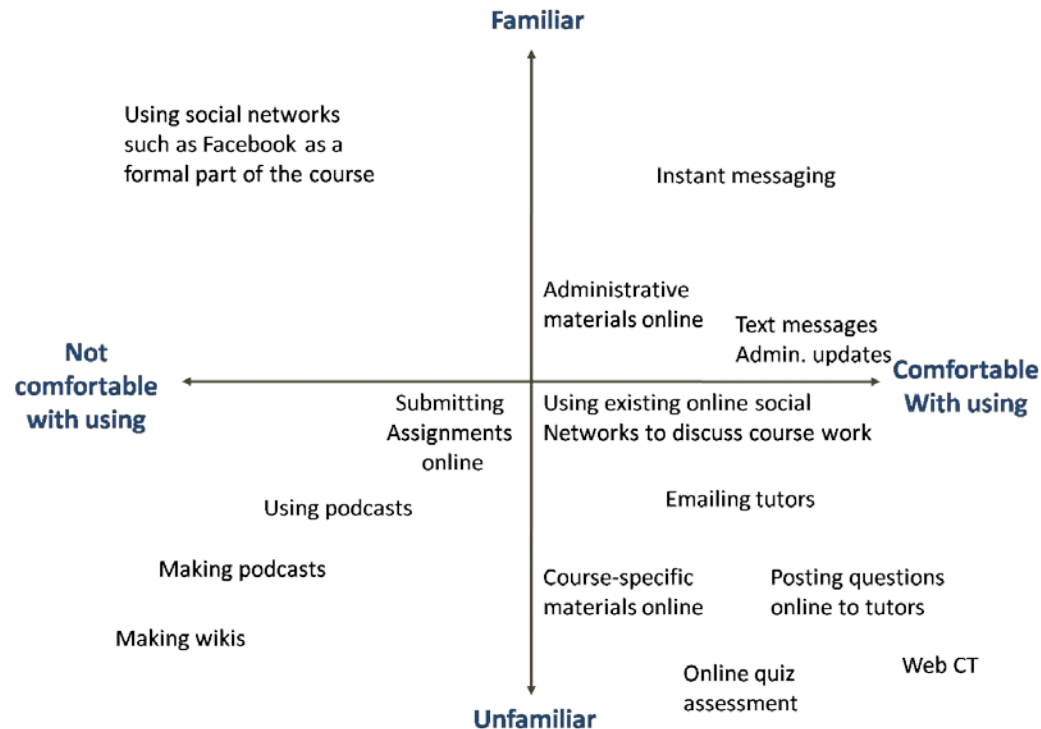
Tulgan (2002)	Generation (1925- 1942)	(1946-1960)	(1965-1977)	2000)
Oblinger and Oblinger (2005)	Matures (<1946)	Baby Boomers (1947-1964)	Gen-Xers (1965-1980)	Gen Y; NetGen; Post-Millennials (1981-1995) Millennials (1995-present)
Tapscott (1998)		Baby Boom Generation (1946-1964)	Generation X (1965-1975)	Digital Generation (1976-2000)
Zemke et.al. (2000)	Veterans (1922-1943)	Baby Boomers (1943-1960)	Gen-Xers (1960-1980)	Nexters (1980-1999)

Source: Reeves and Oh (2007)

As Bennet et al (2007:783) suggest, “The picture beginning to emerge from research on young people’s relationships with technology is much more complex than the digital native characterization suggests. While technology is embedded in their lives, young people’s use and skills are not uniform. There is no evidence of widespread and universal disaffection, or of a distinctly different learning style the like of which has never been seen before. We may live in a highly technologised world, but it is conceivable that it has become so through evolution, rather than revolution. Young people may do things differently, but there are no grounds to consider them alien to us. Education may be under challenge to change, but it is not clear that it is being rejected.”

A recent survey of the adoption of Web 2.0 social computing in UK Higher Education indicates use of social networking sites is high with nine out of ten students being regular users by the time of entry to university (RCI 2009). In contrast older age groups are adaptable and pragmatic in their approach to new technology use, and where it makes their lives easier are fast catching up with early adapters. Even younger students demonstrate different degrees of comfort with using technology at the beginning of their courses (Figure 1).

Figure 1 Students degree of comfort with using technology at the start of their courses



Source: RIC Higher Education in a Web 2.0 World (2009)

### Emergence of new training technologies

New business simulation technology is transforming the industry by endowing learning technologies with new qualities (Summers, 2004:216):

**Customization:** Previously, off-the-shelf vs expensive custom made simulations. With object-oriented designs and software libraries, suppliers can now customize their off-the-shelf simulations to fit customer's needs while maintaining lower prices.

**Specific knowledge:** Most of the industry's traditional products teach general knowledge, whereas many of the new technology simulations teach specific knowledge.

**Learner-controlled learning :** the new technology can deliver learning environments to any computer. These educational programs are designed for individually paced play so learners can engage in the experience when they wish rather than waiting for a group meeting. As a result, learners can learn anywhere, anytime and at their own pace, which is known as asynchronous learning environment.

## **Infrastructure: a competitive tool for recruitment and accreditation**

Parker & Burnie, (2009) assert that, state-of-the-art technology in the classroom has become a competitive tool for recruitment by schools that hope to meet or exceed the expectations of students and parents, student “millennials,” born in the 1980s and raised on technology, may hold technology expectations that will soon alter the way professors teach, the way classrooms are constructed, and the way colleges deliver degrees. Further, The Association to Advance Collegiate Schools of Business (AACSB) accreditation standards also provide an impetus for technology investments by business schools, e.g. AACSB (2007: 71) guidelines also call for competence in the uses of technology and information systems in organizations, “The school must determine the specific ways globalization and information systems are included in the curriculum, and the particular pedagogies used’. Curricula without these two areas of learning would not normally be considered current and relevant.

In another example the AACSB (2002:19), guidelines call for the need to adopt learning technologies that go beyond the conventional teaching methods, “Preparation for the rapid pace of business cannot be obtained from textbooks and cases, many of which are outdated before they are published. Students must learn to use technology for managerial and strategic purposes through action learning and technology enhanced pedagogy and faculty must be equipped to guide them in such learning”.

## **PEDAGOGY AND COMPUTER ASSISTED LEARNING**

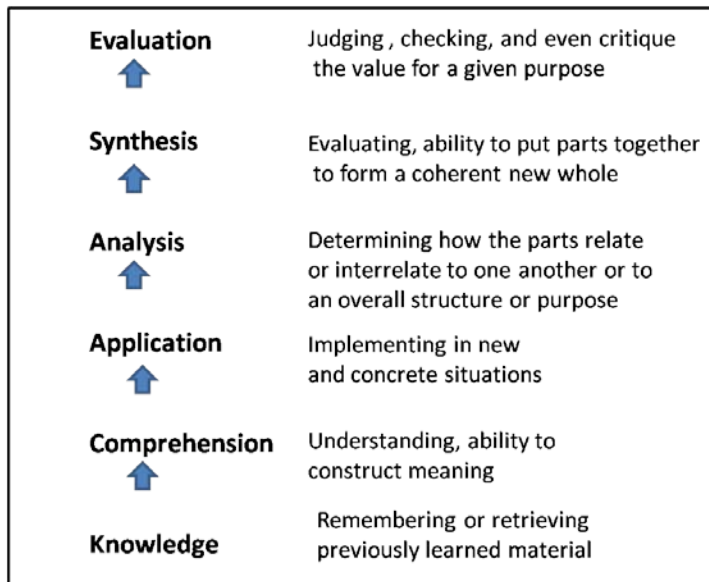
According to Rainbow & Sadler-Smith , (2003). The evaluation of computer assisted learning in higher education is important in driving the process of improvement and innovations, since data gathered may help to inform the answers to questions such as: ‘is the innovation worthwhile?’ (for policy-makers); ‘is it worth getting involved in?’ (for practitioners); and ‘how does it compare to alternative approaches?’ (for users). Research studies for the past 40 years on educational outcomes of business simulations, according to Anderson & Lawton, (2009), have adopted Bloom’s taxonomy of learning objectives to guide their investigations of the learning results to provide objective evidence of learning. Bloom’s taxonomy classifies learning outcomes into three domains:

- cognitive (mental skills knowledge),
- affective (feelings, attitudes), and
- psychomotor (physical skills, doing)

By identifying the cognitive domain and the stages within them it distinguish more clearly a particular learning outcome being pursued as well as the degree to which the outcome has been accomplished (Table 5), each of which is organized as a series of levels or pre-requisites that suggests, according to Atherton (2009), ‘that one cannot effectively -or ought not try to- address higher levels until those below them have been covered, it is thus effectively serial in structure’.

Table 5 Bloom’s Taxonomy (1956)

**Higher order thinking skills**



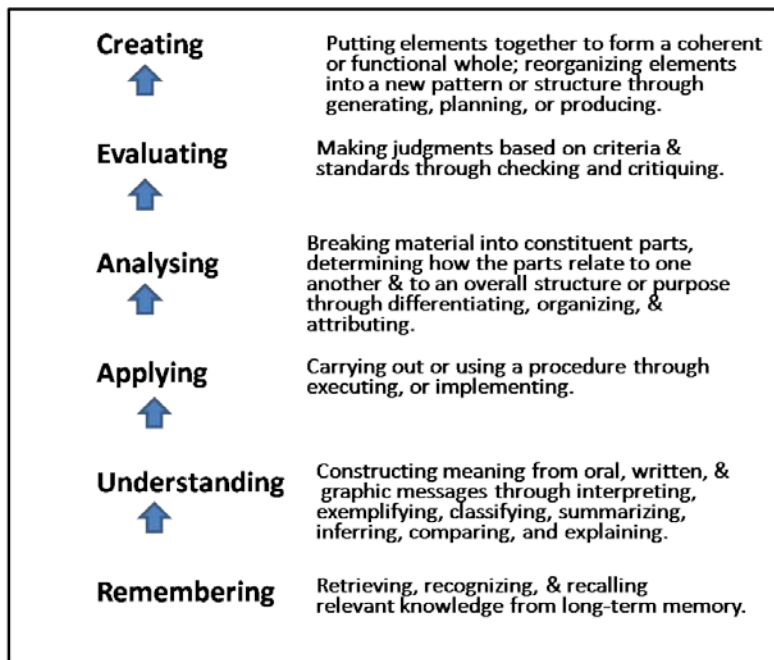
**Lower order thinking skills**

The problem it seems, according to Anderson and Lawton (2009), that objective measures of learning are still limited to the basic knowledge (lower level of Bloom’s taxonomy), comprehension, and application stages of cognitive learning. And attempts to measure analysis, synthesis, and evaluation stages (higher level of Bloom’s taxonomy), have continued to be limited to self reports –participant perceptions of their improved abilities. Further, Bloom’s Taxonomy was created 50 years ago and it is a model that reflects many of the traditional classroom practices in the industrial era. Anderson and Krathwhol (2001), presented a revised taxonomy that considers the addition of the new top category about being able to create new knowledge within the domain, higher than evaluation (Table 6) and the move from nouns to verbs. Further, by combining both the cognitive process, and knowledge dimensions, according to Wilson (2006), the major differences in the revised version, ‘is in the more useful and comprehensive additions of how the taxonomy intersects and acts upon different types and levels of knowledge -factual, conceptual,

procedural and metacognitive’. This new expanded taxonomy also can help instructional designers and teachers to write and revise learning objectives (Cruz, 2003).

Table 6 Anderson and Krathwohl Revised Taxonomy (2001)

**Higher order thinking skills**



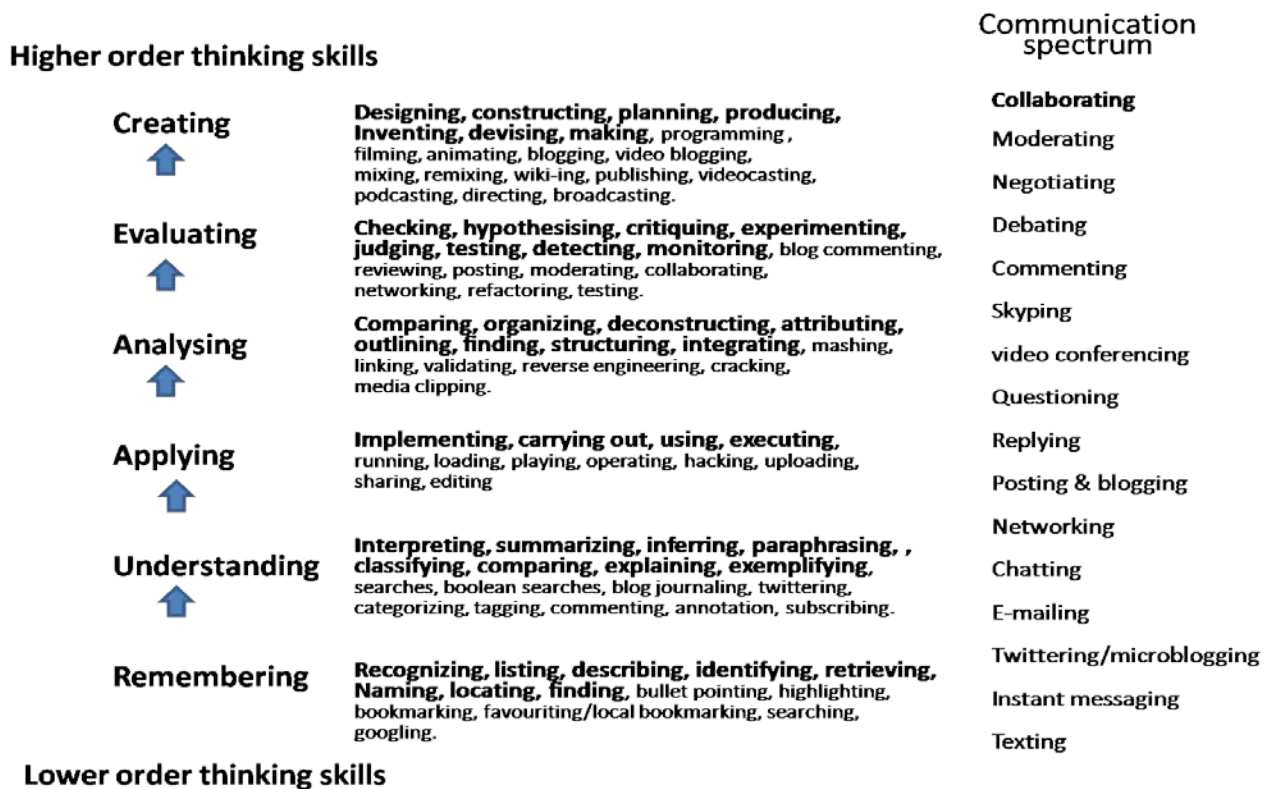
**Lower order thinking skills**

Recent studies focusing on cognitive learning outcomes of simulations, have provided evidence of development of certain skills, such as spatial and cognitive abilities after playing with simulations and games, ( Mitchell & Savill-Smith, 2004), and the development of expert behaviours such as pattern recognition, problem solving, qualitative thinking and principled decision making as their individual expertise with games increase (Balasubramanian & Wilson 2005).

In a survey of these studies, de Freitas and Jarvis (2007) reported that ‘early studies into the field of game-based learning gave some indications that ICT technology based simulations and more recently, games-based learning show some initial evidence of accelerated learning, increasing motivations and supporting the development of higher order cognitive thinking skills’, which has ‘led to a plethora of new research and development initiatives’, e.g. a recent initiative by The Serious Games-Engaging Training Solutions (SG-ETS), funded by the UK department of Trade and Technology Program, and the first to bring game developers and experts in game-based learning and human factors from three leading universities: University of Birmingham, University of London and University of Sheffield.

When attempting to measure effectiveness of business simulations as learning tools, research studies have found that since performance should not be used as a proxy for learning (Anderson & Lawton, 2009), there is no relationship between game performance and learning, as in some cases students can be successful in the game while a learning test does not reveal an increase in knowledge (Summers, 2004), and because the student does not have to be successful in the simulation to learn, it is important to make a distinction between the goal of the simulation, or learning technologies and the learning goal. (Anderson & Lawton, 2007, 2005, 2009).

Table 7 Bloom's Digital Taxonomy (Churches 2009)



To illustrate this point, in order to reflect the new behaviours, actions and learning opportunities emerging as technology advances become more universal that reflect the newer objectives, processes and actions presented by the emergence of digital technologies, Churches (2009) proposed a version of the revised taxonomy that is not restricted to the cognitive domain, rather it contains cognitive elements as well as methods and tooling. This exhibits the capacity for reflection and higher order thinking skills, and notes that as collaboration is a 21st century skill of increasing importance and one that is used throughout the

learning process. In some forms it is an element of Bloom's and in others it is just a mechanism which can be use to facilitate higher order thinking and learning. Churches integrates collaboration in Bloom's revised taxonomy and demonstrates the actions and learning opportunities presented by the emerging digital technologies (Table 7).

Negotiating these higher order thinking skills into the new technologically supported pedagogy will be a challenge for those born digital, and those adapting to the new digital environment.

## REFERENCES

Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001). A taxonomy for learning, teaching and assessing: A revision of Bloom's Taxonomy of educational objectives: Complete edition, New York : Longman.

Anderson, P.H. & Lawton, L. (2009). Business Simulations and Cognitive Learning: Developments, Desires and Future Directions. *Simulation & Gaming*, 40(2): 193-216.

Anderson, P.H & Lawton, L. (2005). The Effectiveness of a Simulation Exercise for Integrating Problem-Based Learning in Management Courses. *Developments in Business Simulations and Experiential Learning*, Vol 35: 10-16.

Anderson, P.H., and L. Lawton (1997) "Demonstrating the Learning Effectiveness of Simulations Where We Are and Where We Need to Go". *Developments in Business Simulations and Experiential Exercises*. Vol. 24 pp 68-73.

Association to Advance Collegiate Schools of Business International (AACSB). (2007, January). Eligibility procedures and accreditation standards for business accreditation.

Augier, M. and J. G. March (2007). "The Pursuit of Relevance in Management Education." *California Management Review* 49(3): 129.

Atherton, J.S. (2009). Learning and Teaching; Bloom's Taxonomy; <http://www.learningandteaching.info/learning/bloomtax.htm>

Balasubramanian, N. and Wilson, B. G. (2006). Games and Simulations, In C. Crawford et.al. (Eds), *ForeSITE* <http://site.aace.org/pubs/foresite/> , Vol. one 2005, Proceedings of Society for Information Technology and Teacher Education International Conference 2006. Chesapeake, VA: AACE (p.2)

Bennet, S., Maton, K. and Kervin, L. (2007) "The 'Digital Natives' Debate. A Critical Review of the Evidence," *British Journal of Educational Technology*, 39, 5, 775-786

Cruz, E. (2003). Bloom's revised taxonomy. In B. Hoffman (Ed.), *Encyclopedia of Educational Technology*. <http://coe.sdsu.edu/eet/Articles/bloomrev/start.htm>



Churches, A. (2009). Bloom's Digital Taxonomy; Educational Origami. <http://edorigami.wikispaces.com/Bloom%27s+Digital+Taxonomy>

De Freitas, S. I. and Jarvis S. (2007). "Serious games engaging solutions: A research and development project for supporting training needs". British Journal of Educational Technology Vol.38(3): 523-525.

Dede, C. (2005) Planning for Neomillennial Learning Styles: Implications for Investments in Technology and Faculty, in, Diana G. Oblinger and James L. Oblinger, Educating the Net Generation, Educause, [www.educause.edu/educatingthenetgen/](http://www.educause.edu/educatingthenetgen/)

Dede, C. (2008) Planning for "neomillennial" learning styles: Implications for investments in technology and faculty, Educause, <http://www.educause.edu/Resources/EducatingtheNetGeneration/PlanningforNeomillennialLearn/6069>

Dosaj, A. (2007).

Jukes, I., A. Dosaj (2004). Digital Kids, Learning in the New Digital Landscape, <http://www.thecommittedsardine.net/infosavvy/education/handouts/handoutsmain.asp>

Galerneau, L., and Zibit, M., (2007). Chapter IV Online Games for 21st Century Skills; In David Gibson, Clark Aldrich, Marc Prensky (Ed) Idea Group Inc (IGI), 2007. Pp 59-88

Jukes, I., and Dosaj, A. (2003). Understanding The New Digital Landscape, Kids & the New "Digital Divide". The InfoSavvy Group.

Howe, N. and W. Strauss (2000). Millennials rising: The next great generation, New York: Vintage Books.

Lancaster, L. C. and D. Stillman (2002). When generations collide: Who they are, why they clash, how to solve the generational puzzle at work, Collins.

Martin, C. and Tulgan, B. (2002), Managing the Generation Mix, HRD Press, New York, NY.

Mitchell, A. and Savill-Smith, C. (2004). The Use of Computer and Video Games for Learning: A Review of Literature. London: Learning and Skills Development Agency (LSDA). <http://www.lsd.org.uk/files/PDF/1529.pdf>

O'Hara, M. (2007). 'Strangers in a strange land: Knowing, learning and education for the global knowledge society'. *Futures* 39 (2007) 930–941, Elsevier.

Parker, B., & Burnie, D. (2009). Classroom Technology in Business Schools : A Survey of Installations and Attitudes toward Teaching and Learning, AACE Association for the Advancement of Computing in Education Journal, 17 (1), 45-60.

Prensky, M. (2001). Digital natives, Digital Immigrants

Pulkkinen, J. (2007). The Cultural Globalization and Integration of ICT in Education. In Educational Technology Opportunities and Challenges Report. Faculty of Education, Department of Educational Sciences and Teacher Education, University of Oulu. Finland,

Rainbow, S.W. and Sadler-Smith E. (2003). Attitudes to Computer Assisted Learning Amongst Business and Management Students. *British Journal of Educational Technology*, 34( 5):615–624

RCI (2009) Higher Education in a Web 2.0 World, Report of an Independent Committee of Inquiry into the Impact on Higher Education of Students' Widespread Use of Web 2.0 Technologies, [www.clex.org.uk](http://www.clex.org.uk)

Reeves, T.C., and Oh, E. (2007). Generational Differences. In J.M. Spector, M.D. Merrill, J. Van Merriënboev, and M.P. Driscoll (Ed) *Handbook of Research and Educational Communications and Technology 2007*: 295-303

Summers, G. J. (2004). Today's Business Simulation Industry. *Simulation & Gaming*, 35 (2): 208-241; Sage Publications

Tapscott, D. (1998). *Growing Up Digital: The Rise of the Net Generation*; McGraw-Hill Companies, Inc.

Wilson, L. (2006). Beyond Bloom a New Version of the Cognitive Taxonomy: Leslie Owen Wilson's Curriculum Pages. [www.uwsp.edu/education/lwilson/curric/newtaxonomy.htm](http://www.uwsp.edu/education/lwilson/curric/newtaxonomy.htm)

Zemke, R., Raines, C. and Filipczak, B. (2000), *Generations at Work: Managing the Clash of Veterans, Boomers, Xers, and Nexters in Your Workplace*, AMACOM, New York, NY.