

# E-LEARNING NEEDS AMONG STUDENTS WHO LEAD A DIGITAL LIFE IN NEARLY EVERY ASPECT EXCEPT LEARNING

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**Keywords:** Digital Natives, e-Learning Needs, e-Learning Strategies, Usefulness and Expectations.

**Abstract:** Students are able to use and are using many digital devices in their everyday life. The term “Net Generation” is used to describe these young people who have been using digital devices such as computers, cell phones and digital music players all their lives. Can we then assume that the Net Generation would welcome the use of technology in learning just because they are digital natives? Our study focused on the eLearning perceptions, needs and requests of students at The Chinese University of Hong Kong. We found that students were generally positive (though not overly enthusiastic) towards various forms of eLearning strategies.

## 1 E-LEARNING STRATEGIES INTRODUCTION

It is a common view that students are able to use and are using a great deal of digital devices in their everyday life. There are notions like ‘Net Generation’, ‘Digital Natives’ or the ‘Y Generation’ to describe these young people who have “spent their entire lives surrounded by and using computers, videogames, digital music players, video cams, cell phones, and all the other toys and tools of the digital age” (Prensky, 2001, p. 1)

Studies in Australia (Kennedy et al., 2006a; Kennedy et al., 2006b) in US (Kvavik, 2005; Salaway, Caruso and Nelson, 2008) and in the UK (Green and Hannon, 2007) in general confirm that the vast majority of the students have ready access to web-enabled personal computers and own personal digital devices such as mobile phones. They also use a wide range of digital features and web features in their everyday life, for communication (emails, msn, etc.) or for forming social networks (blogging, facebook, etc.). In a report produced by the Joint Information Systems Committee (JISC, 2009), digital natives were remarked to for example, joining/ using social networking sites regularly and having ability to recognize both the potential benefits and limitations of applying new

technologies in academic areas. The findings were comparable to those reported by the Joint Information Systems Committee's (JISC, 2009). Digital natives were found to join and use social networking sites regularly. They were also able to recognize the potential benefits of applying new technologies in social and academic areas.

A recent study at The Chinese University of Hong Kong (CUHK) (McNaught, Lam and Ho, 2009) illustrated that our students are also the Net Generation and are ‘digitally ready’, to a level that is compatible to their counterparts in Australia. They are very familiar with information and communication technologies. For example, a vast majority of the students have broadband internet access and have mobile phones. Nearly all students use digital methods to communicate. They use emails, read and comment on blogs, and use social networking software.

Technology can be regarded as providing a new platform for teachers to improve their pedagogical approaches or practice. Prensky (2007) warned that many teachers may not be ready to take full advantage of the new possibilities. But are the students ready?.

There is no strong evidence that students’ habits of using technologies in their everyday lives can be easily transferred to the adoption of new eLearning habits. On the contrary, students do not seem to be

Lam P., Lee J., Chan M. and Mcnaught C. (2010).

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In *Proceedings of the 2nd International Conference on Computer Supported Education*, pages 268-275

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committed to eLearning. There are reported challenges in the use of technology in teaching and learning even from the students' point of view. Many eLearning strategies lack students' support (McNaught et al., 2006). Bullen and Janes (2007) pointed out that our students are yet in receiving mode and lack of independent thinking and learning. A recent study at CUHK concerning students' perception of mobile eBook technology (Lam, Lam, Lam and McNaught, 2009) indicated that eBooks are not yet a useful and practical tool for academic learning. While students who were first introduced to the technology in generally gave us positive comments about the technology, those who actually spent more time on it were much less enthusiastic. They raised concerns with many aspects of the technology (such as the slow processes of finding and downloading eBooks, the hardware, and the reading process itself). Despite the fact that students are able to use digital devices for many tasks in their daily lives, they can be conservative and hesitant when it comes to the adoption of a certain eLearning strategy.

Thus, other than persuading teachers to use the technology in teaching and learning (which seems to be the main focus of many eLearning support services to date), we need to learn about the needs and perceptions of the students about how the technology might support their learning. There may be novelty effects when students first come across a new technology, but they are very pragmatic and they will soon abandon new methods if the expected benefits do not occur or they find the methods do not meet their needs.

When studying students' needs, multiple eLearning strategies need to be considered, including those that are relatively well established and those that are new. Such strategies can facilitate 'autonomous learning', 'cooperative learning' and 'multimedia resources' (Liaw, Huang and Chen, 2007). Furthermore, students need to be encouraged to express their wishes for longer-term development of eLearning.

The teaching and learning functions of the web can be grouped into basic categories. Adapting the model used in McNaught (2002), we identified eLearning strategies into the following broad categories. We acknowledge that in reality a teacher usually engage students in an eLearning activity that combines one or more of these functions.

1. Technology can be used to facilitate teaching and learning in the classroom.
2. Websites can provide support functions for teaching and learning, such as providing course

information to students, making online course-related announcements, and giving help on learning tips and learning skills, etc. Students use them as study management tools.

3. Learning resources can be hosted on the web. Students can access learning materials (ranging from plain text, graphics, pictures or multimedia to interactive self-learning exercises) for self-paced learning.
4. There are communication-rich eLearning strategies using email, forums, chat-rooms, or video-conferencing. These activities facilitate teacher-student communications, for example, students asking teachers in a forum rather than having to ask questions face-to-face.
5. There are communication-rich eLearning strategies that facilitate student-student interactions. Using forums or other tools, students discuss with each other or cooperate online to complete group writing or projects.

Different eLearning strategies may be related to different learning benefits. Interaction may be one way to understand the learning potential of various strategies. Interaction is central to learning in a constructivist model of learning (Lam, Csete and Hodgson, 2007). Learning benefits from an interactive learning environment, as feedback and reflection effectively assist knowledge construction (O'Connor, 1998). Interaction comes in many different forms. Swan (2003) explained interaction as the "reciprocal events involving at least two actors and/or objects and at least two actions in which the actors, objects, and events mutually influence each other" (p. 4). She sees that eLearning is able to facilitate at least three main kinds of learning-enhancing interaction: interaction with content, with instructors, and with peers.

e-Learning strategies that have the potential to facilitate enriched interactions (e.g. the communication strategies that involve human interactions on complex issues), therefore, can be more promising than strategies that mainly involve students to interact with web content and/or course materials only.

Despite the significant potential benefits to teaching and learning, the comparatively more interactive types of eLearning strategies tend to be less used by university teachers. A series of studies at CUHK show that, while the percentage of supplementary online course websites has grown a great deal from ~45% in 2003–04 to over 80% in 2008–09, the web continues to be mostly seen as a convenient storage house for easy distribution of course materials to students, often using existing

basic functions in learning management systems (LMSs), such as WebCT and Moodle. Most communications are done through online forums with simple designs which are not very active; students, on average, post only one to three messages (McNaught et al., 2006; McNaught and Lam, 2009).

In an earlier study of students' eLearning needs and expectations, McNaught and Lam (2005) noted "the following four most functions as being effective: learning tools such as glossaries, notes and PowerPoints, assessment tasks associated with grades, and creation and exhibition of multimedia projects. In a highly competitive, examination-oriented system, the first three are not surprising. If we want a broader use of the web in university courses, the nature of the curriculum must change, with the confluence of educational, cultural and political factors that are involved. The perceived value of students creating and exhibiting their own work in multimedia form is heartening, in that it indicated a highly active form of web use. The low perceived value of online discussions is likely to be due to a multiplicity of factors and for those of who believe in the potential value of this use of the web, the challenge continues..." (p. 614).

At present, many of the success stories about innovative eLearning strategies in the literature are cases of pioneering teachers who are 'early adopters' (Rogers, 2003) testing the teaching and learning technologies in isolated courses in which certain positive results have been achieved. Apart from these pioneering cases most other teachers in the 'mainstream majority' (Anderson, Varnhagen and Campbell, 1998) use quite simple eLearning strategies.

The Technology Acceptance Model (TAM) (Davis, Bagozzi and Warsaw, 1989; Liaw et al., 2007) suggests that students' perceptions have at least the following components: the perceived ease of use and the perceived usefulness, which in turn are related to students' perceived intention to use, (or the real use if the strategies have been widely used). Perceived usefulness is thus a major factor in governing the use of eLearning strategies. Under the circumstances, we believe that a more detailed study is needed on students' perceptions, not only towards eLearning in general, but also towards various types of eLearning strategies.

## 2 STUDY

We adopted a relatively broad definition of "e-Lear-

ning strategy" in our study. It refers to *the use of any kind of internet or communication service or electronic device that supports learning activities*" (Conole et al., 2006; p. 513) Thus, the use of the web as a source of information for learning is regarded as an eLearning strategy. A questionnaire was designed and different eLearning aspects were investigated. The survey went through a number of iterations mainly to narrow down the scales that are crucial to the study, cut short the number of items and ensure clarity of language. The survey in its final form had a total of 62 questions (60 multiple-choice questions and 2 open-ended questions) with the following three components:

### 1. Use of Technology

In the first section, we aimed at finding out the various types of technologies students used in their everyday lives (e.g. for information searching or for communication, etc).

### 2. Use and Usefulness of e-Learning Strategies

In the second part, we studied the use of technology in the teaching and learning context. How often did students use a variety of eLearning strategies? We asked about a variety of eLearning strategies, such as using the web as a source of information, teaching and learning through online communication, and the use of multimedia to enrich teaching, etc.

### 3. Benefits of using e-Learning

In the last section of the questionnaire, we asked the students about the learning benefits of using eLearning strategies. These potential benefits included more than understanding content knowledge. We also asked about improvement in learning motivation, attitude, information management, communication skills, etc.

From April to May 2009 we developed the survey into an online questionnaire using software "FeedBack Server®". Administration of the survey was carried out from June to August 2009. Invitations to complete the online questionnaire were sent to all undergraduate students (total 10,768 students). Two reminders were sent to the students in mid-July and early August respectively.

When the questionnaire closed in mid-August, 1438 responses had been collected, response rate being 13.4%. Gender was quite well balanced, with 45% males and 55% females. We also had roughly the same number of Year 1, 2 and 3 students (roughly 400 each). Students responded were quite well distributed across all the eight faculties in the University (Arts, Business Administration, Education, Engineering, Law, Medicine, Science and Social Science – ranging from 10% to 21% of the student population of that faculty).

### 3 FINDINGS

The survey data enriched our understanding of students' use of technology in general, their use of technology for teaching and learning, and their expectations of a number of eLearning strategies. The following are some of our preliminary findings. Analysis is ongoing and we will focus on comparing students' opinions in various disciplines, as well as comparing opinions of university and school students using data from a parallel survey in a number of local Hong Kong schools.

#### 3.1 Use of Technology

Table 1 shows a number of common uses of technology and their descriptions provided on the survey.

Table 1: Technologies used by students.

Strategy	More explanation
Online movie clips	Use the web browser to watch online movie clips (e.g. YouTube).
Read postings	Join discussion forum and read forum postings.
Forum	Participate actively in forum discussions.
Webpage creation	Create simple text web-pages.
Multimedia files	Use the internet to broadcast multimedia file/ upload video files onto internet.
Email	Use Email system.
Instant messaging	Use instant messenger to communicate with friends or public
Video conferencing	Use video conference to communicate with friends or public.
Social networking	Use social networking website and communicate with others (e.g. Facebook, MySpace).
Blogs	Create blog(s) for keeping track of personal journals.

Figure 1 shows the responses of the students concerning how frequently they used these various technologies in their everyday lives. An interesting thing to note is that the students reported using a great deal of eCommunication strategies: e.g. emails, blogs, discussion forums, multimedia-rich communications and instant messaging. We found that students are quite able to use technology for communication. Around 90% of respondents reported using instant messaging frequently (at least several times a week). Around 60% of them use discussion forums frequently too. The use of blogs

and other media-rich strategies are less common but are still used by 20% to 40% of students.

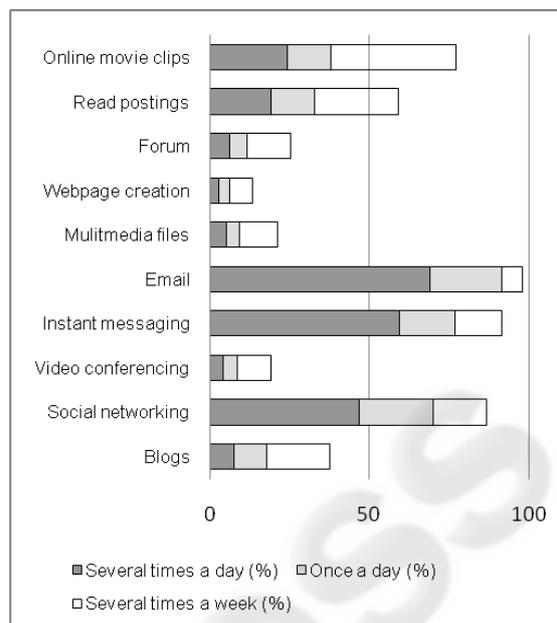


Figure 1: Use of technology in general by students, bars showing frequent uses only.

#### 3.2 Use and Usefulness of e-Learning Strategies

Figure 2 shows i) how much students use a number of eLearning strategies at present, and ii) how useful they think these strategies would be to their learning regardless of whether they are using them or not. We focused on a number of types of eLearning strategies: e.g. classroom technology, self-learning strategy, provision of learning resources, and using technology to facilitate communications, etc. (Table 2).

The findings indicate that while many of the eLearning strategies are not frequently used at the moment (except using the web as source of information), many of the students have high expectations of these strategies. For example, students felt that various forms of eCommunication can assist learning a great deal but they are not communicating this way often.

Table 2: e-Learning strategy types and the questions asked.

Types	Items for typical eLearning strategies
Computers in class	Teachers use multimedia materials (e.g. movie, sounds, animation) to assist teaching.
Computers in class	Teachers use/ show webpages in class to illustrate concepts and knowledge.
Computers as students' study tool	I find additional and relevant information from the internet to help school work.
Computers as students' study tool	I include multimedia files (e.g. pictures, sounds, movie clips or animation) in my class assignments.
Computers as learning resources	There are websites for the courses where I can conveniently find notes and learning resources of the subject.
Computers as learning resources	Teachers ask students to complete online quizzes.
Computers for teacher-student talk	Teachers communicate with (e.g. via email) and provide out-of-class guidance that help me to think again what I have learned.
Computers for teacher-student talk	Teachers act as a moderator and discuss with students at bulletin board system (BBS) or forum.
Computers for student-student talk	The web provides a platform for students to share knowledge and express their opinions (e.g. discussion forum) regarding courses.
Computers for student-student talk	I often join social community groups that are related to my studies and discuss subject issues with the public.

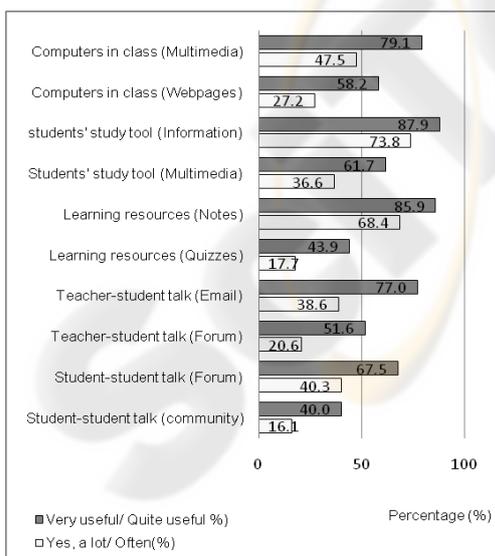


Figure 2: Use of technology for learning by students, bars showing frequent uses only.

### 3.3 Types of Benefits

A number of learning outcomes were targeted in this section. Table 3 shows the themes we targeted and a sample question we asked related to each theme.

Table 3: Learning outcomes asked and sample questions.

Learning outcomes	Sample questions asked
Motivation and attitude	The eLearning strategies improve my attitude to learning.
Information management	It improves my skills in searching for relevant information.
Understanding fundamental concepts and acquiring knowledge	It helps me to understand the subject materials deeply.
Deep approach	eLearning strategies help me to integrate knowledge to solve real-life problems.
Enjoyment	eLearning strategies raise my interest on the subjects.
Communication skills	It promotes discussion and improves communication with teachers or classmates.
Group work spirit	I feel more confident in dealing with others because of the interactions on the web.

Figure 3 shows students' perception of types of benefits that can might be associated with the use of eLearning in general. The data indicate that students were on the whole more confident about the effect of eLearning on acquisition of knowledge. They are less certain about the effect of the strategies on the other learning outcomes such as learning attitudes and various learning skills. Students may not be able to appreciate eLearning fully especially because of their limited experience with it.

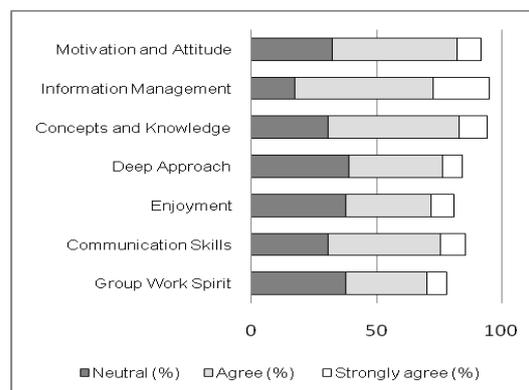


Figure 3: Students' expectation of learning outcomes related to eLearning.

## 4 DISCUSSION

The study so far revealed that students had relatively high expectations of eLearning strategies and their benefits. The data collected was revealing in a number of ways:

1. While most of the students used computers for a variety of purposes, they used it extensively for social networking and communication.
2. Students had limited experience of eLearning strategies but the expected usefulness of using these strategies was high.
3. Students could relate eLearning strategies to many different kinds of learning benefits (acquisition of knowledge being the most obvious one).

We confirmed in this study that students used digital devices for many kinds of online activities in their everyday lives. They are clearly digital natives in that they have access to digital devices, use technology for long periods every day for various activities, and have no problem using and learning to use new technologies. Most of the students used computers for a variety of purposes. Of most interest was the fact that they used it extensively for social networking and communication. The Web is no longer a place for information only but is becoming more and more prominently a place for networking. The use of social networking software such as Facebook and MySpace was prominent with more than 85% of the students using social networking several times a week. The use of instant messaging tools for communication was even more intense with more than 90% of the students using the tools several times a week or more.

Comparatively, the teaching and learning environment at the University is far less digital. Students reported they had limited experience in most eLearning strategies, except the simple usage about storage of course-related information (about 74% of the students used it often or a lot) or course notes (about 69% used it often or a lot) on a course website. At the same time, these strategies were also remarked by nearly 90% of the students as being useful to learning.

The students nevertheless saw huge potential in using eCommunication for teaching and learning. Students on the whole favoured the use of eCommunication for teaching and learning (77% found eCommunication to teachers useful, 52% favoured teacher-student communications in forums, and 68% regarded student-student interactions useful). We can easily associate this with the habit identified above that students are already using the

Web very frequently for communications. This might be the area where students' digital experiences in their everyday lives transfer to the education settings.

Despite students' lack of experience with a wide range of eLearning strategies, the expected usefulness of using a number of other strategies was high. For example, many students favoured more use of technology in the classroom context: about 80% of the students considered that multimedia would be useful and nearly 60% of the students regarded the showing of webpages as helpful in explaining concepts in a class.

However, we also found that students were not overly enthusiastic about all the eLearning strategies. They were particularly cautious about strategies such as online quizzes and learning communities in which they had very limited experiences. On the whole, students' attitudes towards eLearning were positive. Their lack of experiences seemed to be one of the reasons that made them less eager in the more complex strategies.

In general, students had high hopes for eLearning strategies to achieve learning outcomes. At present, however, they found the acquisition/ understanding of knowledge, and access to information as the most obvious benefits. They were less certain about the other potential: e.g. deeper understanding of knowledge and learning skill acquisition. This is not surprising as most of the students had not experienced eLearning strategies that were designed with these purposes in mind (as noted, the most common strategies used were to deliver course information and course notes on the web). With that in mind, our students actually had high expectations about what eLearning is able to achieve beyond merely knowledge and information.

As suggested early on the paper, we cannot assume students will welcome more use of technology in learning without reservations. The use of the more complicated (but potentially more educationally useful) eLearning strategies is limited and students' opinions of them were also cautious. However, we found students very optimistic about using eCommunication to assist teaching and learning. The research led to implications to future studies about students' views on eLearning. For example, we are planning to interview groups of students about possible uses of eLearning in their classes/ courses. Also, it would be useful to learn, from the students' perspective, the types how technologies can support them to overcome current learning difficulties.

## 5 CONCLUSIONS

A study was conducted systematically to investigate the expectations and needs of various eLearning strategies by students in Hong Kong. Although the response rate was not high (13.4%), there were 1438 valid replies and the students who replied had good representation across all faculties.

The findings tend to suggest that students are on the whole open to innovation. They seem to desire more eLearning strategies than they are experiencing at present. Teachers can obviously consider the use of eCommunication strategies in their teaching. There was also a certain degree of cautiousness in students' replies, particularly when they were asked to comment on less commonly used strategies. As a consequence it seems wise to introduce uncommon innovations with caution.

Overall, students affirmed the growing use of e-Learning at CUHK and clearly appear to encourage teachers to use more eCommunication strategies. In order to encourage both teachers and students to consider additional options is the next challenge we face. At present our teachers are 'mainstream' in the use of basic content-oriented eLearning but we are still at 'early-adopter stage' for more interactive eLearning strategies. We will be able to use the results of this survey to nudge our University a little further along the path towards optimal use of eLearning.

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