

Students' use of eLearning strategies and their perceptions of eLearning usefulness

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Abstract: Students may well be 'digital natives'; however, there is little evidence that they are natural 'digital learners'. Two questions were examined in this study. Firstly, in Hong Kong, what are undergraduate students' perceptions towards the use of technology for teaching and learning? Secondly, in what way did our students' previous experience in using technology, in particular various eLearning strategies, affect their perceptions of the value of eLearning? We surveyed 1438 students at The Chinese University of Hong Kong. The students were generally positive (though not overly enthusiastic) about various forms of eLearning. Students who were more experienced in using technologies in their everyday lives were in general more positive about eLearning strategies. Most interestingly, the more experience the students had with eLearning strategies, the more positive they were towards eLearning as well. This is evidence that eLearning has provided learning benefits to our students.

Experiences, perceptions and their relationships

Terms such as 'Net Generation', 'Digital Natives' or the 'Y Generation' are used to describe 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" (Prenkysy, 2001, p. 1). Studies in Australia (Kennedy, Krause, Churchward, Judd, & Gray, 2006a; Kennedy et al., 2006b), in the US (Kvavik, 2005; Salaway, Caruso, & Nelson, 2008) and in the UK (Green & 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 lives, for communication (emails, msn, etc.) or for forming social networks (blogging, Facebook, etc.). A recent study at The Chinese University of Hong Kong (CUHK) (McNaught, Lam, & Ho, 2009) confirmed that our students are 'digitally ready' to a level that is compatible with their counterparts in Australia. They are also 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.

The experience digital natives have in using technologies to learn is very different from the extensive experience they have in using the technologies in their everyday lives. Many of the success stories about innovative eLearning strategies in the literature are cases of pioneering teachers who are 'early adopters' (Rogers, 2003) testing teaching and learning technologies in isolated courses. Apart from these pioneering cases most other teachers in the 'mainstream majority' (Anderson, Varnhagen, & Campbell, 1998) use quite simple eLearning strategies. 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; thread lengths, on average, are one to three messages (McNaught, Lam, Keing, & Cheng, 2006; McNaught & Lam, 2009).

In general, students do not ask for more eLearning. We have previously reported challenges in the use of technology in teaching and learning from the students' point of view (McNaught, Lam, Keing, & Cheng, 2006). A study at CUHK concerning students' perceptions of mobile eBook technology (Lam, Lam, Lam, & McNaught, 2009) indicated that eBooks are not yet a useful and practical tool for academic learning (though this was a pre-iPad study). While students who were first introduced to the technology in general 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). 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. 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.

Users' perceptions of innovation – Students' perceptions about eLearning

The first question examined in our study related to **students' perceptions about the use of eLearning strategies**. Being a digital native does not mean one is a willing digital learner. We think it is a timely and important question to ask since "little is known about students' expectations and experiences" (Paechter, Maier, & Macher, 2010, p. 222). Relevant literature can be found in the area of users' perceptions of innovation.

Roger (2003) defined a number of users' perceptions of an innovation (an example of which could be the use of learning technologies) that can influence adoption. They include *relative advantage*, the degree to which an innovation is perceived as better than the comparable product it supersedes; *compatibility*, the degree of consistency with existing values, past habits and experiences of the target recipients of the innovation; and *complexity*, the degree to which an innovation is perceived as difficult to understand and use. Similarly, Davis, Bagozzi, and Warsaw (1989) proposed a Technology Acceptance Model (TAM) in which *perceived usefulness* and *perceived ease of use* are among the two major factors that determine acceptance. Venkatesh, Morris, David, and David (2003) revisited TAM and seven other models and developed the Unified Theory of Acceptance and Use of Technology (UTAUT) model. In this model, users' various perceptions of technology are still found to relate to acceptance of technology, together with other factors such as *social influence*, and the presence of *facilitating conditions* such as user support and training.

The impact of students' experience of technology on their perceptions about eLearning

Looking from a somewhat different direction, how does users' experience of technology impact on their decisions about future use of technology? In our context, how does students' prior experience of technology (including eLearning) impact on their perceptions about eLearning? The issue is touched upon in Bhattacharjee's (2001) work in explaining continuance of use of technology. Borrowing heavily from expectation–confirmation theory (ECT) in research in the area of consumer satisfaction (Oliver, 1980), Bhattacharjee suggested a critical construct, *confirmation* (i.e. whether expectations from users regarding the technology usage are fulfilled), which is an important factor in the post-acceptance stage to govern users' intention to reuse. Limayem, Hirt, and Cheung (2007) suggested that the UTAUT model fails to explain post-acceptance usage or continuance of use. Perceived usefulness is the only construct consistently influencing user intention across both acceptance and post-acceptance phases (thus implying constructs such as *perceived ease of use*, *social influence* and *facilitating conditions* are no longer important considerations if we are looking at long-term use). The level of *perceived usefulness* is not constant but evolves through use; "expectations provide the baseline level against which *confirmation* is assessed by users to determine their evaluative response or *satisfaction*" (p. 708).

The logic is relatively straightforward. If the strategies are effective and useful, students' perceptions towards using the strategies will be enhanced through the experience. On the contrary, poor experiences lead to changes of perceptions too, but towards avoidance. Good experiences of an innovation lead to confirmation. The confirmation then leads to better perceptions of the new strategy. And then as predicted by models like TAM or UTAUT, the good perceptions thus lead to further and even continual uses of the innovation. ECT and TAM/ UTAUT together explain a cyclic situation where perceptions and actual uses of an innovation reinforce each other.

Apart from experiences of eLearning strategies, users' experiences in using technology in general may influence perceptions as well. Students who are more comfortable with technology in their everyday lives may more readily accept using technology in another context. Keller and Cernerud (2002) indicated that the students' perception of using eLearning is influenced by different variables, including previous experiences of usage of computers.

The second question of the study thus was about **how students' experiences of technology influence perceptions of eLearning**. In particular, we wanted to investigate whether experience–perception reinforcement exists. In other words, if the experience of eLearning is up to the students' expectations (confirmation), then they will regard eLearning as more and more useful – potentially leading to continuance of use.

The study

Survey design and administration

A questionnaire was designed. Some of the questions were adopted from a previous questionnaire on students' use of technology (McNaught, Lam, & Ho, 2009). The questionnaire for this study went through a number of iterations to narrow down the number of scales and ensure clarity of language. The survey in its final form had a total of 62 questions (60 forced-choice questions and 2 open-ended questions).

Administration of the questionnaire was carried out online from mid-June to mid-August 2009. An invitation to complete the online questionnaire was sent to all undergraduate students (total 10,768 students); two reminders were sent to the students in mid-July and early August respectively. A total of 1438 valid responses were collected, response rate being 13.4%. Responses from males and females were 44.6% (642) and 55.4% (796) respectively. Among all the 1438 responses, the distribution of students from different academic years was quite balanced; for example, Year 1 (31.6%/ 455); Year 2 (30.0%/ 431); Year 3 (27.3%/ 392); Year 4 and others (11.1%/ 160). Feedback was collected from students in each Faculty (namely Arts, Business Administration, Education, Engineering, Law, Medicine, Science and Social Science); and the responses collected were relatively well distributed across all eight Faculties (ranging from 10.4% to 21.3% of the student population of that faculty). So, while the response rate was low there was a good match to student demographics. Statistical analyses were conducted and analyzed by SPSS software.

The survey had the following three components related to the three components in our study. Items in section 1 did not form clusters of scales. Sections 2 and 3 went through a series of statistical tests for validity and reliability as outlined below.

1. Use of technology

In the first section, we aimed at finding out the frequency of use of various types of technologies that students used in their everyday lives, and their confidence in using them. In terms of frequency, we asked the students to report on a scale that ranged from 'once/twice a month' to 'several times a day'. We used a 5-point scale (from '1' being 'not confident at all' to '5' being 'very confident') to measure their confidence in using each particular technology. These everyday technologies included: 1) using the web for simple text/ opinion sharing; 2) the use of multimedia; 3) using the web for keeping a personal journal; 4) conducting text-based communication using the web; and 5) conducting more sophisticated communications on the web involving audio and video.

2. Use of eLearning strategies

In the second part, we studied the usage of eLearning strategies in the teaching and learning context. A broad definition of eLearning was adopted in our study: Conole, de Laat, Dillon, and Darby (2008) defined it as "the use of any kind of internet or communication service or electronic device that supports learning activities" (p. 513). The teaching and learning functions of the web can be grouped into basic categories. Adapting the model used by McNaught (2002), we classified 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.

- Technology can be used to facilitate learning in the classroom, e.g. through the use of visual media, animations and simulations which support teachers' explanations of concepts.
- Websites can provide support administrative functions in teaching and learning, such as providing course information to students, making online course-related announcements, and providing tips on learning skills, etc. Students can use this information as study-management tools.
- Learning resources can be hosted on the web, designed for access for self-paced learning. These might be simple resources composed of mainly text and simple graphics/ pictures, or could be more complex resources with multimedia and/or interactive self-learning exercises.
- There are communication-rich eLearning strategies, e.g. email, forums, chat-rooms, or video-conferencing, designed to facilitate teacher-student communications.
- There are communication-rich eLearning strategies that facilitate student-student interactions. Using forums or other tools, students can discuss with each other or cooperate online to complete group tasks or projects.

In this part of the survey, we classified eLearning strategies into six different categories: using: (i) computers in classroom; (ii) computers as study tools; (iii) computers as simple learning resources; (iv) computers as complex learning resources; (v) computers for teacher-student communication; and (vi) computers for student-student communication. To indicate the usage frequency, students had the following choices: yes, a lot [5]; often [4];

sometimes [3]; once in a while [2]; and never [1]. Cronbach's Alpha scores on the final data set among these scales ranged from 0.54 to 0.91, showing mild to strong reliability (Cortina, 1993).

3. *Perceptions of eLearning*

In the last section of the questionnaire, we investigated the benefits of using eLearning strategies. First of all, students were asked to rate the usefulness of each of the eLearning strategies listed in section 2 above. Students had the following options: very useful [5]; quite useful [4]; neutral [3]; not useful [2]; and not useful at all [1]. Again, we used a 5-point scale (5 being strongly agree and 1 being strongly disagree) to measure the students' responses. Secondly, students were asked to remark on the learning benefits achievable by eLearning in general.

Exploratory factor analysis (EFA) was conducted on the 14 items in this section to find out the underlying constructs of eLearning benefits. Principle axis factor analysis with orthogonal rotation was used to extract seven interpretable factors. Without exclusion of any items, an overall measure of sampling adequacy of 0.919 was yielded and the Bartlett's Test of Sphericity was statistically significant ($p < 0.000$), which satisfied the requirement of $p < 0.001$. Reliability tests yielded Cronbach's Alpha values ranging 0.74 to 0.85 in all scales, showing strong internal consistency of these scales. The scales identified were described as: 1) understanding of fundamental concepts; 2) learning motivation and attitude; 3) information management; 4) deep approach to learning; 5) enjoyment; 6) communication skills; and 7) group-work spirit.

Findings

Digital natives and their perceptions towards eLearning

We found that, as anticipated, the experiences students had in using technology in their everyday lives and using it for learning were very different. Concerning everyday use, there was high ownership of digital devices among the CUHK students. Almost all of the students (99.3%) had easy access to a computer and internet at home and 98.6% of respondents possessed mobile phones. Students' responses on computer-use habits showed that our students could be considered digital natives: of the total 1438 respondents, 75.0% of students spend 1 to 5 hours using computers every day, while around 22.8% of students spend more than 5 hours a day on computers. As for internet surfing, 81.8% of students spend 1 to 5 hours every day and 14.0% of students spend more than 5 hours on it.

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, instant messaging, social networking, discussion forums, etc. The most commonly used strategy was email. For instances, 69.2% of students emailed to others several times a day and 29.0% (22.2% & 6.8%) used email once a day/ several times a week. The use of instant messaging and social networking services were high too. About 90% of respondents reported using instant messaging frequently, and also about 90% of students used social-networking websites, many of them accessing the sites as often as several times a day. Interestingly, we found that 60% of the students read postings from forums but only 40% participate in discussions actively. Using media-rich strategies (e.g. video conferencing, multimedia broadcast and webpage/ blog creation) were less common and were used by 30% to 40% of students.

In general, students had high confidence in using nearly every kind of the listed web-related skills. In particular, they seemed to be confident in using many of the communicative functions of the web: e.g. using email, instant messaging, blogs and reading forum postings. The mean scores of confidence in using these functions were 4.8, 4.7, 4.1 and 4.2 respectively. They could confidently handle multimedia files such as online movie clips (mean score was 4.6). Comparatively, they lacked confidence in creating webpages (mean being 3.3).

Also, comparatively, involvement in eLearning strategies in general was not common. For instance, the mean scores of the category of usage of computers in class, as study tools and as learning resources were 3.2, 3.0 and 3.1 respectively (score '3' being 'sometimes'). Furthermore, the eCommunication between teachers and students seemed to be occasional too (scored 2.2; score '2' means 'once in a while'). However, we can also see in Figure 2 that students have relatively high perceptions of the usefulness of eLearning strategies.

Figure 2 contrasts two sets of numbers: the current use of eLearning strategies versus students' perceived usefulness of these strategies for learning, regardless of whether they are using them or not. The use of computers as simple learning resources (e.g. searching information from the web (mean = 3.9)) was the most commonly used strategy. Students also regarded it as useful for their learning process (mean = 4.3). Apart from this strategy, the use of the other eLearning strategies seemed to be far less common (means ranged 2.2 – 3.2). However, while many of the other eLearning strategies are not frequently used at the moment, students have high expectations of these

strategies (means ranged 3.4 – 3.8). For example, students felt that various forms of eCommunication can assist learning a great deal even though they are not communicating (with teachers and other students) in this way often.

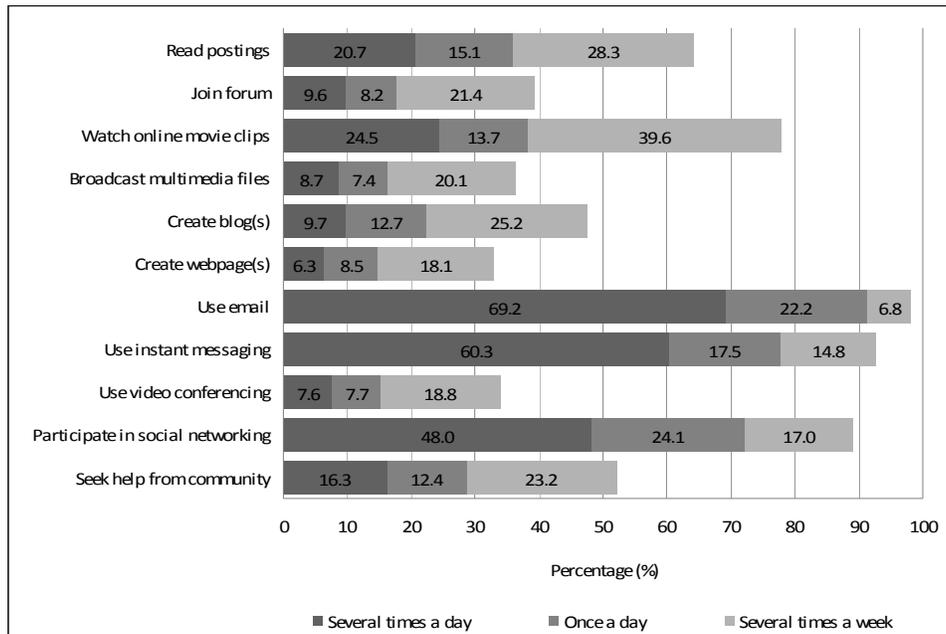


Figure 1: Uses of technology by students, bars showing frequent uses only.

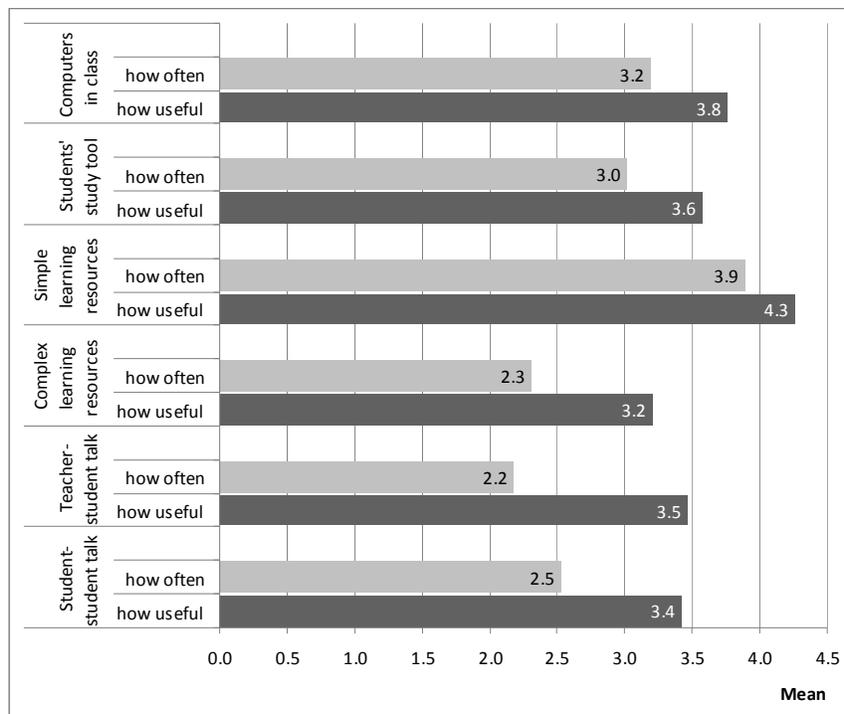


Figure 2: Comparison of usage frequency of eLearning strategies and their usefulness.

In the last part of the survey, students were asked about how they thought eLearning could add to the various learning benefits. Table 1 shows that students were quite conservative about the learning benefits associated with eLearning. While students were more confident about the effect of eLearning on information management (score 3.8) and acquisition of knowledge (score 3.7), they were less certain about the effect of the strategies on the other learning outcomes such as learning enjoyment (score 3.2) and various learning skills (such as group-work spirit scored 3.3). Students may not be able to appreciate eLearning fully especially because of their limited experience with it. The relations between expectations and experience are further studied below.

	Mean	SD
Motivation and attitude	3.43	0.77
Information management	3.83	0.74
Understanding fundamental concepts and acquiring knowledge	3.70	0.72
Deep approach	3.55	0.75
Enjoyment	3.22	0.87
Communication skills	3.44	0.81
Group-work spirit	3.30	0.84

Table 1: Means and standard deviations for variables of benefits of eLearning.

Relationship between experiences and perceptions

Ordinary least squares (OLS) multiple regression analysis is a statistical technique that can be used to analyze the relationship between a single dependent variable and multiple independent variables. The objective of OLS multiple regression analysis is to use the independent variables whose values are known to predict the single dependent values selected by the research. It is a parametric statistics analysis method that should be used only when both the dependent and independent variables are metric, which means the level of measurement is at interval level or ratio level (Hair, Black, Babin, Anderson, & Tatham, 2006).

Students omitted some items when filling in the questionnaires. When faced with missing data, a researcher can create scores for a particular scale by taking the mean of the non-missing items, provided that participants responded to at least some number of the items (Green & Salkind, 2008). A relatively stringent requirement was used to treat missing data in the study. For each respondent case, we followed the rule for having at least $n-1$ non-missing data in each individual scale, where n is number of items in each scale, before we included the case in the model. The scales for eLearning benefits and eLearning strategies were both composed of several items. Applying this method resulted in $N = 686$ for Model A (eLearning strategies) and $N = 727$ for Model B (eLearning benefits).

Central Limit Theorem stated that whenever sample size is large (>100), we can assume that the sampling distribution is normal, with a mean equal to the population mean and a standard deviation equal to σ/\sqrt{N} . Given that reasonably large sample sizes were obtained in both models described below ($N = 686$ and 727) (Healey, 2009), normal distribution of our sample data was thus assumed, satisfying one of the essential criteria for conducting regression analysis. The reasonably large sample size, in this case, also guaranteed the reliability of the regression models. As for the problem of outliers, subsequent analyses were conducted after excluding the extreme cases which were found in the diagnosis results. However, results after excluding extreme cases did not show any dramatic difference compared with the former models where extreme cases were included. Considering the minor effect they brought, those cases were not deleted in the following calculations. The original models also yielded significant results in the ANOVA model fit tests. In addition, the independent and dependant variables were in linear relationships, meaning that no further correction would be required before conducting the OLS regression analysis. Multicollinearity between independent variables was also checked because it might bring marked impacts on the regression models. The priori tests yielded the values of Tolerance <0.10 or VIF >10 in both models confirming no violation of the assumption of multicollinearity. As a whole, all the assumptions were confirmed, and so OLS multiple regression analyses were robust enough to reflect causal relationships between factors.

The OLS multiple regression analyses were carried out by using the composite score or summation score calculated from the 5-point Likert-scale items (1 being strongly disagree to 5 being strongly agree). The analyses examined how technology use and eLearning use respectively predict students' perceptions of the usefulness of various eLearning strategies (Model A) and the overall beneficial effects of eLearning (Model B).

The summary results of the two models are presented in Table 2. The results of OLS multiple regression analyses showed both the predictors were significantly related to students' perception on the usefulness of eLearning strategies and beneficial effect of eLearning.

	Model A: usefulness of eLearning strategies				Model B: eLearning benefits			
	<i>B</i>	<i>SE B</i>	β	<i>p</i>	<i>B</i>	<i>SE B</i>	β	<i>p</i>
Frequency of technology use	0.25	0.05	0.18	0.000	.011	0.04	0.10	0.005
Frequency of eLearning strategies use	0.33	0.03	0.41	0.000	0.31	0.02	0.46	0.000
R^2	0.26				0.25			
<i>N</i>	686				727			

Table 2: Summary of regression analyses.

In Model A, results revealed predictors were significantly related to students' perception of the usefulness of eLearning strategies ($F(2, 683) = 119.20, p < 0.000$), with 26 percent of the total variance of the usefulness of eLearning strategies being explained by the frequency of technology use and the frequency of the eLearning strategies use. When we examined the regression coefficients, both of these factors were significant, suggesting that both of them are useful in predicting students' perceptions on usefulness of eLearning strategies. Among these two variables, frequency of eLearning strategies use carried most weight (the standardized beta, $\beta = 0.41$).

In Model B, results showed that predictors were also significantly related to students' perception on the beneficial effect of eLearning ($F(2, 724) = 123.25, p < 0.000$), with 25 percent of the total variance on the beneficial effect of eLearning was explained by the frequency of technology use and the frequency of the eLearning strategies use. When we examined the regression coefficients, again, both of these factors were significant, meaning that they are useful in predicting students' perceptions on the beneficial effect of eLearning. Among these two variables, again, frequency of eLearning strategies use carried most weight (the standardized beta, $\beta = 0.46$).

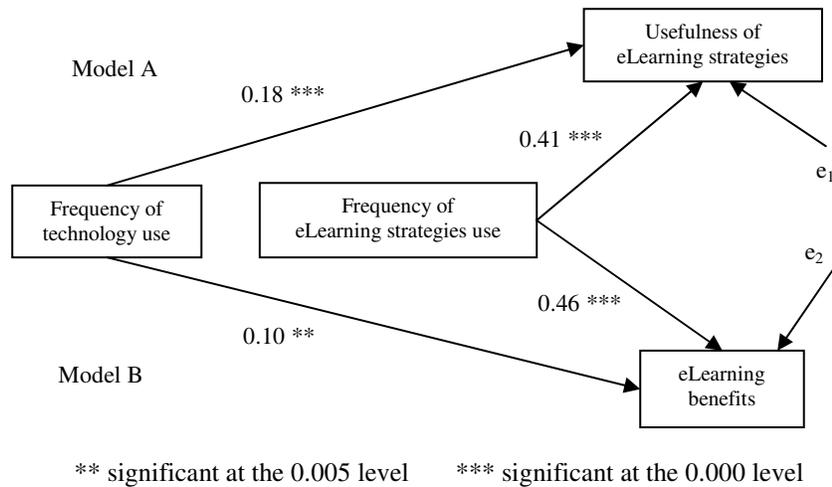


Figure 3: Path diagram of causal effects on eLearning experience and expectation.

Based on the results of the OLS multiple regression analyses, a path diagram of causal effects on eLearning experience and expectation that integrates results from both Models A and B has been constructed (Figure 3). Variances that cannot be explained in Models A and B are represented as e^1 and e^2 in the diagram, indicating that there are other factors influencing eLearning perceptions outside the scope of the current study. The overall model shows that technology use has direct positive effects on students' perceptions on usefulness of eLearning strategies and beneficial effect of eLearning. At the same time, it also shows that eLearning use has an even higher positive effect on students' perceptions on usefulness of eLearning strategies and beneficial effect of eLearning. Generally speaking, students who use more technology or eLearning strategies would tend to find eLearning strategies more useful and more beneficial.

Discussion

Our students are digital natives and use technology as an integral part of their everyday lives. Of most interest is the fact that they use technology extensively for social networking and communication. The use of social networking software such as Facebook, Skype and MySpace was prominent with more than 85% of the students reported 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. However, these tools and techniques are rarely integrated into University's teaching and learning environment. Students reported they had limited experience in most eLearning strategies, except simple access to 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.

Despite the relative lack of experience in using eLearning strategies, the strategies were considered by nearly 90% of the students as being useful to learning. The students 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). As students are already using the Web very frequently for eCommunications, this might be the area where students' digital experiences in their everyday lives might transfer smoothly to educational settings.

The expected usefulness of a number of other strategies was also 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 of 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 about more complex or less-known strategies.

Regarding learning benefits, students were not overly enthusiastic again. 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.

The relation between experience and expectations was confirmed by the multiple regression analyses. We found that students who more readily used technology in their everyday lives tended to have more positive perceptions of eLearning. More interestingly, however, even stronger relationships were found between experiences in eLearning and perceptions of eLearning. Those who used a certain eLearning strategy more tended to want more of the same strategy. They were also more positive about the various learning benefits associated with eLearning.

To us, the fact that a positive relationship was found between experiences and perceptions of eLearning is good evidence that eLearning has provided learning benefits to our students. Our data is congruent with the frameworks and terminologies of ECT (Oliver, 1980) and IS Continuance (Bhattacharjee, 2001); our students *confirm* a number of eLearning strategies after initial use.

However, we observe a delicate balancing act in operation; students are well-disposed towards the use of technology in education but we cannot assume students will unilaterally welcome more use of technology for learning. The use of the more complicated (but potentially more educationally useful) eLearning strategies is limited and students' opinions of them were cautious. We need to factor this reticence into our planning for innovative (for our context) uses of eLearning. If planning and induction strategies are appropriate, the evidence from this study is that students' perceptions about eLearning will improve once they experience some learning benefits.

Conclusion

This study investigated Hong Kong students' views on eLearning. Although the response rate was not high (13.4%), there were 1438 valid replies with the respondent profile matching a number of demographics for CUHK (gender, year level and faculty of study) well.

The findings tend to suggest that students are, on the whole, open to innovation. The following comments are 'take-home' messages from this study about our Hong Kong students. While most of the students use computers for a variety of purposes, they use them extensively for social networking and communication. Students have a limited experience of eLearning strategies but the expected usefulness of using these strategies is high. Students mildly relate eLearning strategies to many different kinds of learning benefits. They appear to be more able to relate eLearning to benefits in the learning process, such as the use of eCommunication strategies. Students' replies are cautious when they are asked to comment on less commonly used strategies. As a consequence it seems wise to introduce uncommon innovations with caution. Lastly, more experiences with eLearning lead to higher perceptions of eLearning benefits. In other words, students who used eLearning strategies tend to like them and find them useful. To a certain extent, this is evidence that eLearning strategies on the whole are positive experiences for students. Once students have a good first eLearning experience, there is a high likelihood that they will appreciate and seek similar engaging experiences.

References

- Anderson, T., Varnhagen, S., & Campbell, K., (1998). Faculty adoption of teaching and learning technologies: Contrasting earlier adopters and mainstream faculty. *The Canadian Journal of Higher Education*, 28(2,3) 71–98.
- Bhattacharjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. *MIS Quarterly*, 25(3), 351–370.
- Conole, G., de Laat, M., Dillon, T., & Darby, J. (2008). 'Disruptive technologies', 'pedagogical innovation': What's new? Findings from an in-depth study of students' use and perception of technology. *Computers & Education*, 50(2), 511–524.
- Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology*, 78(1), 98–104.
- Davis, F. D., Bagozzi, R. P., & Warsaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 983–1003.
- Green, H., & Hannon, C. (2007). *Their space: Education for a digital generation*. London: Demos.
- Green, S. B., & Salkind, N. J. (2008). *Using SPSS for Windows and Macintosh analyzing and understanding data*. (5th ed.) New Jersey: Pearson Prentice Hall.
- Hair, J., Black, W., Babin, B., Anderson, R., & Tatham, R., (2006). *Multivariate data analysis* (6th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Healey, J. (2009). *Statistics: A tool for social research* (8th ed.). Belmont, CA: Wadsworth Cengage Learning.
- Keller, C., & Cernerud, L. (2002). Students' perceptions of e-learning in university education. *Journal of Educational Media*, 27(1, 2), 55–67.
- Kennedy, G., Krause, K., Churchward, A., Judd, T., & Gray, K., (2006a). First year students' experiences with technology: Are they really Digital Natives?. *Internal report*. The University of Melbourne. Retrieved December 29, 2010, from <http://www.bmu.unimelb.edu.au/research/munatives>
- Kennedy, G., Krause, K-L., Gray, K., Judd, T., Bennett, S., Maton, K., & et al. (2006b). Questioning the Net Generation: A collaborative project in Australian higher education. In L. Markauskaite, P. Goodyear & P. Reimann (Eds.), *Who's learning? Whose technology? Proceedings ascilite Sydney 2006* (pp. 413–417). Retrieved December 29, 2010, from http://www.ascilite.org.au/conferences/sydney06/proceeding/pdf_papers/p160.pdf
- Kvavik, R. B. (2005). Convenience, communications, and control: How students use technology. In D. Oblinger & J. Oblinger (Eds.), *Educating the net generation*. Boulder, CO: Boulder.
- Lam, P., Lam, S-L., Lam, J., & McNaught, C. (2008). Usability and usefulness of eBooks on PPCs: How students' opinions vary over time. *Australasian Journal of Educational Technology*, 25(1), 30–44.
- Limayem, M., Hirt, S. G., & Cheung, C. M. K. (2007). How habit limits the predictive power of intention: The case of information systems continuance. *MIS Quarterly*, 31(4), 705–737.

- McNaught, C. (2002). Adopting technology should mean adapting it to meet learning needs. *On The Horizon*, 10(4), 14–18.
- McNaught, C., & Lam, P. (2009). Institutional strategies for embedding blended learning in a research-intensive university. Proceedings of the elearn2009 conference, *Bridging the development gap through innovative eLearning environments*, The University of the West Indies, St Augustine, Trinidad and Tobago, 8–11 June 2009.
- McNaught, C., Lam, P. & Ho, A. (2009). The digital divide between university students and teachers in Hong Kong. In R. Atkinson & C. McBeath (Eds.), *Same places, different spaces* (pp. 654–664). Proceedings of the 26th annual Australasian Society for Computers in Learning in Tertiary Education 2008 conference, Auckland, 6–9 December 2009. Retrieved December 29, 2010, from <http://www.ascilite.org.au/conferences/auckland09/procs/mcnaught.pdf>
- McNaught, C., Lam, P., Keing, C., & Cheng, K. F. (2006). Improving eLearning support and infrastructure: An evidence-based approach. In J. O'Donoghue (Ed.), *Technology supported learning and teaching: A staff perspective* (pp. 70–89). Hershey, PA: Idea Group Inc. (IGI).
- Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, 17(4), 460–469.
- Paechter, M., Maier, B., & Macher, D. (2010). Students' expectations of, and experiences in, e-learning: Their relation to learning achievements and course satisfaction. *Computers & Education*, 54(1), 222–229.
- Prenkys, M. (2001). Digital natives, digital immigrants. *On the Horizon*, 9(5). Retrieved December 29, 2010, from http://pre2005.flexiblelearning.net.au/projects/resources/Digital_Natives_Digital_Immigrants.pdf
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York: The Free Press.
- Salaway, G., Caruso, J. B., & Nelson, M. R. (2008). The ECAR study of undergraduate students and information technology, 2008 (Research Study, Vol. 8). Boulder, CO: EDUCAUSE. Center for Applied Research. Retrieved December 29, 2010, from <http://net.educause.edu/ir/library/pdf/ERS0808/RS/ERS0808w.pdf>
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478.