Technology Use and Skills of Graduate Students

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Abstract

The faculty of the Department of Leadership at The University of Memphis is interested in the impact of information technology on graduate study. This interest has led to the formation of a Technology Committee in the department. The committee recently set two goals for itself. First, the committee wishes to define appropriate interaction with information technology which might be necessary for graduate study in the Department of Leadership. Secondly the committee wishes to investigate the impact of information technology use and skills on its graduate students. The committee requested recommendations concerning technology use and skills in the department. Students with an information technology course in their required curriculum responded at a higher rate, and expressed use and skills of information technology consistent with fluency. Half of the students responding perceived that they needed additional assistance to use information technology effectively. Ultimately the faculty would like to prepare its students for a world which increasingly is shaped by information technology.

Purpose

The faculty in the Department of Leadership at The University of Memphis is concerned that graduate students use information technology effectively and productively. The National Research Council Committee on Information Technology report, Being Fluent With Information Technology, (National Research Council, 1999) suggests that technology has becoming an increasingly important part of our work and personal lives, and that there are many people who recognize the potential value of information technology for their everyday lives and who realize that a better understanding of Information Technology will be helpful to them (National Research Council, 1999).

Information Technology Fluency

The Technology Committee in the department of Leadership has adopted fluency with information technology as a concept to frame decisions concerning technology use and skills in the department. Fluency with information technology (FIT) exceeds the traditional notions of computer literacy.

> "Literacy about information technology might call for a minimal level of familiarity with technological tools like word processors, email, and Web browsers. By contrast fluency with information technology (FIT) requires that person understand information technology broadly enough to be able to apply it productively at work and in their everyday lives" (National Research Council, 1999, 15).

Fluency with information technology is personal, graduated, and dynamic. Individuals must learn and use technology as is appropriate for their own purposes. Conceptually, fluency with information technology is constructed of intellectual capabilities, fundamental concepts, and

contemporary skills. Intellectual capabilities are one's ability to apply information technology in complex and sustained situations. Fundamental concepts refer to the foundational computing knowledge that may be added to rather than replaced. Contemporary skills is that ability to adopt products and services (and change as new products and services emerge) that may be described in the phrase "knowing how to use a computer" (National Research Council, 1999, 18). (See Appendix 1)

Higher education institutions must concern themselves with student use of information technology. "Our culture has changed from industrial economy in which knowledge is absorbed and recalled to an information-based economy in which wisdom is required to manage knowledge" (Van Weigel, 2002, 61). Managing knowledge will require managing the technological tools by which that knowledge is multiplied. Regardless of academic field or employment environment, students leaving higher education institutions will face an information-based workplace.

Higher education institutions should concern themselves with student use of information technology. In a landmark articles concerning learning and information technology, Arthur Chickering and Stephen Ehrmann make connections between the use of information technology and the Seven Principles of Good Practice in Undergraduate Education (Chickering and Ehrmann, 1996). Their purpose is to explore the capabilities of information technology to assist with learning.

> "Technological resources can ask for different methods of learning through powerful visuals and well-organized print; through direct, vicarious, and virtual experiences; and through tasks requiring analysis, synthesis, and evaluation, with applications to real-life situations. They can encourage self-reflection and self-

evaluation. They can drive collaboration and group problem solving. Technologies can help students learn in ways they find most effective and broaden their repertoires for learning. They can supply structure for students who need it and leave assignments more open-ended for students who don't. Fast, bright students can move quickly through materials they master easily and go on to more difficult tasks; slower students can take more time and get more feedback and direct help from teachers and fellow students. Aided by technologies, students with similar motives and talents can work in cohort study groups without constraints of time and place." (Chickering & Ehrmann, 1996, p. 5)

Today's student population is changing as a result of the proliferation of information technology. The field of education must adjust accordingly (Dede, 2005, Frand, 2000, Oblinger, 2005, Oblinger & Oblinger, 2005, Prensky, 2001). The manner in which knowledge is constructed has changed in the midst of this proliferation. Rickard and Obliger (2003) comment concerning the construction of knowledge with students in the millennial generation:

"If higher education is to successfully educate this generation, it must be prepared to invest in learning environments that are by definition not one size fits all, that support learning as socially constructed and contextual, that are structured yet self-paced, and that are more outcome oriented than ever before. Perhaps even more than their parents, instructors, and guidance counselors, millennials want to see the connection between where they are and where they're going when it comes to their education. They're high achievers, and they take their learning environments seriously" (Rickard & Oblinger, 2003, p. 4).

Key findings of a recent report distributed by the Educause Center for Applied Research (ECAR) following its survey (on which the survey in the present study was based) of

undergraduate student in 2005 measure the impact of IT on the undergraduate educational experience. Kvavik and Caruso report (2005) report that: (1) Students preferred at least a moderate amount of use of technology in their coursework; (2) Students saw IT as making a positive contribution to both the teaching and learning processes; (3) Seniors and older students tended to prefer the use of more technology in courses; (4) Students, overall, gave instructors good reviews in their use of technology; (5) Students who perceived their instructors to be skilled in their use of IT reported being more engaged in course, more interested in subject matter, and more able to understand complex concepts. and (6) Participants in the study considered the primary benefit of technology used in courses to be convenience, followed by the ability to communicate with the instructor and other students (connection), management of course activities (control), and improved student learning (Kvavik & Caruso, 2005).

Student perception of information technology in the learning environment may be a product of time spent using technology. More time spent may produce greater perception of increased learning. “Students who spend more time on the Internet based course are more likely to be satisfied with the experience and take more ownership of the learning process thereby increasing their own learning” (Arbaugh, 2000, p. 15).

This study investigates the technology use and skills of graduate students in a graduate department of leadership at a large urban research university. The purpose of the study is to investigate the technology use and skills of graduate students in the department’s graduate programs.

Methodology

This report is based on data gathered in an investigation of the impact of information technology use and skills among graduate students in the Leadership Department, College of

Education, at The University of Memphis in Memphis, Tennessee. Using an adaptation of the Survey of Students and Information Technology in Higher Education published by Educause Center for Applied Research ("Study of Students," 2006), all graduate student in the department (152 total) were invited to participate in the study. The instrument was originally developed for a survey of undergraduate freshmen and seniors. The adaptations included changes to the list of possible majors and degree programs, as well as minor changes to grade point average ranges.

The survey instrument was available to students as a hyperlink in an email written and signed by a graduate student in the Department of Leadership. The web-based software used (SurveyMonkey.com, 2006) to provide the online survey allowed students to complete the survey in one sitting or to stop, mark their place, and resume the survey at a later time. Students had approximately 2 weeks to complete and return the survey. The online survey remained open and available for a few days after the deadline date. Responses were collected between February 21, 2006 and March 10, 2006.

Results

Out of the 152 possible participants, 71 students chose to respond yielding a total response rate of forty-seven percent. The students responding were 39% male and 61% female. Forty-one percent of those responding were age 30-39, 22% age 40-49, and 22% age 50-59. Seventy three percent of student responding report a grade point average over 3.75 on a four point scale. It should be noted that graduate students at The University of Memphis must earn grades of “A” or “B” in graduate courses in order successfully complete a requirement, so high grade point average is expected.

The majority of students responding were doctoral degree candidates (78%) with master’s degree candidates comprising 22% of the sample. Eighty-one percent of the students

responding pursue their education on a part-time basis (less than 12 hours per semester) and 19% go to school full time. The sample of 71 students contains 60 whose program can be identified. Of those students, 36 are majors in Higher and Adult Education. The other 24 students responding to the survey are majors in Policy Studies or pursing one of the programs for school principals through the Center for Urban School Leadership.

The group of students who responded to the survey was statistically similar to each other in almost all measures. The population and the sample are similar in many indicators including gender breakdown (35% male, 65% female) and age breakdown (forty-one percent of those responding were age 30-39, 18% age 40-49, and 14% age 50-59). In this way the sample is representative of the population.

However, it is important to note that more students in the population from which the sample was drawn are majors in Policy Studies or some other K-12 graduate program than majors in Higher and Adult Education. Spring 2006 enrollment figures for the department obtained from the Office for Institutional Research at The University of Memphis indicate that 93 students are majors in Leadership and Policy Studies or some other K-12 program, and 49 students are majors in Higher and Adult Education, with a total of 152 graduate students in the department. Taken at face value, this means that 72% of the population of Higher and Adult Education majors responded to this survey, and 26% of the population of student pursuing studies in a K-12 area responded to the survey.

These differences between population and sample may be the most important discovery in this study. Given adequate assurances that all students in the population had access to the survey, it may be concluded that more students majoring in Higher and Adult Education were inclined to respond to the survey of Information Technology Use and Skills. Though it cannot be

investigated using these data, there may be a difference between Policy Studies majors who responded and those who did not.

Table 1. Mean hours per week
spent using an electronic device

As a group, graduate students in this department of leadership report using electronic devices (other than cell phone) more than 20 hours per week. This time is spent primarily on classroom activities and studying, using library resources to complete a course assignment, surfing the internet for information to support coursework, writing documents for coursework, and creating and sending e-mail (see Table 1). Students prefer moderate to extensive use of technology in courses. Moderate use of technology is defined as use of e-mail, several Power Point presentations, some online activities or content, whereas extensive is defined as class lecture notes online, computer simulations, Power Point presentations, streaming video or audio (*ECAR*, 2006). (See Table 2)

Table 2.
Graduate Student Preference for Use of IT in Courses

N=71	1-2 hrs (3.00)	3-5 hrs (4.00)
classroom activities and studying		4.68
using library resources to complete a course assignment	3.17	
surfing the internet for information to support coursework	3.78	
writing documents for coursework		4.08
creating and sending e-mail		4.28

Students perceive that have "about the same skill level" or "more skill" with information technology as compared to other students on

campus. They report fewer hours spent on using electronic devices for personal or pleasure purposes than for activities related to courses (see Table 3).

N=71	Do not use (1.00)	<1 hr (2.00)	1-2 hrs (3.00)	3-5 hrs (4.00)	6-10 hrs (5.00)	11-15 hrs (6.00)	16-20 hrs (7.00)	>20 hrs (8.00)
Excel-creating spreadsheets or charts	17%	43%	20%	13%	5%	0%	2%	0%
PowerPoint-creating presentations	8%	32%	32%	17%	10%	0%	0%	0%
Photoshop-creating graphics	51%	30%	9%	11%	0%	0%	0%	0%
iMovie-creating video/audio	87%	2%	8%	3%	0%	0%	0%	0%
Dreamweaver-creating webpages	75%	12%	5%	7%	0%	0%	0%	0%
Course Management System (CMS) WebCT-learning activities	35%	13%	17%	22%	7%	3%	0%	3%
IM-creating instant messages	55%	20%	8%	3%	7%	7%	0%	0%
Playing computer games	53%	25%	8%	5%	5%	0%	0%	0%
Surf the internet for pleasure	10%	42%	12%	20%	8%	5%	2%	2%

Table 3. Software/internet usage

Most students learned software applications because of an employment requirement, although 14 students (24%) report that they learned Power Point as a class or major requirement. Students reporting that they had not taken a class that used a course management

system (CMS) described their overall experience using a course management system as very negative. Students reporting that they had taken a class that used a course management system (CMS) described their overall experience using a course management system as positive. However, this lack of experience with CMS does not significantly impact a student's perception of the benefits of information technology in graduate education. All students report that the most valuable benefit experience from information technology and the use of electronic devices is convenience. All other possible benefits (communication, improved learning, and improved planning) are valued equally. Students who have used a CMS reported slightly higher benefits in communication with classmates and instructors than students who had not used a CMS. Students do not have significant concerns about information technology, reporting that inadequate access to printing, old computer, slow networks, and inadequate technical assistance was not a concern. Thirty three percent of students (20) indicate that viruses and spam are a small concern.

Students responding perceived that information technology in courses probably has helped them. They are more engaged in courses that require use of information technology (55%), give faculty positive feedback on the overall use of technology in courses (68%), feel that technology has probably increased their interest in the subject matter (55%), and that IT improves the presentation of their work (77%) (see Table 4). Overall, more than 60% of students agree that information technology in their courses has improved their learning. A contrasting 14% disagree with this overall assessment. Additionally, fifty percent of students agree that they need more training on the information technology that they are required to use in courses.

Table 4. Experiences in courses with Information Technology

N=71	Strongly agree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	Response Mean All groups
I am more engaged in courses that require me to use technology.	2%	17%	27%	41%	14%	3.47

Overall my instructors use information technology well in my courses.	3%	5%	24%	56%	12%	3.68
The instructors' use of technology in my courses has increased my interest in the subject matter.	2%	15%	24%	44%	14%	3.49
I primarily use information technology in courses to improve the presentation of my work.	2%	5%	17%	53%	24%	3.92
My school needs to give me more training on the information technology that I am required to use in my courses.	12%	12%	27%	36%	14%	3.27

Students were asked several questions about instruction with information technology. Group responses to these items do not indicate any strong negative or positive tendency, but rather one that would be characterized as neutral. Thirty-four of the 42 HIED students responding said that they had used a course management system. These students perceived that their instructors are using technology well in courses (M=3.59). Thirteen of the 31 K12 students responding said they had used a course management system. These students had an even more positive opinion of their instructors' use of technology in courses (M=3.85). The students who indicated that they did not use a course management system responded similarly to questions about instructor use of technology (M for HIED=4.00, M for K12=3.94).

Simple comparisons between student groups did not yield any statistically significant differences in attitude, skill, or use patterns.

Conclusion

Difference in rate of response

As noted earlier, the department enrolls more Policy Studies or some other K-12 (LEAD) students than HIAD students. Spring 2006 enrollment figures for the department of Leadership obtained from the Office for Institutional Research at The University of Memphis indicate that 93 students are LEAD majors, and 49 students are majors in Higher and Adult Education (HIAD), with a total of 152 graduate students in the department. Taken at face value, this means that 72% of the population of HIAD students responded to this survey, and 26% of the LEAD students responded to the survey. This difference between respondents and the population of the department is troubling, indicating possible survey error.

There are four sources of survey error that reduce research accuracy, namely coverage error, sampling error, non-response, and measurement. (Groves, 1989) *Coverage error* is defined by Groves as a mismatch between the target population and the frame population which results in a difference between those surveyed and those not surveyed. *Sampling error* arises when not all members of the frame population are measured. Differences between respondents and non-respondents, and the rate of non-response are included in the concept of *non-response error*. *Measurement error* is deviation of the answers of respondents from their true value on the measure. Aspects of each of these types of sampling error may be found in the survey done in this study, particularly non-response error. There is a difference between those surveyed and those who responded.

There is a variety of evidence to indicate that respondents to web surveys have common characteristics that make them different than non respondents, contributing to non-response error. "Possibly those who are willing to complete online surveys have stronger feelings which

they wish to register." (Grandcolas, 2003, 552) Grandcolas, et. al. compared paper survey to web survey, finding that there were differences in responses. "The findings of this research suggest that although web surveys may elicit different responses, this is due to sample bias and not administration mode. What, at first sight, appears to be a mode effect is due to the self-selection of the web sample, producing a group of respondents with more internet experience and different attitudes to market research and to the internet." (Grandcolas, 2003, 552) Grandcolas' experience with Kingston University students indicates that students who choose to respond to an online survey differ from students who do not choose to respond.

Additional difference between these groups of students may be found in their required curriculum. Students in the Higher Education concentration, the Adult Education concentration, and the certificate program in Community College Teaching and Leadership take at least one course (Information Technology Trends and Issues, HIAD8415) that is designed to expose them to information technology in education. This course is not required for students with majors in Leadership and Policy Studies.

It is possible that since a higher education graduate student was conducting the study as a residency project more HIAD students were inclined to participate. However, not knowing the researcher may not account for low participation by LEAD graduate students. Certainly successful survey response is possible without being acquainted with all the possible participants, since numerous surveys are conducted successfully without participants having any association with the researcher.

One participant in the survey remarked that the subject line in the email that provided the invitation to participants read: "Survey of Information Technology in Higher Education." This participant, a graduate student in a HIAD program, proposed that the words in the subject line of

the email might have indicated that only HIAD students were to respond. It is possible that using the words "higher education" in the subject line might have persuaded LEAD graduate students that their participation was not required or requested.

The delivery of the survey invitation in an email may account for some lack of response. The hyperlink for the survey was provided in an email sent to all participants at least twice during the time when the survey was available, but was only distributed by way of email. Students with less experience with information technology might not have accessed their e-mail accounts during that time. Because the University has warned graduate students about opening e-mail from unknown senders, the e-mail hyperlink might have been cause for caution for students who did not know the researcher or the sender of the e-mail. These suppositions cannot be explored with the information collected in this survey, but might be taken into account in future surveys of these graduate students.

Recommendations

The information in the study can be helpful to the Technology Committee in the Department of Leadership at The University of Memphis. Students surveyed have given valuable information concerning their preferences. However, more information should be collected to determine how the survey results might change if the sample more closely represented the population of students. Though one hundred percent participation is difficult in any survey, such a "lopsided" response is cause for concern.

Further research should be conducted to collect information from all students in the department, targeting a higher response from students in Policy Studies and other K12 programs. To protect against suspected non-response error, the survey should be available to students in a variety of modes. This survey could be conducted by an interviewer, completed in paper mode,

or done over the telephone. These less anonymous methods of gathering data would require measures to protect student identity.

It would be dangerous to proceed with decisions concerning the impact of information technology use and skills on graduate students in the department without taking measures to gather a sample that represents the population of majors. There is evidence to indicate that students who responded to the online survey differ from their non-responding classmates. This difference deserves investigation.

Depending on the results of that additional participation, different departmental responses may be appropriate. Without changes in participation, the data indicate that student expectations in the classroom include moderate to extensive use of technology. Students who participated in the survey respond well to information technology use in their courses. They perceive IT engages them in their coursework and helps them to understand complex concepts. IT helps these students manage the complicated task of earning an advanced degree. IT assists students with communication among themselves and with the faculty in their respective programs.

The survey does include some concern on the part of students about computer viruses, worms, spam, and inadequate technical assistance. Efforts to increase student awareness of the assistance available to them may be warranted. This type of information often seems hidden from students who have limited access to campus beyond attending classes. An effort on the part of faculty to assist students with integration of technology into their graduate studies is needed.

Motivating faculty to consider this role may be a challenge. Faculty must first be encouraged to adopt technology as a resource. Convenient access to resources that encourage a change of teaching behavior and reward for the behavior change are necessary (Rogers, 2000). But according the Dean (1998) and Neil (1996) many faculty fail to adopt technology simply

because they are not convinced that technology can improve their students' learning (as cited in Rogers, 2000). Graduate students may well respond to the same type of incentive.

There is more to be learned about the impact of information technology on the experience of graduate students in the Department of Leadership. The same study has been conducted with faculty in the department and with undergraduate freshmen and seniors at the same institution. The information from these studies might yield additional insights concerning the similarities and differences between graduate students, faculty, and undergraduate students. In addition, it is recommended that the study be repeated in a year, and that an attempt be made to gather a sample that reflects the graduate student enrollment in the Leadership of Department.

A good understanding of all skills, concepts, and capabilities of fluency are necessary for graduate students to access the full power of information technology. The Department of Leadership must decide the extent to which it values fluency with information technology, and the vehicles by which changes in current levels of use and skill will occur. The results of the survey indicate that varying degrees of use and skill are perceived in the graduate students in the department. If an effort to standardize fluency with information technology is adopted, a combination of initiatives may be required to impact graduate student use and skill.

Curricular changes are often a first step. "One common reaction to calls for proficiency in *X* is to promulgate required courses on *X*. For example, in response to concerns about the writing ability of students, many universities require all students to enroll in (or place out of) a writing course" (National Research Council, 1999, 57). Current department curriculum includes such a course, HIAD8415, Information Technology Trends and Issues. This course is currently required in both Higher and Adult Education concentrations, but in no other concentration in the department. An effort to measure the impact of this course on information technology use and

skills among Higher and Adult Education students might influence the department's decisions concerning curriculum for other concentrations. "With such a foundation in place, pedagogical efforts involving information technology should be easier and more efficient to undertake in subsequent courses. A better approach to FITness draws on the idea that information technology is pervasive. That is, when properly integrated, FITness will benefit the study of any subject, much as the ability to write well benefits students of any subject" (National Research Council, 1999, 57).

Half of the students responding perceived that they needed additional assistance to use information technology effectively. Student comments (see Appendix 2) outline the need for a variety of types of assistance. However, it is clear from these narrative responses that no student posting comments objected to the use of technology in the graduate programs of the department of Leadership. There is a hint that competition to use technology more or more effectively exists among students. "For a course in which participation on the [discussion] board [in WebCT] was required based on average use of all participants, I found it inhibiting. I didn't like being forced to participate based on other's use."

The faculty of the department has taken responsibility for making the initial steps to integrate information technology into courses, curriculum, and culture in the department. As the faculty seeks to move toward an assurance of fluency with information technology among its students, resources of the campus may be of great assistance. The University's Advanced Learning Center has announced several fellowship and grant programs that are designed to help individuals and groups make strides in their use of information technology to foster learning. Information concerning these programs is included following the Appendices. The grant

program titled Innovation to Excellence in Learning (IEL) is “designed to create funding opportunities for large-scale departmental classroom technology initiatives.”

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Appendix 1-Summary, Intellectual Framework

Being Fluent with Information Technology

Chapter 2. The Intellectual Framework of Fluency with Information Technology

Intellectual capabilities

1. engage in sustained reasoning
2. manage complexity
3. test a solution
4. manage problems in faulty solutions
5. organize and navigate information structures and evaluate information
6. collaborate
7. communicate to other audiences
8. expect the unexpected
9. anticipate changing technologies
10. think about information technology abstractly

Fundamental concepts

1. computers
2. information systems
3. networks
4. digital representations of information
5. information organization
6. modeling and abstraction
7. algorithmic thinking and programming
8. universality
9. limitations of information technology
10. societal impact of information and information technology

Contemporary skills

1. setting up a personal computer
2. using basic operating system features
3. using a word processor to create a text document
4. using a graphics and or artwork package to create illustrations, slides, or other image based expressions of ideas
5. connecting a computer to a network
6. using the internet to find information and resources
7. using a computer to communicate with others
8. using a spreadsheet to model simple processes or financial tables
9. using a database system to set up and access useful information
10. using instructional materials to learn how to use new application or features

National Research Council, Committee on Information Technology Literacy. (1999). *Being fluent with Information Technology*. Washington, DC: National Academy Press.

Appendix 2- Graduate student comments from survey

	If you have any other comments or insights about your information technology use and skills as it pertains to your graduate education, please feel free to share them with us below. For this study these comments will be very valuable.
1.	School business bgt should work with doing a school's budget.
2.	As an older returning student, I was deficient in typing. Typing is a critically important skill. Successful testing taking using the computer is greatly dependent on one's typing skills.
3.	During my Doctoral Coursework computers were just beginning to be used. I don't have a home computer because I am not knowledgeable enough about them to purchase one or set it up and manage the viruses, etc. I am realizing the need to learn and will try and take some courses to master this. I would appreciate more online courses due to the distance to Memphis for the future.
4.	I would like to see more information technology integrated into the graduate courses in the Higher and Adult Education Courses.
5.	I think over-use of the discussion board is unproductive. For a course in which participation on the board was required based on average use of all participants, I found it inhibiting. I didn't like being forced to participate based on others' use. It seemed as if I was on WebCT all the time checking messages on the discussion board and responding, often to topics unrelated to the course.
6.	Note: I have completed all of my course work. Therefore, my answers on the amount of time I currently use online resources is much less than when I was taking courses.
7.	It seems that the general assumption is that graduate students come to school already equipped with computer skills. As an older student, my limited computer knowledge has basically been acquired through trial and error and the "learn as you go" methods. It would probably be beneficial to many students to actually receive some type of preliminary instruction in the use of computer or at the very least the professor should determine skill level prior to requiring computer based assignments.
8.	I've found that the majority, 95% or higher, of the students are very knowledgeable about technology and computers. Yet, the

	majority of the faculty will not use it and insist on lectures. This is a thing of the past and hinders the instructional block. Students are different now and leaner quicker and through various means. I think that all faculty members should be required to use technology, web based, in their curriculum. If they don't know how…learn. Isn't that what knowledge is all about? Gathering new data sets, skills, and experiences? If the faculty member will not use the internet as a tool to enhance the class…the students are bored and not as interact in class vs. classes with IT features.
9.	Request weekend technology use workshops. More training on REFWORKS
10.	I was unsure if my answers in this survey should be limited to my experience as a student. As an instructor I teach online classes that use WebCT and I use DreamWeaver to design my courses, but as a student I have never taken an online course or used a program like DreamWeaver, so my answers may seem contadictory here.
11.	I teach college Information Technology, so I am atypical of the "average" user. In terms of my experience with WebCT - the instructor was a flaming idiot!!
12.	Faculty often do not update their documents on webCt and the information was old!
	Use of IT in classrooms should mean more than displaying Powerpoint presentations. I am often amazed at the non-traditional students engaged in graduate-level work who don't know how to perform basic functions on computers.