

ROUTLEDGE STUDY GUIDES

LEARNING ONLINE



MAGGIE MCVAY LYNCH

**Also available as a printed book
see title verso for ISBN details**

Learning Online

Whether you are taking classes in school, college or university, or in a corporate training setting, it is likely that you will be expected to do at least part of your studies via the computer. This book provides realistic guidelines to ensure your success in the virtual learning environment. From detailing tools such as WebCT and Blackboard, to overcoming personal barriers to success in distance learning, this handy text deals with issues that readers of any age, stage or situation are likely to encounter by:

- demystifying terms and concepts common to online learning;
- addressing issues of online ethics such as netiquette, plagiarism and software piracy;
- offering practical advice on interacting effectively online, submitting assignments, and doing research;
- furnishing numerous links to Web pages and other resources for further study and research.

The author offers anecdotes to help you avoid the pitfalls and capitalize on opportunities that will help you become a successful online student.

Both current and prospective online learners will greatly benefit from this practical book filled with clear, detailed assistance for learning online.

Maggie McVay Lynch is currently Manager of Distributed Education at Portland State University.

Learning Online

A guide to success in the
virtual classroom

Maggie McVay Lynch

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For Michele and Patricia who continue to demonstrate that a commitment to life-long learning and embracing technology is necessary at every age

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The future is now

The proper artistic response to digital technology is to embrace it as a new window on everything that's eternally human and to use it with passion, wisdom, fearlessness, and joy.

(Ralph Lombreglia, 'The right mix', *The Atlantic Unbound*,
4 June 1998)

Shaping our world – living and learning with technology

Technology is a tool that is affecting the way we work, play and communicate. From simple tools like can openers and magnifying glasses to complex machines like computers and jet airliners, technology can help in our work and give us more ways to keep in touch with friends and family. Technology is changing our lives; it's up to us to decide how to use it, how to make it work for – rather than against – us.

Tools that use technology, useful gadgets, and disposable items surround us, entertain us, provide useful services, and make our lives easier. We can do things every day that would have been considered impossible (or perhaps magical) not so long ago. The modern woman is able to awake precisely at 5:45 am to an electronic buzzer, a favorite radio station, a CD, or even recorded sounds of birds, the ocean, or a rainforest. Her home, cool during sleep hours, is warm and coffee is already brewing in the electronically programmed coffeepot. A quick flick of the remote control tunes the television to the local morning news where she can get a weather report while deciding what to wear for the day. After getting dressed, she may login to her personal computer, connect to the Internet, and check her email, review a calendar of appointments and projects planned for the day, and check her stock portfolio. All of these Internet resources have been configured

just for her needs. She then leaves the house, gets in the car, stops at an automatic teller machine (ATM) on the way to deposit a birthday check. Just before getting to the office, she visits the local florist to send flowers to her sister who just had a baby. She pays for the flowers with a credit or debit card, not needing to carry cash with her. Finally, she calls her administrative assistant from a cell phone to get some copies made for her first meeting of the day. This all happens before 8:00 am.

Society is expecting more and more of these things, and these same expectations cross into the realm of education and learning. Furthermore, employers now expect that new hires will have the ability to use technology to learn faster, produce more products, and network with people around the globe to solve problems.

The next 50 years will see a learning revolution unlike anything witnessed since the beginning of the printing press. Adults want and need to be able to learn things on-demand – whether it is at 3:00 am or 10:00 pm. Students are more mobile now and thus desire to learn in their homes, in their cars, in their offices, on the manufacturing floor, and while traveling. In particular, people want to obtain the required knowledge just before or right at the time they have the need for it.

Education and training's response to technological change

Traditionally, mainstream education and training has embraced technology at a slower pace than business. The belief that face-to-face instruction or tutoring is the most effective way to teach is still the accepted tenet of quality education at most institutions. Certainly, most learners would love to have the luxury of personalized instruction in a one-on-one setting – in effect a private instructor. However, that is possible only for a very few special or particularly wealthy learners. The typical college course ranges from a seminar with as few as 12–15 students to a large lecture with 500 or more students. Furthermore, a traditional college education in many parts of the world is very teacher-centered. In other words, the teacher provides the expertise and the knowledge to the student who then repeats it – in a recitation of some type – to commit it to memory. In some instances the students are asked to synthesize information and reformulate the material for their own needs – but this is rare in most courses. In this traditional education system, the application of knowledge occurs in lab sections that are separate from the lecture class. In many instances the application of knowledge is not tracked within the educational environment but

instead left to each student to struggle on his or her own after completing the course.

In a very few universities the opposite approach is taken. For example, at Cambridge in the UK, the student does attend limited class sessions (lectures); but the larger part of the student's time is spent independently in study and reflection around a self-selected group of topics. In this environment, the student must choose what to study from multiple resources given by the instructor as well as additional resources found by the student. Students then meet regularly (4 to 5 times per week) in a "supervision" group with up to six other class members and an instructor to discuss their progress and to hand in work accomplished in their individualized study pursuits. The supervision session may include additional questions asked by the instructor to help expand the student's knowledge. This is what is often referred to as a "student-centered" approach to learning.

A good online learning environment is much more like the Cambridge experience than the typical learning environment of other institutions around the world. It relies on a student-centered methodology that requires students to be responsible for their own learning and to be motivated to study in a continuous and consistent manner without the structure or requirement of attending physical class sessions.

As budgets decrease and student populations increase, the need for serving larger classes and more diverse people becomes an absolute necessity in the struggle to provide equal access to education around the globe. Online learning has become one of the responses to this need. Consequently, more and more training options are being developed using online learning as a part of, or the whole of, the education experience.

Though many people believe online learning is a new phenomenon brought about the spread of the Internet, the fact is that computer-based learning goes back about four decades, when large mainframe computers began to become a mainstay of government and business. In the 1960s extensive programs were written for a variety of training or research purposes, with an emphasis on development of simulations and thinking tools.

The overall philosophy of computer-assisted education through the 1960s and 1970s focused on electronic curriculum materials – self-study programs that students could use to learn specific content. Computers were used to provide a series of interactions consisting of content followed by a problem or question. The student would respond

and some type of feedback would be presented. This instructional design was based on a sound theoretical basis of behavioral and early cognitive learning theory. Furthermore, there was ample empirical evidence to show that students studying in this manner did achieve the objectives or learning outcomes. However, as computer technology became more sophisticated and personal computers (PCs) became more the norm both for business and for individual home use, it became clear that the previous computer-assisted approach was too limited and did not provide sufficient learning beyond memory and recall. In order for educators to truly embrace the use of computers, there was a need to provide more complex problem-solving and critical thinking opportunities.

With the advent of the Internet in the early 1990s, computers became accepted as superb devices for communication and information sharing. What really impressed students and teachers was the capability to interact electronically, search through databases, and work together to solve problems. So, interactivity remained of utmost importance. However, it was no longer the student-to-computer interaction that was prized. Instead, it was the person-to-person interaction with the computer serving only as an intermediary.

In higher education and corporate training, quality online education is now shaped by exploration and discovery, collaboration, connectivity, community, multi-sensory experiences, and authenticity related to student-centered needs. Let's look at a few examples of how online education is being used today and how these initiatives are characterized in online courses.

Initial physician training via online courses

A worldwide group of medical schools is collaborating to build an "International Virtual Medical School," allowing students to begin work toward a medical degree thousands of miles from a classroom. The virtual medical school project, known by the acronym IVIMEDS, is based at the University of Dundee in Scotland, but is actually an international collaborative comprised of over 50 institutions in 16 countries. Many of the participating institutions are in the United Kingdom; other contributing universities are located in Portugal, Italy, Singapore, Israel, and Saudi Arabia.

The goal of the program is to replace the conventional lecture-and-textbook approach of medical school, which some believe is "dehuman-

izing.” The new curriculum emphasizes the value of problem-solving over memorization, and, because it will rely heavily on computers, it can be used both on campus and off-site.

Supporters of this approach also see broader potential in long-distance medical education. Doctors from poor communities would be more likely to practice medicine at home, where they are needed, if they haven’t been forced to relocate for four years. Even in more developed areas, some medical educators worry that there won’t be enough doctors in 20 years to serve an aging and growing population.

The program is based on the concept of a “virtual practice,” where the computer presents students with patients to treat. For example, a video patient may appear in the course complaining that his leg hurts. He believes it started when he was jabbed in the leg with a rusty nail while mending his fence. First he just needs a tetanus shot and antibiotics, but he comes back the next week complaining about the deteriorating state of his farm and wondering if his family would be better off without him. The students then must examine him for depression. When students present their diagnoses, the computer will provide some automated feedback and direct the students to background reading. Faculty will also closely monitor students’ performance. Students and teachers will interact over email or on discussion boards, and at some point in the program students may be required to volunteer in local clinics or hospitals.

The plan is for students to be able to finish their first two years of medical school by completing a series of computer-based assignments as well as some hands-on work at local institutions. Then, like all medical students, they would finish their degrees by spending two years doing hands-on clinical work in a teaching hospital.

Science Learning Network for K-12 schools

In online education for children the major value of the Internet is to provide a link to many resources. This is done through special projects such as the Science Learning Network or through individual, instructor-developed WebQuests – inquiry-oriented activities in which most or all of the information used by learners is drawn from the Web – that lead the students through a series of Web site explorations along with questions or study points.

The Science Learning Network (<http://www.sln.org>) is an online community of educators, students, schools, science museums and other

institutions that demonstrate a new model for inquiry science education. The project provides an opportunity for young students to explore science on their own, through inquiry-based teaching approaches, or as part of their classroom experience. The site allows for collaboration among geographically dispersed teachers and classrooms, and a large variety of Internet content resources.

For example, the museum section allows students to visit museums in Finland, the United Kingdom, Japan, Singapore, and the United States. The "Exploratorium" keeps students updated on the top ten "cool sites" that cover topics as diverse as hunting crabs, exploring race and prejudice, and understanding engineering challenges (see Figure 1.1).

Virtual foreign exchange program to provide global student experience

In an attempt to improve students' understanding of global issues, schools are seeking new ways to incorporate international education into their curriculum. In the United States, the University System of

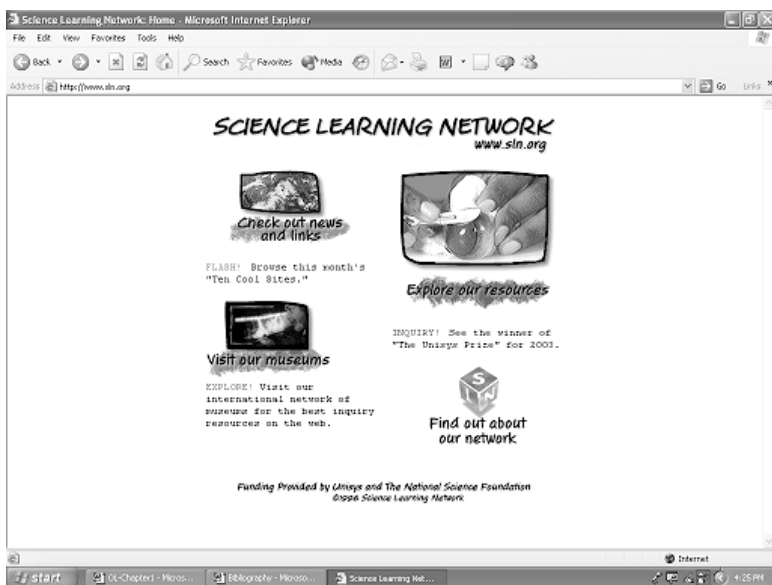


Figure 1.1 **Science Learning Network** (courtesy of The Science Learning Network, www.sln.org).

Georgia (USG) and the University of Munich in Germany have developed and implemented a unique collaborative approach that provides students with a global education experience, while giving them the opportunity to participate in a “virtual” foreign exchange program. During the fall 2001 semester, the institutions jointly offered their first two interdisciplinary, intercultural online courses. Over the next 18 months, a total of nine online courses – all focused on some aspect of the European Union – were offered to students from both universities. All nine courses were developed and team-taught in English by faculty members from a USG institution and the University of Munich.

The courses are part of a European Union Studies Certificate program, which provides undergraduate students from USG campuses and the University of Munich with the opportunity to earn a combined certification from both institutions (see Figure 1.2). The certificate is a collaborative program of USG and its European Union Center (www.inta.gatech.edu/eucenter), as well as the European Council. By taking part in the program, students learn about the European Union, gain knowledge of European history and culture, exchange ideas about business practices, and communicate electronically.



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**European Union Center
University System of Georgia**

Welcome

The European Union Center of the University System of Georgia is located at International Affairs at the Georgia Institute of Technology. It was founded in 1998 with support from the European Commission for the purpose of: enhancing "people" linkages across the Atlantic, promoting understanding of the European Union (EU) and supporting the transatlantic US-EU relationship.

The Center is part of a network of 15 centers housed at academic institutions throughout the United States. The Georgia Center, representing 34 institutions of the University System of Georgia, addresses the needs and interests of the Southeast involving the region's economic, cultural and political relations with the European Union.

Figure 1.2 European Union Center University System of Georgia

Britain's e-University

UK e-Universities Worldwide (UKeU), which opened its doors in April 2003, is a joint initiative between the UK Government, 12 universities and private industry. UkeU was given £62m of funding from the government and has created a set of online courses for students around the globe. Undergraduate, post-graduate and life-long learning courses will be offered in subjects such as English language, science and technology and business. There is also an ongoing project with three Chinese universities to offer teacher training resources online.

Initially, the courses will be offered by Cambridge University, the University of York and Sheffield Hallam University. Students can complete some of the courses wholly online while others require them to take a traditional exam in a location near to their homes. Study seminars are held as online chats with instructors monitoring individual input to such discussions.

Online corporate training for all types of employees

The business world is also a prime candidate for online learning opportunities. In a global knowledge economy, businesses are under pressure to get new products and services to the marketplace ever more quickly, and to respond to increasingly demanding customers. To remain competitive businesses need to improve every aspect of their performance and ensure that they are benefiting from the economies of scale available through online training.

Many commentators have acknowledged that the speed at which an organization learns is its only sustainable source of competitive advantage. This has made the knowledge of how individuals and organizations learn a key business issue. Thus, corporations are taking a more critical view of how they develop their people.

In some areas traditional sources of education – colleges, universities and training organizations – continue to provide what is required. But just as the needs of corporations are rapidly changing, so are the ways that learning opportunities are delivered; mobile-telephony, electronic simulation, interactive and modular delivery of instructional tutorials, the Web, and digital television are some of the more obvious examples. Learning centers and corporate universities are just two instances of how online learning impacts the business world. In addition, online learners can enroll in Internet-based learning programs with commercial providers thousands of miles away (sometimes even in a different

country). Or, a corporation may choose to have training designed specifically to meet its needs, allowing the topics to be tailored to an individual's requirements while still maintaining the corporate philosophy and strategic goals that are desired for each course. Businesses now rely on online learning to develop skills and knowledge faster and when needed by employees, that is "just-in-time" learning.

The types of corporate training and online courses favored by businesses range from complete MBA programs, in partnership with major universities, to skill-training programs for specific job positions in an organization. Let's look at these two extremes of online training that meet corporate needs.

MBA training worldwide

In June 2003, Universitas 21 Global (<http://www.universitas21.com>), Asia Pacific's premier e-University headquartered in Singapore, opened its doors to MBA aspirants. Students from around the world can register with Universitas 21 Global, which uses the Internet to deliver a world-class education experience for its global students.

A joint venture between Universitas 21 and Thomson Learning Corporation, Universitas 21 Global is a consortium of 17 world-renowned universities. In 2002, five of Universitas 21's member universities were ranked among the top 20 MBA schools by Asia Inc, including the National University of Singapore, University of New South Wales, University of Queensland, University of Hong Kong and University of Melbourne. Other member universities are recognized as being among the top business schools ranked by *The Financial Times*, the *Economist Intelligence Unit* and *The Wall Street Journal*.

Universitas 21 Global students are required to demonstrate their analytical thinking and understanding of coursework through problem-based assignments that are set in a virtual environment. Students can engage in online discussions that connect them to their counterparts around the world and access the Universitas 21 Global library for learning resources. Active interaction between students and lecturers occurs through real-time Internet chat, threaded discussions and similar Web-based communications tools. Other learning applications are provided through Universitas 21 Global's proprietary Learning Management System. This system includes online announcement boards and special notepad functions where students can create their own lecture notes.

Universitas 21 Global is not the only online MBA program, but it is



Figure 1.3 Universitas 21 Global: In addition to academic programs, Universitas 21 Global offers the full range of student services online, including academic counseling, career guidance and technical support.

probably one of the largest consortiums. MBA programs are frequently the first online degrees offered by a university; consequently, there are hundreds of programs worldwide, including 103 accredited online MBA programs in the US alone.

Specific job training for an American newspaper conglomerate

At an American newspaper conglomerate, Lee Enterprises, new district managers now receive an orientation to their job responsibilities and to the company through an online course. Lee Enterprises is a 113-year-old company that owns 44 daily newspapers in 18 different states. In addition, they own over 175 weekly newspapers and special publications, and employ approximately 6,700 people across the United States.

District managers (DMs) are responsible for ensuring that newspapers are delivered on time and in the right place for every customer. Each DM is responsible for contract newspaper carriers – both youth and adults – and accountable for the training and performance of these

Test your knowledge



Test your knowledge by completing this fill-in-the-blank quiz about carriers as independent contractors. When you have completed the quiz correctly, close the window and you will return to this page.

Retention of Carriers Through Good Communication



When there is a good carrier in your district, you want to keep the person on route as long as possible and have the person continue to grow in skill.

Figure 1.4 Lee Enterprises district managers course

carriers. District managers typically do not have college degrees and work long, hard hours (with a morning paper, their shift begins at 2:00 to 4:00 am). Because of the hours and frustrations inherent in this job, the company experiences a great deal of employee turnover and is therefore faced with training new employees on a regular basis. To meet this need Lee Enterprises opted to have a course designed and delivered totally online to provide DM training. The online course presents needed information, practice quizzes to reinforce the information, video examples of appropriate techniques to use for a variety of management responsibilities, and online discussions with other DMs across the country to resolve common problems and to create a sense of community among fellow district managers. The online course served more than 400 people in the first six months of its release.

Specific job training for British food manufacturers' employees

Food manufacturing companies in the United Kingdom can now opt to train their staff in "lean manufacturing techniques" online. Lean manufacturing is a performance-based process used to increase compe-

titive advantage in manufacturing organizations. The basics of lean manufacturing employ continuous improvement processes to focus on the elimination of waste or non-value-added steps within an organization.

The Manufacturing Institute is an organization formed in 1994 of leading UK manufacturing companies and universities. The institute develops productivity improvement programs to help build greater capacity for skilled manufacturing competitiveness. To date, over 9,000 manufacturers have participated in its programs.

An Internet-based training program launched by the Manufacturing Institute allows staff from a variety of companies to access training remotely from their workplace. As well as having to complete a number of exercises, trainees can also use the program to add their own site or departmental data to help them measure and track performance across key performance indicators. In addition, the training program also uses an online discussion forum where trainees can login and share knowledge, post messages to a threaded discussion board and discuss ideas with other manufacturers or with experts in using lean techniques.

The Lean On-line™ program has been designed as a business improvement tool as well as a training course. While employees are learning about “lean manufacturing,” their company can be using the self-assessment and audit tools, provided in the training, to determine how to best implement lean manufacturing and tracking in its business.

Companies around the world are now using online education options to provide immediate training for a large variety of positions, ranging from the new receptionist to technicians and managers. Topics may be very specific (how to use a word processor) or more generalized (how to provide good customer service). In the past, online learning was seen primarily as a venue for training computer workers; but now it is being used effectively for all types of training. The use of the Internet to deliver in-company courses is now well established. Flexibility and economies of scale are powerful factors for the educational establishments and commercial providers who are significant players in the burgeoning business education market.

New schools, structures, and enterprises spanning the globe

The most notable impact of online learning has been in the adoption of this technology at colleges, universities, and industry training centers

around the world. Projections for 2025 suggest that 160 million people will be seeking education. Compare that to the current 45 million students enrolled in higher education today. Online delivery of education has been seen as an important way to meet this growing need for higher education. Furthermore, many countries with large rural populations, or large illiterate and poorly-educated populations, coupled with an enormous shortage of trained teachers, see online education delivery as an important means to providing consistent educational opportunities to large numbers of people.

As an example, in the India Vision 2020 educational plan, it is predicted that country-wide learning systems will encourage more private industry participation that will be complementary to the existing government education programs and policies. These private-public partnerships will be involved in setting priorities, gaining institutional commitment, determining organizational structures with re-engineered processes, and creating better management and leadership within education. Furthermore, the Vision 2020 plan documents that these partnerships will be driven by learner needs and educational choices that maintain student autonomy and job mobility. They will allow adult learners to move easily from one location to another and to still be able to continue their education without losing forward progress toward a degree or program completion.

The India Vision 2020 plan covers all levels of education. It proposes strategic alliances between universities, colleges, schools, industry, subject experts, cable operators, communication service providers, and many others. The partnerships are multi-level to reduce government dependency on funding. Multi-communication technologies that can provide multi-lingual and multi-cultural options for education are to be used.

Some might ask, "Why are countries, such as India, Sri Lanka, China, and many in South America embracing technology so readily when it seems much of the population hardly has electricity, not to mention computers?" The answer is that these countries understand that knowledge and technology independence – enhanced by universal education – is a key strategy for their economic survival, their future growth and competitiveness in a global economy. Furthermore, these nations and many other proponents of technology see this global education as a way of removing the disparity between rich and poor, between developed and less-developed countries, and through shared learning and communication between disparate people eventually, perhaps, even make a difference between peace and war.

Although online learning opportunities are offered by thousands of colleges and universities, a growing number of consortia and brokering arrangements have developed among traditional institutions, hundreds of corporate universities, and the military branches to serve a larger and more diverse population of learners. Some of the first institutions established solely and specifically to provide technology-mediated distance learning were established outside of the United States in countries such as China, France, India, Indonesia, Iran, Korea, Spain, and South Africa. One of the first institutions of this kind was the Open University in the UK, which was established in 1969. Since then, 30 other open universities have been established throughout the world. The number of students served is impressive. For instance, in 1995, the China TV University System enrolled 530,000 students, the Anadolu University in Turkey enrolled 577,804 students, and the Universitas Terbuka in Indonesia taught 353,000 students. These institutions are all major higher education providers in their countries.

Mingle (1995), a researcher who studies computers and education, earlier identified four interrelated phenomena accompanying the rapid growth of information technology's impact upon global postsecondary education. These phenomena certainly seem to be the harbingers of growth today. They are described in detail below.

Lifelong learning

The world has changed in ways that make lifelong learning more of a necessity than an appealing phrase. In their book, *The Monster Under the Bed*, Davis and Botkin note that in an agrarian economy, education for young people between 7 and 14 was sufficient to last 40 years of a working life. The industrial economy expanded the age range of students to between 5 and 22. In the information economy, the rapid pace of technological change requires education to be updated throughout an individual's working life. People have to increase their learning power to sustain their earning power. Lifelong learning is the norm that is augmenting school-age education.

Learner-centered instruction

Mingle (1995) also points out that, traditionally, higher education is organized around the needs of the providers, where a "place" to conduct research and teach is supplied. The standards for conducting research and teaching, including faculty workload, space for labs, etc. are centered

on the provider and professional needs. A “learner-centered” delivery system possesses three fundamental characteristics: it is, to a greater degree, self-directed; it is more focused and purposeful; and it employs the appropriate level of faculty mediation. The real roles of the instructor in an information-rich world will not be to provide information, but to guide students wading through the deep waters of the information flood. Instructors in this environment thrive as mentors. They use the best skills they have to encourage students through the educationally crucial task of processing information, problem solving, analysis, and synthesis of ideas – the activities in which a student’s time can be best spent.

Providing access

For several years it has been recognized that learning does not have to take place only on a college or university campus. In 1994 the US government announced its intention to establish by the year 2000 the National Information Infrastructure (NII), which is essentially a broadband digital network. One fundamental requirement is that the applications of the NII extend into homes and workplaces as well as colleges and universities. A plethora of courses and entire academic programs are already being provided to students in venues away from the campus, particularly in a student’s home or workplace. Many other countries have undertaken similar efforts to provide network infrastructures. Rich information technology, the worldwide push toward global standards, ever-increasing customer demands, and growing international competition are key forces behind the emerging multimedia revolution and the evolution of national information infrastructures in every country. Many of these countries are now also participating in the development and acceptance of standards through the global information infrastructure. These advances hold the promise of a broad range of information-age benefits to virtually every citizen of the world.

Knowledge media

The term “knowledge media” was proposed by Marc Eisenstadt to describe the convergence of telecommunications, computing, and the learning or cognitive sciences. He defined knowledge media as the “capturing, storing, imparting, sharing, accessing and creating of knowledge” (Eisenstadt 1995). The combination of technologies

coupled with our understanding of the learning process will fundamentally change the relationship between people and knowledge. This medium is not just a technical format, such as a CD-ROM or email, but encompasses the entire presentational style, how the user interfaces with the media, the accessibility of the medium, and the degree of interactivity. Knowledge media provide the opportunity to change the emphasis from the classroom and teaching to the individual and learning. In short, with good learning materials, effective networks, and proper support, students can learn better at home than in class.

Many students are drawn to online courses because they both want and need to determine the time and place of their learning. Many recent researchers have predicted that online learning will make its greatest contribution through hybrid courses that combine the classroom and the computer. Electronic interaction already extends learning beyond classroom walls; it is likely that by 2010 the vast majority of courses in higher education will have some online components associated with them.

Making connections across virtual space and time

At this point you might be thinking “This is all fine, but how do I know if online learning is right for me?” Certainly, if you are working full or part time, or have multiple community or family obligations, you are a good candidate for online learning. If you are an adult returning to higher education after being away, you may really enjoy the independence of online learning. If you are in a job where you are required to update your skills on a regular basis, it is likely that you will be encountering online learning in training – whether through a computer-based software tutorial or in an actual facilitated online class. Finally, if you are a student in a traditional college or university, the chances are that you will be required to use the Internet and do some of your learning online, and it is likely this will become even more the case in the near future.

So, almost everyone will be encountering online learning at some time. However, there is a way to evaluate your *readiness* for this environment. Take a moment to complete the survey (Table 1.1) and you can begin to reflect on how prepared you might already be for this setting or where your strengths and weaknesses lie and thus, on what sections of this book would be most beneficial for you to focus.

Student self-evaluation checklist

This survey (see Table 1.1) is designed to assist you in rating your current readiness to pursue online education courses. Answer honestly by rating your agreement with each statement. Tick the box that best matches your feelings. The feedback from this survey may assist you in the areas where you need to focus prior to enrolling in an online degree program.

Any questions where you answered “rarely” reflect areas where you should particularly focus on those topics in this book. As you read through this book, continue to evaluate yourself as a potential online learner and carefully reflect on your reasoning and your personal learning preferences. For example, many students who enjoy the social aspects of learning or who learn more effectively by interacting with other students face-to-face might answer “rarely” to question 12. This means you will want to pay special attention to the section on building a learning community, and you will want to carefully evaluate online programs to ensure they provide many opportunities for you to be in a more supportive and interactive environment.

Once you are convinced you want to pursue online learning more actively, you need to locate courses, programs, or entire degrees online that fit your needs. There are many ways to search for these options. One way is to go to your local college or university and ask what online learning opportunities are available. Another is to search Web sites of institutions that you already know have a good reputation for delivering the types of courses or majors in your interest. It is possible that some or all of those courses are online. If you do not already have local resources or a personal knowledge of what is available in your country, there are a number of good resources on the Web to help you with this process.

There are many Web-based resources to help you research institutions, online course providers, and their reputation. It would be impossible to list all of them. However, the three sites below will provide excellent information about accredited programs or links to reputable resources for programs around the world.

The International Center for Distance Learning (<http://icdl.open.ac.uk/>)

The International Centre for Distance Learning (ICDL) of the Open University, UK, maintains distance education databases containing information on over 31,000 distance learning programs and courses

Table 1.1 Student self-evaluation checklist

	Rarely	Sometimes	Most of the time	All of the time
1 I am able to easily access the Internet as needed for my studies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 I am comfortable communicating with others over the Internet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 I am willing to communicate actively with my classmates and instructors electronically.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 I am willing to set aside an amount of time each week to effectively engage in study.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 I feel that online learning is of at least equal quality to traditional classroom learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 I feel that using my background and experience in my studies will be beneficial to new learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 I am comfortable with online written communication.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 When it comes to learning and studying, I am a self-directed person.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9 Reviewing what I have learned in a course helps me with new learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10 In my studies I am self-disciplined and find it easy to set aside reading and homework time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11 I am able to manage my study time effectively and easily complete assignments on time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12 As a student, I enjoy working by myself with minimal support or interaction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13 In my studies I set goals and have a high degree of initiative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14 I believe I am the only one responsible for my learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

and over 1,000 institutions teaching at a distance worldwide. It is the most inclusive distance learning site on the Web.

***Distance Education Clearing House at
University of Wisconsin
(<http://www.uwex.edu/disted/home.html>)***

The Distance Education Clearinghouse is another comprehensive and widely recognized Web site bringing together distance education information from both US and international sources. New information and resources are being added to the Distance Education Clearinghouse on a continual basis.

Degree.Net (<http://www.degree.net/guides.html>)

This site attempts to demystify accreditation, identify “diploma mills” and other disreputable institutions, and report on some of the latest developments in the industry.

***Get Educated.Com
(<http://www.geteducated.com/onlineguides.htm>)***

This site offers free downloads of their directories of online universities arranged as PDF documents by speciality. These manuals detail accredited online programs and degrees throughout the US and Canada.

Deciding to pursue online learning

If I should not be learning now, when should I be?

(Lacydes, c.241 BC, from Diogenes Laertius, *Lives of Eminent Philosophers*, Lacydes, sec. 5)

An introduction to online learning

Since the introduction of the personal computer in 1981, the possibilities for learning online have grown rapidly. Though some online learning did occur before that time, it was primarily the province of large software company training programs or military programs where men and women were deployed at great distances and needed tutorials to learn a specific skill. These efforts were limited to computer-mediated instruction (CMI) or computer-assisted instruction (CAI), where courses were designed as self-study tutorials in a particular subject or topic. They typically included some questions which required a response and then the computer generated immediate feedback. Though heralded as excellent at the time, they did not afford the student an opportunity to interact with other students or with an online instructor. Furthermore, the tutorials were very limited in scope and the amount or type of interaction with the computer that could occur.

Large-scale interest in computer instruction waned quickly. The time and effort required to develop the curriculum, as well as the necessary technical sophistication, was out of reach for most businesses and educational institutions. Estimates of course creation timelines averaged between 150 and 300 hours of development time for each hour of delivery time. Consequently, the price to purchase courses commercially was also expensive. A typical 10 -or 12-hour course would cost \$5,000 or more.

The use of computers for online learning didn't really begin on any large scale until 1996, four years after the introduction of the World Wide Web. In 2000, reflecting the increase in computer users both at home and at work, many government census bureaus began reporting statistics regarding the number of computers available to a population, their location, individual and business access to the Internet, and if the computer was used for educational purposes.

Today, traditional colleges and universities around the world offer individual courses and entire degree programs online – both undergraduate and graduate. When you complete your degree online from an accredited traditional institution, you receive the same diploma as you would for taking all the courses at the campus. In other words, an MBA at Harvard (whether completed online or on campus) is the same thing. Your transcripts do not state where the courses were taken.

In addition to traditional colleges entering the online market, we are now seeing entire “virtual” universities – institutions that do not have a physical campus. These schools offer all their courses completely online, with instructors, and administrative staff working from their homes or small business offices. It is still unclear how these entirely virtual universities will be accepted. It is important to check carefully the accreditation of these programs and their offerings before spending your money to get a degree. This will be discussed in greater detail later in this chapter.

Courses taught via the Internet have now become quite common, as computers are widely distributed throughout libraries, schools, businesses, and homes. In 1992 fewer than 10 US states were using Web-based learning; today, all 50 states have significant efforts in online learning, both at the grammar school and at the college level. Even in countries with poorer economies (e.g. many African countries, India and Sri Lanka, and much of Latin America) the Internet has become a key ingredient in economic growth and education. Many of these countries have been given assistance to build the computing infrastructure needed to support Internet commerce and education. As a Ghanaian instructor commented:

I see young children taking their lunch money to go into Internet cafes because it provides them with a freedom to learn and their curiosity can range widely. The Internet as an educational tool can become an equalizing force for all countries and levels of people.

Dr John Afele
(Lynch, 2003)

How is online learning delivered today?

Online learning encompasses a large variety of offerings, from individualized topical searches to single-issue tutorials (for example, “How to Build A Web Page”) to individual college courses and full degree programs at the bachelors, masters, and doctorate levels. Today an online course can incorporate a wide range of technologies and use a great number of software programs in its creation. However, the experience for the student falls into five basic categories described below. Having a basic understanding of each of these areas will help you become a successful student in the virtual classroom. These categories of technology will be revisited throughout this book several times and in greater detail in the ensuing chapters.

Hyperlinked web pages

Web pages are based on print materials that are available over the Internet. What makes these pages interesting for learners is the ability to move from one page of content to a related page of content easily. This movement is called “hyperlinking.” When you hear the term “surfing the Web” it usually means someone is moving from one page of interesting information to another by selecting “links” to new material. These links are provided by the page author and allow the user to easily find additional information without having to look it up each time.

Another reason Web pages provide the foundation for online learning is that they are the underpinning for content. Many students prefer to have content on the Web, instead of in a paper study guide or class notes, because it is easy to search.

Audio interaction

One of the links that can be provided on a Web page is audio content. This might include the ability to hear an instructor’s lecture, listen to music, or listen to another language being spoken in order to learn the accent.

In addition to Web-based audio content, many online classes also include the use of other audio technologies. For example, you may be asked to participate in a telephone audioconference or a computer audiobridge as part of the class. This is an opportunity to have a two-way conversation with your instructor or your classmates.

Video interaction

Instructional video tools include still images such as slides, pre-produced moving images (film or videotape), and real-time moving images delivered to your desktop computer combined with audio tools. Some typical examples of video used in an online course would include film of the instructor lecturing, video demonstrating a procedure (e.g., how to give a shot to a patient), and a tutorial that demonstrates how a piece of software works – typically showing the cursor moving to certain functions and then showing what happens when a button is clicked.

Some online programs also allow for video-conferencing which allows you to see the instructor and your classmates (and for them to see you) and talk to them while sitting at your home computer. The video-conferencing capabilities are not yet widely used because of the differing speeds of computers. However, there is no doubt that as computers and the data lines become faster, video conferencing will become much more ubiquitous.

Dynamic data

One of the functions of a traditional classroom environment is to provide constant feedback to the instructor as to how the students are learning. This is accomplished in different ways. First, instructors constantly scan their students to look for body language that indicates they are engaged in the learning or that they are confused – for example, frowning or that “glazed” look in the eyes. Second, instructors ask questions and test student understanding by having them respond or discuss. This type of interaction can happen online as well.

Computers send and receive all information electronically. The term “data” is used to describe this exchange. “Dynamic” means that the data can change forms or be passed from one program to another. This may take place via email, discussion boards, online quizzes or tests, or chat rooms. The exchange may take place at the same time (synchronously) as in a chat room, or be posted to be downloaded later (asynchronously) such as in a discussion board.

Print materials

Printed material is still a foundational element for all instruction, including the online classroom. Textbooks and study guides are still distributed to students through bookstores and mail. The Web-based content in a class usually consists of the logistical materials and supple-

mental materials. For example, you would typically find static pages containing information such as the syllabus, calendar, course descriptions and grading rubrics. Many instructors also provide hyperlinked materials such as instructor notes, presentation slides, and links to additional articles to read or library resources. However, most online classes still require a textbook, and the chapter readings are integral to the learning process. For example, you may be asked to read Chapter 2 and then discuss key points in the online discussion board.

The primary skill needed to be a successful online learner is to be an independent learner. This means someone who enjoys researching information and finding the links on his or her own. For example, if you are interested in learning how to create a beautiful English garden for your backyard, but don't have the time or money to take a formal class, you might approach it by going to the library and checking out books on the topic, asking friends who have gardens you admire, or going to a local nursery and soliciting advice. All of this is independent learning. Many of these same skills can be used electronically as well. A typical sequence to an individualized learning approach using the Internet might include the following steps:

- use a search engine to gain access to the topic areas
- read Web pages and follow their links
- subscribe to newsgroups or discussion lists which relate to the topic
- participate in chat rooms with that topical theme
- exchange emails with individuals who appear to be knowledgeable in the topic.

In the context of courses offered through a formal mechanism, such as a college or a corporate training online course, the learning approach is not necessarily different than that above. The primary difference is that your learning would be guided to specific areas and knowledge bases that you probably would not find on your own. Whereas individualized learning or research using Internet resources exclusively is often a "hit and miss" affair, quality online education programs provide you with only "hits."

Selecting learning/training opportunities

– fully online vs. hybrid courses

There are a variety of ways you might encounter online learning. Certainly, one way is in a distance course, where all of the learning is

online and you never need to go to the campus. The history of academic programs delivered fully online is a recent one. The Sloan Foundation – a funding organization for online learning in the US – has been supporting the development of fully online programs for over a decade. Recently, however, they have documented an increased interest in blended or hybrid courses – those that combine online components with face-to-face instruction. A survey of 50 institutions in the US found that online learning directors expect hybrid course enrollments to triple over the next three years, while the growth in fully online offerings will increase about 25 percent.

Hybrid courses have an online learning component associated with a campus-based course. In some cases, the online learning component allows the attendance requirement on campus to be significantly reduced (e.g., instead of attending class three days per week, you only attend one day and the remaining time is spent in online learning). In other cases, a hybrid course means that you may still be required to attend all classroom sessions, but some of the learning will be online. In the latter case, most often readings and some discussions are done online while the lecture or practice and labs are done on campus.

What you select will be based on your personal needs for face-to-face communication as well as your scheduling needs and the offerings at your institution.

Ensuring training or degree value

Unfortunately, the ease of putting information online and the access it provides to a worldwide population has also produced a noticeable increase in the numbers of “diploma mills” or online training that does not provide a quality learning experience.

Consider the following:

- There are more than 300 *unaccredited* universities now operating in the US alone. While a few are genuine start-ups or online ventures, the great majority range from merely dreadful to outright diploma mills that will sell people any degree they want at prices from \$3,000 to \$5,000.
- It is not uncommon for a large fake school to “award” as many as 500 PhDs every month.
- The aggregate income of these crooks is reported to be in excess of \$200 million a year. Data show that a single phony school can earn between \$10 million and \$20 million annually.

- With the closure of the FBI's diploma mill task force, the indifference of most state law enforcement agencies, the minimal interest of the news media, and the growing ease of using the Internet to start and run a fake university, things are rapidly growing worse.
- A fair chunk of that \$200 million is being spent by people who really want and need a legitimate degree but don't know enough to tell the difference. It's tuition that should be going to legitimate schools.
- The literature and the sales pitch of some of these phony schools is really slick. The catalog is frequently more attractive than some real schools. For example, a typical catalog is replete with photos of campus scenes, happy alumni (all from stock photo companies) and even two Nobel laureates listed with honorary doctorates – though these awardees may be unaware of the use of their picture in the school catalog.

What is accreditation?

Quite simply, it is a validation – a statement by a group of persons who are, theoretically, impartial experts in higher education, that a given school, or department within a school, has been thoroughly investigated and found worthy of approval. Accreditation rules and procedures vary from one nation to the next. In some countries all colleges and universities either are operated by the government or gain the full right to grant degrees directly from the government, so there is no need for a separate, independent agency to say that a given school is acceptable. Other countries have formed accrediting bodies or agencies that provide some oversight or approval of schools.

The United States

In the United States, accreditation is an entirely voluntary process, done by private, nongovernmental agencies. As a result of this lack of central control or authority, there have evolved good accrediting agencies and bad ones, recognized ones and unrecognized ones, legitimate ones and phony ones. So when a school says, “we are accredited,” that statement alone means nothing. You must always ask, “Accredited by whom?” It is all too frequent that one hears from a distressed person who says, about the degrees they have just learned are worthless, “But the school was accredited; I even checked with the accrediting agency.” The agency, needless to say, turned out to be as phony as the school. The wrong kind of accreditation can be worse than none at all.

In the US the proper accreditation process takes about two years to become a “candidate” and a total of 4 to 8 years to become fully accredited. Once a school is accredited, it is visited by inspection teams at infrequent intervals (every five to ten years is common) to see if it is still worthy of its accreditation. The status is always subject to review at any time, should new programs be developed or should there be any significant new developments, positive or negative.

Note Everything in the foregoing section applies to accreditation as done by recognized agencies. Many of the other agencies, even those that are not illegal, will typically accredit a new school within days, even minutes, of its coming into existence.

In the US the best way to ensure the school is accredited is to check for *regional* accreditation. Regional accreditation bodies are set up as commissions and serve the purposes of quality assurance and improvement, as well as being gatekeepers for the US Department of Education. These bodies attest to the required level of quality of their member institutions for receiving federal funds to support teaching, research, and student financial aid. These commissions are recognized by the US Department of Education and by the Council on Higher Education Accreditation as the regional authority on the quality of institutions of higher education

The six regional accrediting bodies in the US are listed in Table 2.1 and the states within their responsibility. Each of the regional associations may also accredit American/international schools around the globe.

The United Kingdom

The university structure in the United Kingdom is different from that of the United States. All universities in England are controlled by government regulations and protocol. This ensures a consistent standard and quality of programs that is continuously monitored by the government’s Quality Assurance Agency for Higher Education, the QAA. Universities operate under royal charter, which is the government’s approval that gives legal powers to call themselves a university and award degrees.

The award of degrees or related qualifications in the UK is illegal without the proper authorization. Authorization is granted under royal charter or act of Parliament. Institutions seeking permission to award degrees must demonstrate they have a commitment to quality and

Table 2.1 Regional accrediting bodies

<i>Regional Accrediting Association</i>	<i>States under Purview</i>
Southern Association of Colleges and Schools (www.sacscoc.org/)	Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, Virginia
Middle States Association of Colleges and Schools (www.msache.org/)	Delaware, Florida, Maryland, New Jersey, New York, Pennsylvania, Puerto Rico, US Virgin Islands
New England Association of Schools and Colleges (www.neasc.org/)	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
North Central Association of Schools and Colleges (www.ncahigherlearningcommission.org/)	Arkansas, Arizona, Colorado, Iowa, Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, North Dakota, Nebraska, Ohio, Oklahoma, New Mexico, South Dakota, Wisconsin, West Virginia, Wyoming
Northwest Association of Schools and Colleges (www.nwccu.org/)	Alaska, Idaho, Montana, Nevada, Oregon, Utah, Washington
Western Association of Schools and Colleges (www.wascweb.org/senior/)	California and Hawaii, the territories of Guam, American Samoa, Federated States of Micronesia, Republic of Palau, Commonwealth of the Northern Marianas Islands, the Pacific basin, and east Asia, and areas of the Pacific and east Asia where American/international schools or colleges may apply.

adequate systems for safeguarding academic standards. The government is advised on all issues by the QAA for Higher Education. The royal charter is the highest level of accreditation attainable and is recognized and respected throughout the world.

Each country has its own accrediting standards. If you are pursuing education outside of your country, it is best to do good research first and determine if the school from which you wish to take classes is legitimate, and thus your degree or certificate will be recognized by others around the world.

What constitutes quality in an online course or program?

There is quite a range of online education offerings, from no-name colleges to offerings from Harvard, Cambridge, and Queensland. Additionally, most countries operate Open University programs that are also government certified. People want these online degree programs because of convenience and flexibility. However, many programs, even at legitimate schools are not very mature, and therefore the actual quality of the course or program may vary from school to school and from instructor to instructor. Then again, with increasing emphasis, demand, and investment, the legitimate schools are becoming better at using online learning technology effectively, especially those programs that combine the online experience with collaboration and provide on-campus activities and networking opportunities. To get the full benefit, you need to look for a high degree of interaction (whether face-to-face or online), high-quality assignments, and online mentoring from experienced faculty rather than teaching assistants.

There is no universal agreement within the international higher education community regarding the definition of quality. Debate continues about the relative merits of online interactivity, communication with instructors and classmates, and how much self-directed learning is important to student success and institutional effectiveness. Nevertheless, it is tempting, and in many ways convenient, to use the instructional processes and activities of “traditional” higher education as the benchmark upon which online learning is judged. The teaching–learning process of higher education has long been a combination of face-to-face meetings ranging from tutorials to large lectures, asynchronous communications (such as written assignments), and guided independent work (like reading and laboratory assignments). Through the application of information technology, however, a wide variety of options are now available and, although these fundamental pedagogies are still part of the teaching–learning process, they are reconfigured and enhanced.

The following practices are offered as appropriate quality assurance strategies to be considered when learning takes place online. Each of these strategies focuses particularly on the needs of the learner, enjoys support from a number of practitioners of online learning, and is found in a growing body of literature. When evaluating an institution’s online offerings, you might consider talking to a faculty member, a student who has taken courses at the institution, and/or an administrator. Ask them to describe how the courses address these key areas. The quality

assurance strategies below represent many of the best practices used by experienced providers of online learning combined with teaching–learning methods that have withstood the test of time in colleges and universities around the world.

Teaching methods

There are four key areas to consider (listed below) when evaluating the quality of online teaching methods for a particular course or entire curriculum.

Interactivity

Course interactivity is the key to a quality online learning experience. A substantial body of evidence suggests that the more interactive the instruction, the more effective the learning outcome is likely to be. The key ingredients appear to be the availability of the instructor – whether through direct person-to-person contact or through electronic means – and the intellectual engagement of the student, regardless of the method of engagement. Interactivity can take place with the content, through quizzes, short questions, simulations, and examples. Interactivity

Modularity

Considerable evidence exists that individualized instruction emphasizing small, modularized units of content, mastery of one unit before moving to the next, immediate and frequent feedback to students on their progress, and active student involvement in the learning process are consistently effective in enhancing subject matter learning over more traditional learning formats such as lecture and recitation. Even in the case of advanced subjects, it is important that concepts be presented in a manner that allows the student to build on past experience and to apply each step of the process along the way. This enhances retention and application.

Collaboration

Learning is enhanced through cooperation and reciprocity among students. The learning process involves collaboration and a social context, with students working together. This is particularly true online

because of the absence of some or all of the face-to-face opportunities for teamwork. Sharing ideas in a group setting improves thinking and deepens understanding. Study groups, collaborative learning, group problem solving, and discussion of assignments can be dramatically strengthened through the use of discussion boards, chat rooms, electronic whiteboards, and effective email collaboration.

Learning styles

Students learn in many different ways and bring varied talents and experiences to the learning activity. Technology has the enormous potential to enable students to learn in a variety of ways. Online learning can provide dramatic visuals and well-organized print, demonstrate process and procedures with simulations and interactive objects, encourage self-reflection and self-evaluation, and promote collaboration and group problem solving. It is important that any online course does not get bogged down in one method of delivery. The use of physical textbooks, along with visuals (both online and in other forms), as well as direct application in the student's real world environment are all helpful to a robust learning experience.

Faculty involvement

A good online course is much more than the content of a subject area or the online examples of a process. Key to any good course experience is the involvement of faculty. Some institutions mistakenly believe that online learning can cut down on the use of faculty or completely cut out faculty from the teaching process. On the contrary, many studies have indicated students learn to more depth and effectiveness with significant faculty involvement. Although no longer lecturing in person, the instructor is still crucial to guiding students toward proper questions, research, problem-solving, and further exploration in the field. Faculty expertise and mentoring are vital to a great online learning experience.

Faculty contact in and out of class is very important to student motivation and involvement. The concern of faculty often helps students get through rough times, making it easier to continue their studies. Through electronic conferencing, email, discussion boards and chat rooms opportunities for conversation between students and their instructors actually increase. Researchers have found that students and faculty converse and exchange work much more speedily than before and more thoughtfully and "safely" than when confronting each other in a classroom or during busy faculty office hours.

Knowledge media are replacing the instructor as the student's primary source of information. These media usually produced by the faculty or in conjunction with the course instructor, become integral to the online delivery of the course. Much of this media is provided through links to a myriad of resources both in the faculty's repertoire and in the collections of other institutions, libraries, or faculty sites. Since any individual instructor is no longer the only source of information, particular importance is placed on the ability of the instructor to guide students through the morass of the Internet and the reliability of information. In addition, faculty should be capable of identifying or creating courseware that boosts student motivation, and encourages interactivity, collaboration, and modular learning activities.

Support services

An integrated team – such as computer service technicians, counselors, site administrators, distribution clerks, and library resource personnel – is needed to support effective online learning. When evaluating the quality of a program or an institution, it is important to check on each of these resources and how effectively they can respond to your needs as a student who may not be able to come to campus on a regular basis.

Libraries

Libraries are being transformed by technology. An institution that is geared toward the online learner will already be engaged in replacing traditional library resources with digital collections, online journal and media databases, and information literacy tutorials. All of this should be easily accessible through a user-friendly online retrieval system available to students 24 hours a day, seven days a week. If the institution you are considering does not have online access or digital collections, it is important for you to determine how it will get you needed research articles, books, or other media in a timely manner. If the institution requires you to use the resources of your local library, you need to evaluate if that is reasonable. Many local libraries have neither the resources nor the staffing necessary to accommodate typical higher education studies.

Student services

All student services, including registration, tuition payment, financial aid, and bookstore functions should be electronically available to the

online learner. Check to see that the institution you are considering is diligent in ensuring that online students receive clear, complete, and timely information at least as quickly and easily as any on-campus student. Of particular importance is technical assistance for students so that the technology becomes a “transparent” conduit of knowledge.

Assessment of learning

Though many students might wish they never had to take another test or prove that they had met the learning objectives for a course, it is important to know that the institution you are selecting has consistent and effective assessment criteria. Certainly, you want to know that you are learning what is necessary to progress in a field or master a topic. Furthermore, you want to be assured that your degree is worth the time and energy you are putting into it. Effective assessment of learning is critical to ensuring that graduating students can be successfully compared to students of similar majors around the world.

Almost two decades ago Howard Bowen observed that in higher education true outcomes in the form of learning and personal development of students are on the whole unexamined and only vaguely discerned. It is becoming increasingly important (and some would say imperative) for institutions participating in online learning to identify a clearly understood set of outcomes, and especially student knowledge, skills, and competency levels. Once these student learning outcomes are identified, reliable and valid methods for measuring their achievement should be developed. As the concept of “seat-time” becomes less and less relevant, especially as a proxy for student learning, externally validated outcomes – preferably determined through multiple measures – provide both the institution and the student with evidence that learning has taken place.

Checklist for evaluating online programs

It is helpful to begin looking at institutions in your location first, and then branch out to other institutions based on your subject needs. Before committing any money or resources, be sure you thoroughly acquaint yourself with the institution. Consult their academic advising services and ask several questions. Below is a checklist of questions to ask any institution or organization that is providing online education. The checklist is divided into five categories.

- 1 Basic information any online education provider should make clear
- 2 Important technical considerations
- 3 Day-to-day operations and experience of the course or program
- 4 Costs of the course/program
- 5 The course delivery system

Checklist for evaluating online programs

Basic information any online education provider should make clear

- 1 *How credible is the course or institution?*
Do they have a good reputation? Can you check references?
- 2 *What are the qualifications of the course designers, instructors, delivery personnel?*
Do they have proper licensure or accreditations for your needs?
- 3 *Exactly what are you expected to learn?*
Is this what you want to learn? Do the outcomes match your needs?
- 4 *What are the “intended learning outcomes” for each and every course and the entry level knowledge or skills necessary for your success?*
Do you have the necessary preparation to be successful in this course or program?
- 5 *What will you get when you finish the course or program? e.g. college credit, completion certificate or professional designation.*
Can you do anything with it? Will it be recognized by another institution? Will it help you get a job, raise, promotion, or into a degree program?
- 6 *Who or what accrediting body recognizes the institution and its programs or degrees?*
Are the courses and programs reputable? Have they been recognized by a government entity or a well-known professional organization?
- 7 *Is the timeline/timeframe flexible for completion or mandatory?*
If there is a mandatory timeframe (e.g. within a typical term of 15 weeks) how much flexibility is available within those weeks? If you are traveling and don't have computer access for two weeks, will you fail the course? If the completion timeframe is extremely flexible (e.g. one year) is that too much flexibility for you? Are you able to keep yourself on task without an impending deadline?

- 8 *Who are the teachers/instructors and what are their credentials? How will they interact with you online?*
Is there any human interaction in the course or is it all computerized? Is the instructor credible? You might try sending the instructor an email and see if you get a response in a timely manner.
- 9 *How will you be assessed? What is the criteria for evaluation and success?*
Is this done through objective testing (e.g. a multiple-choice test), writing papers, or doing a project? Is it individual assessment or group assessment?

Important technical information

- 1 *What are the minimum computer and operating system requirements? Are there any options?*
Is it Mac or PC compatible? Does it require a high-bandwidth connection or is a 56K dial-up modem sufficient?
- 2 *What are the software requirements?*
Do you need to purchase or download special software? Is there additional cost for this software?
- 3 *What technical skills do you need? Is there an orientation to get you started?*
If you don't have the technical skills, do they provide a way for you to get them? Does that cost extra?
- 4 *Is there a help desk or other technical support option?*
How do you get technical support? Is there a toll-free number or is it all by email? Is it available late at night or on the weekends when you might need it most?

Day-to-day operation and experience of the course or program

- 1 *How skilled do you need to be at reading, taking exams, managing your own time? What are the learning skills you need for success in this course/program?*
Is there an orientation course or some instructional tutorial available to help you prepare for learning online?
- 2 *What is the type of material you'll cover in the course/program? Why is it important to the field or to your profession?*
Is the content current and relevant or is the syllabus filled only with old citations? Is the required textbook's publication date within the last three to five years?

- 3 *Is the content relevant, well-organized and presented in an interesting manner?*
Is it easy for you to read? Are there options for learning in addition to reading? Are there helpful explanations or other interactions that help clarify concepts? Do you see examples that you can apply to your life or work?
- 4 *How do you get started and connect with the supplier? Are the complete instructions and registration procedures and services available online?*
Is it easy to register? Can you track your registration? How do you order books or other needed supplies? How do you access advising or financial aid services?
- 5 *How do you get help during the course (technical assistance or content expertise)?*
If you have questions, who do you contact and how? What is the response time? Is there instructor assistance if you have problems during the course/program? Is that free or an additional cost?
- 6 *Are there optional paths to learning? Can you personalize the course for maximum benefit or is it one size fits all?*
If you are having a problem, are there links to remediation? If the course is too easy for you, is there a way to learn more in-depth?
- 7 *Are various approaches to learning styles included – reading, doing, listening, viewing, demonstrating competency?*
Is the way you like to learn a major or minor part of the course? (e.g., if you need pictures to understand concepts, are there sufficient pictures for you?) Are you willing to adapt your learning style to this course/program if it is different?
- 8 *How is communication conducted during the course?*
Is it in “real time” (synchronous) requiring you to be online at specific times of the day or night? If so, how often is this required? Or, are communication requirements more flexible (asynchronous) allowing you to login when you have an opportunity?
- 9 *Are there a required number of “check-ins” online (e.g. you must login every day or five days out of seven) and are they reasonable?*
Do you have to meet a specific schedule? If so, why and is it reasonable?
- 10 *Do you have frequent and sustainable opportunities to communicate with teachers, content experts, process experts, and other students as needed?*
Is the majority of the learning self-directed and independent, or are you in a learning community where your instructors and classmates are working together to learn a topic? How important is it to you to be in communication with others in your class? With your instructor?

- 11 *Is there a regular and systematic way for you to evaluate your experience and provide feedback to the provider? Can you evaluate instructors, curriculum, processes and resources?*

Is the instructor or institution actively seeking your feedback? Do they provide evaluations to the user/student? Do you feel like a valued customer? Are students treated as important individuals?

Costs of the program

- 1 *What will be the total cost – registration, tuition, books and materials, equipment, other fees?*

Can you afford it? Are there special technical fees or access fees that are not usually included with tuition?

- 2 *Are the cost options (e.g. taking a course for university credit may be more than taking a course for noncredit) clearly stated?*

Do you need college credit in order to transfer to a degree program? If you take it noncredit, are there different expectations for passing the course/program?

- 3 *Is there financial aid available? How is it accessed?*

Are there limitations on the financial aid in terms of the number of courses, the timeframes for completion, or the level of the course? Are there scholarships or grants, as opposed to loans?

- 4 *How do you get out of the course if you are not satisfied? What are the policies for withdrawal and refunds?*

Check specific rules for refund timelines and amounts. If you withdraw with the intention of returning at a later date, are there special fee arrangements?

Course delivery system

- 1 *Is there a demo of a course or how the course delivery system works that you can practice with and evaluate first?*

Some online course delivery systems require special browser configurations, passwords, or security protocols. How do these work with your computer configuration?

- 2 *Is the navigation logical and well-organized? Can you find the materials you need when you need them?*

Is it easy to use? Can you practice with all the course options (e.g., discussions, quizzes, reading, simulations, etc.)

- 3 *Do you need to download software to interact with the course or must you be on the Internet to interact with the course?*

If software is downloaded is it compatible with your computer system? If you must be on the Internet, what is the time requirement and does that affect your overall cost (e.g. per minute charges for Internet access).

Financing your online education

The cost of education varies widely around the world. In some countries the government has determined that higher education is key to their economic stability and competitiveness in the global market. In these countries higher education tuition is free for selected students who have already shown their ability to compete at university or, in other countries, free for all citizens who pass entrance exams. For example, in Sri Lanka, public university tuition is free through the bachelor's degree for all citizens who are able to pass exams. Of course, students must still find a way to pay for books, materials, and room and board. Other countries, such as the US require that all students pay for education whether at public colleges and universities or private institutions. Even in countries where the cost is minimal, such as Germany, there are still students who need financial assistance. Some students, based on need or academic merit are provided financial aid to help defray the costs of tuition or living expenses while attending school.

The rules of financial aid differ from nation to nation and sometimes from school to school. It is best to check with high school and college advisors about the specifics in your local area. When online learning was in its infancy some national financial aid offerings were not available to online learners because there was not a means of ensuring quality control or institutional audits. However, now that online learning has become a major offering in most traditional institutions, this stricture seems to be gone in most cases.

For example, in October 2001, the US Congress voted 354 to 70 in favor of a bill to allow colleges and universities to offer more of their courses online (exceeding the previous 50 percent rule) and still participate in federal financial aid programs. Furthermore, the bill no longer required distance students to satisfy the residency requirement of physically being on campus a certain number of days. Now, students meet an institutional residency requirement in an online class by being required to login to the course a minimum of one day a week.

In both the European Union and the US most financial aid programs are offered on one or more of four criteria.

Ability to benefit

Most countries do not allow financial aid monies to be granted to students without a high school (secondary) diploma or equivalency unless the student has demonstrated that he or she can benefit from the education offered. This is accomplished by receiving a passing score on an independently administered test approved by the government.

Academic credit

This is the unit of measurement an institution gives to a student when he/she fulfills course or subject requirement(s) as determined by the institution. Most financial aid programs require that the student be engaged in a minimum number of academic credits to prove he/she is making progress toward a diploma, degree, or certification.

Financial need

It seems universal that all nations want to be sure that financial hardship is not a barrier to a good student to attend university. If a student proves scholarship through testing, high marks in secondary education or previous college education, but lacks the finances for tuition there are a multitude of packages available to help ensure that the student receives an education. Note, however, that need alone does not necessarily qualify the student. One must also demonstrate promise or scholarship.

Scholarship

This criterion reflects the desire of all nations and higher education institutions to support those people who have shown a true talent or extensive background in a particular field. Financial aid packages based on scholarship may be awarded purely on high scores on tests or in previous courses, or may be combined with identification of financial need.

General advice about applying for financial aid

If there are government monies available in your country, there is generally a universal application process – for example the FAFSA form in the US or the EU3 in the European Union. This is frequently the key application necessary to receive full consideration for federal aid as

well as other private or local aid. Filing the appropriate paperwork and applying for aid at colleges in which you are interested is the best way to get a full picture of your likely annual costs and options available to meet them. The aid packages may include grants, scholarships, loans, or work-study options. Be sure to accurately determine the due dates for this paperwork and get it in as early as possible prior to the due date.

Don't be afraid to apply for any and all scholarships! Many students do not fully realize their scholarship potential. Everyone is good at something, and often there is money that goes unclaimed because there were no applicants. Many scholarships are set up by private groups, industry interests, or individuals based on criteria that may not be keyed to good grades. For example, in the US there are scholarships specifically for individuals returning to college in midlife (age 40 or older). There are also many scholarships set up by unions for children of parents or grandparents who were members of those unions. Begin searching and applying for scholarships the year before you plan to apply. Check with school advisors at any institution where you wish to apply. Also check with your employers and your parents' employers and with charitable and service organizations. Below are links to good information about obtaining financial aid in the European Union and the US.

- Students in England and Wales: <http://www.dfes.gov.uk/student-support/students/index.shtml>.
- Students in the European Union and UK: <http://www.dfes.gov.uk/student-support/>.
- Students in the EU wishing to study abroad with Erasmus/Socrates Mobility Grants: http://europa.eu.int/comm/education/programmes/socrates/erasmus/answers_en.html; http://www.oasis.gov.ie/education/european_education_programmes/erasmus.html.
- Students in the United States: <http://www.fafsa.ed.gov/>.

Communicating electronically

The great end of learning is nothing else but to seek for the lost mind.

(Mencius, c.372–289 BC, *Works*, bk. II, 1:11.4)

Though some online students may access courses via CD tutorials or only through email communications, the primary interface for online students is through Web pages and a variety of communication tools used on the Internet. Learning in an online environment differs significantly from a traditional face-to-face setting. The electronic medium lends itself very well to discussion, brainstorming, sharing understandings, clarifying misconceptions, and developing knowledge in a collaborative way. The online environment is also a wonderful medium in which to promote critical thinking.

There are other advantages to online learning. For example, you can connect to a host computer from the comfort of your own home and at a time that is most convenient to you. The medium provides greater access to learning opportunities at a distance and as a way to reduce the number of hours you have to sit in a classroom at a school away from your office, your home, or your family. Using chat rooms, discussion boards, and email creates a permanent transcript that provides you with a record of all interactions. The group collaborations available electronically promote the development of multiple perspectives and shared understandings among learners.

Electronic communication offers you *and* the instructor flexibility, an important consideration for those participants with multiple roles and obligations. Learners who are geographically distant from an educational institution can connect socially with others participating in the same experience. For example, in 2001, after the destruction of

the World Trade Center, many Arab students at Portland State University were called home in the middle of the term by parents who feared that they would no longer be safe in the US. These students were able to complete their studies in several classes that had online components by keeping in touch with their classmates and their instructors through online discussions and chats, and sending their homework assignments by email attachments. They continued to take many classes online for the remainder of the year so that when they returned to their studies in the US the following year, they were not far behind their peers. In this way, electronic communication reduced, and in many cases, dissolved, feelings of social isolation frequently associated with other forms of online delivery (for example, with traditional print-based correspondence courses).

The online environment offers a great many advantages. It can promote a sense of equality by granting each participant an equal voice. This may not be the case in traditional classrooms, where students may feel intimidated or shy about voicing opinions due to competition for “air time.” Also, the subtle and sometimes not-so-subtle influences of non-verbal cues are missing online. Responses have a greater likelihood of being judged on the basis of their substance and merit rather than by the appearance of the person commenting. This non-visual atmosphere can be highly motivating, as well as liberating. Sharing information through active, ongoing dialogue and constructing knowledge through mutually-shared understandings all contribute to the development of a sense of community online.

However, communicating electronically may take some adjustment, especially if you are accustomed to a more teacher-centered, traditional approach to learning. In this section, typical new student difficulties are highlighted.

“Did you get my email? Did you? Did you? Did you?”

The seeming immediacy of the online environment can be deceiving and lead to bad habits. For example, you may feel that you need to get immediate answers to questions or to emails. In the beginning some students fear that if they don’t get an immediate response from the instructor it means their email has been lost in cyberspace. These students make the mistake of sending three or four messages a day asking instructors the same question: “Did you get my paper?” or “I need to know about this assignment right now.” This is not necessary

and it may quickly give you the reputation of being a pest. Just as you wouldn't go to your instructor's office four times in one day to ask the same question, you need to also trust the Internet.

Allow a reasonable amount of time for people to respond to your email, and give yourself the same leeway. Remember, the flexibility of online learning permits everyone to fit learning into their personal schedule. It is wise to wait 24 to 48 hours before sending another email message requesting the same information. Remember to consider time zone differences and also give time for reflection. Some people may be logging onto the system at midnight or at 4:00 in the morning, and your instructor is not online 24 hours a day. He or she probably has a few hours each day scheduled to login and get emails, so you need to be patient. This also gives you permission to answer messages at a time which fits your schedule and outside activities.

“I’m afraid everyone will see my typos, or grammar errors and think I’m stupid.”

It is not uncommon for the new online student to feel vulnerable or inadequate when communicating online. Instructors and students alike may not be skilled at keyboarding and may feel somewhat frustrated with having to type out their thoughts. These thoughts may also become transformed as they are written, and once recorded and forwarded to others online, may reflect ideas that have since changed. Commitment to ideas documented in writing can sometimes contribute to a sense of risk for the participant.

Some students have also expressed a sense of vulnerability in regard to the adequacy of their online contributions. They worry about whether their contributions to the dialogue will be well-received and respected by the instructor and their peers. At first, you may be tentative and reluctant to express yourself freely, knowing that all contributions will be seen, and to some degree, evaluated by everyone. The following excerpt from a recent online student captures these thoughts:

When I first began my online course I was really scared to say anything – to type anything. I knew that immediately everyone would know how stupid I was. They could see if I misspelled a word or if I didn't know what I was talking about. I found that very stressful ... Even though I'm an adult I still worry about what people think of me. How will I do? Am I too old to learn this stuff? What if I fail? Even though I've been taking courses for a year now, at the beginning of each course I get that same feeling.

It is true that one of the most difficult aspects of online learning is sharing your thoughts and work with others in the class. Whereas in a classroom the instructor may let you get away without speaking, it is nearly impossible to do that in an online learning environment. Many programs require you to participate in chats, post to bulletin boards, and even post your completed papers on Web pages or share them with classmates via email.

Try to think of your contribution as a member of a team. Remember, all of your classmates will have some trepidation about sharing their work as well. It is through sharing and working together that each member of the class improves and becomes a better student. There are many benefits to finding out how other people approach the assignment or how their thinking process works in response to a particular question or problem.

Learners benefit from an approach which involves them in the learning process ... in other words, active learning. It is important to recognize that each person brings his or her own expertise to a class, and each contribution enriches everyone's experience. Perhaps, one time a particular concept you read in the text takes longer than usual for you to grasp. Then you might need to ask a classmate for an explanation. Yet another time you may be the one who immediately understands a visual model presented online and you will be able to clarify it for someone else. In another class, you may be assigned a project that is similar to one you have already completed on your job; then you will look like an expert. Good instructors will see you as an individual who will help them explore the information that they bring to the class and gain from your personal and professional experiences to make that information applicable to the real-world environment in which you live.

Technology and the learning process

Online education has the ability to take advantage of the changing forms of communication. With the World Wide Web offering differing communication perspectives, the learning context is increasingly technologically rich. You will have access to a wide range of both media and sources of education. Online learning makes it possible for you to communicate in dual modes: that of receiver and communicator. Online students work in cyberspace, looking at content, surfing for information, utilizing Web pages, conferencing in chat rooms and receiving/sending content on listserves. As video technology progresses and becomes more

accepted on the computer desktop, you will also have opportunities to see, hear, speak, and even raise your hand for acknowledgment.

At the University of Twente, in the Netherlands, Dr Betty Collis teaches classes that consist of some face-to-face meetings as well as extensive use of the Web for resource material, collaborative activities, and discussions. Collis (1996) identified four basic patterns of communication in the learning environment: telling, asking, responding, and discussing. Each of these patterns of communication is affected by technology.

- *Telling*: In the asynchronous mode, telling has traditionally been communicated through the printed text, but increasingly it is taking on a new form in Web pages. Many conventional linear texts, articles, reports and original works are now available on the Internet, as well as multimedia graphics with descriptive text and links to other resources. Telling is the only online experience that does not require human interaction with the student.
- *Asking*: When you need an answer, you naturally request interaction. This can take place through text messages via email, through real-time text chat systems, or through any of the audio or video conferencing systems (including telephones). Asking requires a response and thus human interaction.
- *Responding*: Responding online is supported in delayed time through asynchronous systems such as email or discussion boards, and much more immediately through synchronous systems such as chat and instant-messaging and telephones.
- *Discussing*: Collaborative work among small groups of students, with or without the instructor present, can take place over an extended time through discussion boards or listservs, or for much shorter periods via instant-messaging, chatrooms, whiteboards, or video/audio-conferencing. Discussing also requires human interaction.

Synchronous vs. asynchronous communication

Communication in an online environment may be synchronous or asynchronous. With synchronous communication, all participants are connected at the same time (e.g. in a chat room or using instant-messaging). This environment promotes a feeling of coming together and simulates being part of a more traditional concept of a class. It also means that everyone has to be at a computer at the same time. Many

online programs have at least one or two mandatory synchronous activities during a course. This requires you to coordinate with the instructor and classmates and plan your schedule to be available at a prescribed time.

The most common type of communication in online learning is asynchronous. Asynchronous communication means that participants contribute to the class at times that are convenient to them – though usually within a specified timeframe, such as one week. This is also referred to as delayed-time messaging (as opposed to real-time messaging). For example, email is a typical asynchronous activity. You can log into your email, download the messages, log off, read and reflect upon the messages, construct responses, and finally log in and upload your replies. A similar process takes place with listservs or newsgroups.

When accessing discussion boards, you usually cannot download the information. Some students, therefore, elect to read the information and respond right then. However, if you are the type of person who prefers to think about it, you can copy the information to your computer (using the copy and paste commands) then log off. Next you can compose a response on your word processor, log back on to the bulletin board and copy and paste your response into a posted message. Most students are very comfortable with asynchronous communication because it provides a great deal of flexibility and gives them time to reflect and think through their answers before posting.

Synchronous delivery has a significant role to play in the developing world of virtual and online education. Though most current online education programs are delivered asynchronously (e.g. discussion board, email, Web pages), synchronous delivery is that aspect which creates a true sense of virtual community. While asynchronous delivery provides instruction that is free of time, place, and scheduling constraints, the synchronous approach adds immediacy, live interaction and personal contact. Both systems peacefully co-exist in a group of online learning strategies that focus on online access to learning through common cyberspace technologies. In the near future, these common technologies will become as prevalent as the family television and CD player.

Asynchronous delivery

There are four crucial advantages to the asynchronous media approach:

- 1 *Flexibility:* access to the teaching material, on the Web or in computer conference discussions, can take place at any time and from any location with an Internet-capable computer.

- 2 *Time to reflect:* rather than having to react immediately, asynchronous systems allow you time to mull over ideas, check references, go back to previous messages and take any amount of time to prepare a comment.
- 3 *Situated learning:* because the technology allows access from home and work, you can easily integrate the course concepts and materials into your working environment.
- 4 *Cost-effective technology:* text-based asynchronous systems require little bandwidth and low-end computers to operate, thus access, particularly global access, is more equitable.

Synchronous delivery

There are also four compelling advantages to synchronous systems:

- 1 *Motivation:* synchronous systems focus the energy of the group, providing motivation to online learners to keep up with their peers and continue with their studies.
- 2 *Instantaneous interaction:* real-time interaction with its opportunity to convey tone and nuance helps develop group cohesion and the sense of being part of a learning community.
- 3 *Quick feedback:* synchronous systems provide quick feedback on ideas and support consensus and decision-making in group activities; both enliven online education.
- 4 *Pacing:* synchronous events encourage students to keep up-to-date with the course and provide a discipline to learning that helps people prioritize their studies and manage their time more effectively.

There are many online teaching programs that are entirely asynchronous (for example, those using print plus email, or those using the Web for both course delivery and interaction), and others that are primarily synchronous (for example, those using videoconferencing for delivery and interaction). However, the trend is to combine synchronous and asynchronous media in an attempt to capitalize on the obvious benefits of both modes.

Pretesting

It is common practice for many online education courses to offer pretests prior to the beginning of the course or of a lesson. Pretests are

used for three purposes: to provide instructional information regarding the mix of student skills; to provide feedback to the student regarding his or her current knowledge level; or to provide an opportunity for the student to skip a course or section.

Some instructors give an ungraded, online pretest at the beginning of a course to evaluate the skill and knowledge level of students in the class. Analysis of the pretest results is then used to modify the emphasis of the curriculum and adapt assignments to reflect the needs of each group of students.

Colleges and universities are very attuned to ensuring that specific course outcomes are met by all passing students. However, gathering information from a pretest does allow the instructor to develop case studies or simulation examples that are most meaningful to a specific group of students. For example, if the majority of students are working in government jobs, the instructor will select different case scenarios than if the majority of students were working in small entrepreneurial businesses.

Pretests that are designed to provide the student with feedback may be used as a screening tool for prerequisite skills required for success in the study area. For example, a computer systems design class requires the student to have Computer Science 101 and a certain level of programming skills. Though you may have taken these classes in the past, your memory of key concepts may be rusty. A pretest would provide you with feedback on the expectations of your knowledge level prior to the beginning of the course. You could then make the decision whether to continue with the course and do some preliminary self-study and review, or decide to drop the course until after you have taken a refresher course to bring you up to speed.

Online pretests are now being used even more often for allowing a student to test out of a class or a lesson. This is particularly true of technical courses, like programming. Some of these pretests are also linked to specific online tutorials that match the areas in which the student needs additional help. The beauty of online learning and its integration with pretests is that it often allows students to accelerate their completion time if they already have mastered the knowledge requirements of a particular section.

Receiving lecture materials and assignments

Contact with your teacher and with other students is conducted primarily through the use of email, bulletin boards and chat rooms.

Using email and Web pages will probably be the most convenient and fastest way for you to transmit and receive materials from your instructor and your peers. Most lecture materials are transmitted via Web pages in online education. Instructors prepare their materials and post them to the Web well in advance of your class assignments. Once the initial Web page has been posted, it varies from instructor to instructor as to how updates or continued materials are distributed.

Some will regularly update their Web pages throughout the term of a course. Others will provide updates by emailing them to their students, and still others will send them via the postal service. No matter how updates are transmitted, it is important for you to take responsibility for receiving them.

If you already use a word processor, you will be accustomed to reading text on screen and should know how to scroll up and down pages. Reading Web pages for lecture materials or assignments is no different. They are usually presented as text and pictures. In addition to your scroll bars, you can also use the page up and page down keys to move through the material one screen at a time. The reading style you employ may also determine which method of scrolling you use (see Table 3.1).

The screenshot shows a web browser window displaying an online Spanish course page. The browser's address bar shows the URL: http://www.webct.psu.edu/50R0P1/psu/psu101ec/scripts/serve_home. The page header includes navigation links: MYWEBCT, RESUME COURSE, COURSE MAP, RESOURCES, LOGOUT, HELP, and a Control Panel. The main content area is titled 'Contexto 6' and 'La taquilla'. It features a sidebar with a 'Table of Contents' and a main content area with sections for 'Funciones' and 'Estructuras y palabras'. The 'Funciones' section includes a list of activities: '...buying tickets and asking about schedules for public transportation.' The 'Estructuras y palabras' section includes a list of activities: '...use more verb endings: -er and -ir verbs.' The sidebar also contains a 'Table of Contents' with links to various course materials, including 'Introducción', 'Modelo 1', 'Modelo 2', 'Modelo 3', 'Modelo 4', 'Vocabulario', 'Estructuras', 'Gramática', 'Future tense (6)', 'Future', 'Hay', 'Programas de radio', 'Practice', 'Quedado', and 'Ahora a leer!'. The bottom of the page shows the browser's status bar with the text 'Contexto 6: Page 1/18' and the system clock '4:51 PM'.

Figure 3.1 Online Spanish course. A Web page in an online Spanish course.

Table 3.1 Methods for online learning

<i>Style</i>	<i>Description</i>	<i>Use this method</i>
Scanning	Glancing at text very quickly to find a specific item.	"Find" in page; most browsers have the ability to search for a text string in a Web page. This function is commonly found under the "Edit" menu.
Skimming	Quickly looking through each section to get a general idea.	Use the "Page down" and "Page up" keys. If the page provides sectional or targeted navigation tools, use those as well.
Surface reading	Reading everything but not stopping to think about the information.	Use the "Page down" and "Page up" keys.
Study reading	Making sure you understand the text fully, often re-reading the information and deciphering new or unfamiliar words.	Most students will choose to print out the page in this case. Then you have it to mark up, write questions, make notes. There is also note-taking software now available that allows you to open a pop-up window to take notes while you read. Tip: If the page is using "frames," first make sure that the cursor is placed in the frame you wish to print. Then choose "File" and "Print Frame" from your browser's menu.

Some Web pages may also contain animations and sound. Depending on how those pages are developed, you may be required to download certain browser plug-ins (e.g. Real Audio, Shockwave, or Acrobat Reader). It is also possible that lecture materials will be available as a file to download to your computer. (For example, a Microsoft Word™ document, a spreadsheet template, or a Microsoft PowerPoint™ presentation.) Instructions for downloading information and/or installing free browser plug-ins to your computer are available in your browser documentation.

Note-taking for online courses

Taking notes during lectures in the classroom is something most students do during their studies. However, studying online requires a different set of skills. If you are reading course materials or information

you have found on the Internet and wish to take notes, use your word processor or special note-taking software to record your ideas. If you want to *copy* a section of text that you are reading, use your mouse to highlight the text and do a copy and paste from the Web page into your word processor.

Finally, lecture materials may contain a number of Web sites and their links. To help manage these multiple pages, it is useful to keep track of them through a process called “bookmarking.” When you wish to do this, select “Bookmarks” and “Add” from the drop down menu (in Netscape). The title of that Web page is recorded as a bookmark and choosing its bookmark name from that same menu can then access the page in the future. (In Internet Explorer bookmarks are called “Favorites”.) If you collect a lot of bookmarks, start grouping them into folders containing Websites with similar information.

Tip It is handy to bookmark the login point of your course to make it easier to find each day.

Transmitting homework assignments

Most homework assignments will be sent to your instructor as attachments to email. However, some instructors are beginning to request that you put your homework assignments into a Web page (particularly research papers and design work). Making your completed assignments available to the Web enhances student learning and collaboration. You will have the opportunity to see how other students approached a particular problem or what additional research they did to answer a question. This may prove useful in your next assignment. Chapter 4 addresses how to easily design web pages.

Some universities have settled on a standard transmittal sheet that must accompany all assignments. This electronic sheet acts as a cover page for you and the instructor. Typically, it includes your name, course name and number, assignment name and number, and any other specific identifying materials to that project or assignment. The instructor then uses this same cover page to return you a grade and/or comments about your assignment.

Some schools also ask you to include a written verification that this is your own work and has not been taken from other sources, except where cited according to research protocols. With the ease of copying and pasting information from the Web, there has been an increased concern regarding plagiarism. The key to transmitting any homework

assignments is to follow the rules set up by your college or course instructor.

Tip If your school does not have any policies about assignment transmittal, keep in mind that the name of your file should include your last name and a descriptor (e.g. lynch-paper1.doc). This will help your instructor differentiate your paper from all of the other files named “paper1.doc.”

Receiving instructor feedback on assignments

Depending on the administrative structure of your college or university, instructor feedback may be received during a synchronous session (on the phone, in a chatroom), via email or via the postal service. Some courses will provide multiple alternatives. Many courses today also have a special online grade book. The instructor is able to see all the student records and put in the appropriate grades, but each student may only access his or her own grade with a password.

If you have been engaged in a graded synchronous session, such as a chat room discussion, the instructor may take the opportunity to critique the discussion or comment on specific points both during the discussion and at the end of the session. Depending on the instructor’s style, he or she may also include specific detailed comments to each participant in the discussion. Even when this is done, however, instructors rarely give grade information publicly.

It is becoming more common for online instructors to give specific assignment and grade feedback via email. The instructor will usually send you an email with comments regarding what went well and where you could improve, then assign a grade. If you did not pass the assignment, some instructors may also give you instructions on how to rework the assignment and resubmit it, or what to do for future assignments to make sure you have an opportunity to meet the outcomes and pass the class.

The use of “electronic comments” within written papers is becoming more popular as software tools for editing are more widely accepted. For example, Microsoft Word™ allows the recipient to insert corrections and comments directly into the document, then return it to the sender with that feedback. You then have the option to incorporate or ignore those comments in your paper.

Asynchronous written communication

Education programs that are delivered in an online environment rely on written communication as the primary interface among students and between students and the instructor. Every electronic communication, except some audio or video conferencing, requires some aspect of writing to be effective on the Web. You are communicating with writing in email, on discussion boards, in listservs, and in chat rooms. Even when using the shared white boards, you will probably need to use some written communication along with the diagrams you draw.

The better your skills in written communication, the more successful you will feel in an online environment. Each of the forms of electronic communication contains certain common requirements. The foremost rule for any communication on the Web is to keep it brief. Write with as much clarity and brevity as possible. Let's look at some good and bad examples of Web-based communication.

Listservs

In a class environment you may have many occasions when you want to send the same message to everyone or to a list of people. A listserv is a mail list of specific individuals who regularly participate in discussions. You become a member of that mail list by "subscribing" to the list – just like subscribing to a free newsletter or magazine. To subscribe, you send an email to the listserv moderator asking to become a member of the list. Once you subscribe to the list, you automatically receive email messages from anyone who responds to the server until you "unsubscribe".

Email

When using regular one-to-one email, it is best to keep in mind that most people don't want to read more than one screen of information. Email has become so ubiquitous that people are inundated with mail and try to get through it as quickly as possible. If you have more than one screen of information to share, it is better to write it in a word processor and attach the file to your email message. In that way, you can present your written communication in an organized and formatted document that is easy to read, instead of many lines of unformatted email.

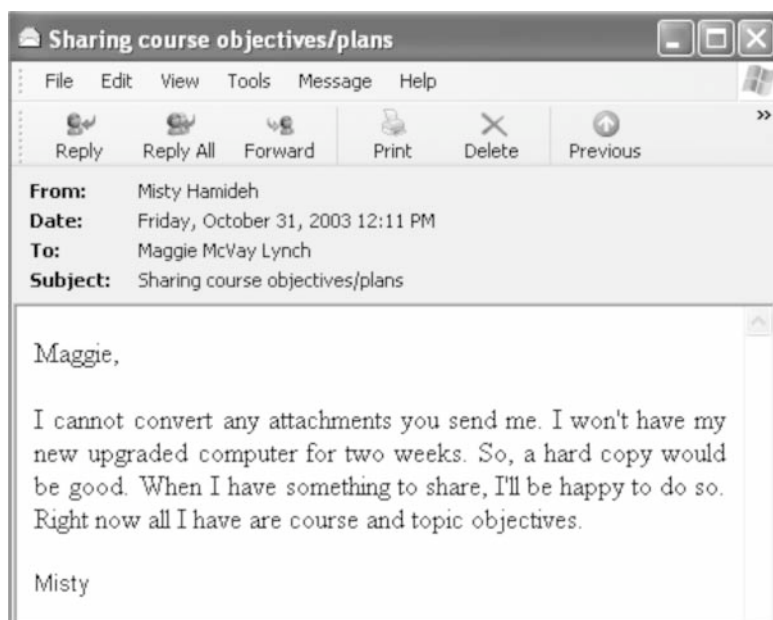


Figure 3.2 Sharing course objectives/plans

The email in Figure 3.2 is short and to the point. The writer needed to pass along a reply without going into a lot of detail. Note that she doesn't continue with an explanation of why she won't have her computer for two weeks, or how difficult it has been for her to be using a computer that is not at the same level as someone else. She simply states the facts, requests a solution, a hard copy of the document, and offers to participate in the sharing process when she has prepared her lessons.

The email example in Figure 3.3 would have worked better as a wordprocessed attachment to a brief email. Though the information is all there, it would have been better presented as a formatted document with bold headers, indented sections, key words highlighted, etc.

Even if the reader were to print out this long email (which is actually about 5 or 6 pages) it would still be difficult to read and to follow all the important sections of information. Each email program has its own formatting protocols, so you do not know how it will appear on the readers' screens. At best, it would still be difficult to use as a reference document because nothing stands out to catch your attention.

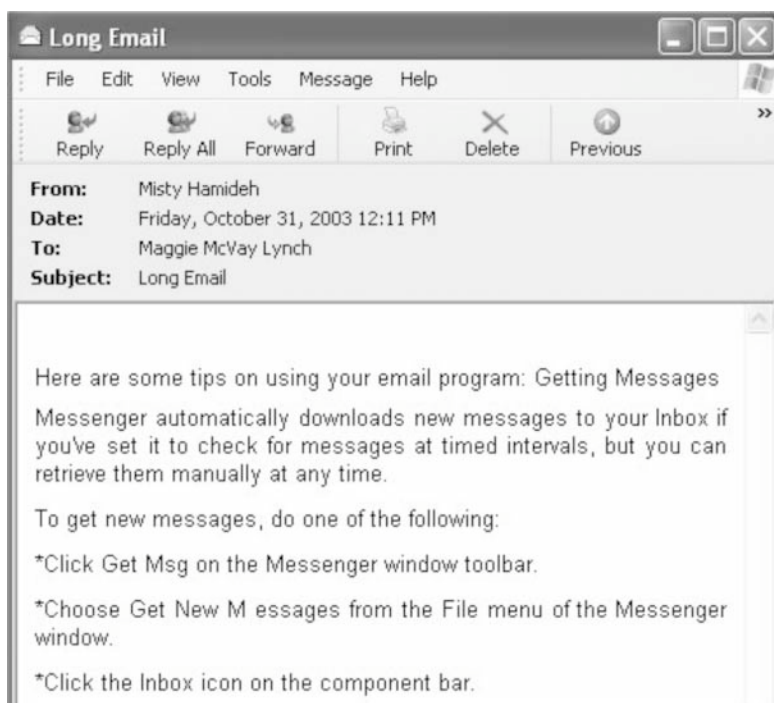


Figure 3.3 Long email



Figure 3.4 Tips on using email

Note the panel in Figure 3.4 where the email message is once again brief and now has an attachment for the tips on using email.

Discussion boards

Discussion boards also follow the brevity rule. Because many people are posting to a discussion group, the board becomes difficult to follow when discussion points are long or several postings by the same person appear. Just as with email, it helps to provide some format to your thoughts if they are more than one screen. As most discussion boards provide the capability to link to Web pages, it would be best to format longer comments on a Web page and provide a link. (How to make *easy* Web pages is in Chapter 4.) Alternatively, you could attach a document.

Discussion boards are a favorite tool for asynchronous class discussions. Frequently, instructors will post questions or points to ponder. They are also used as a place to ask general questions and see the instructor's or your classmates' responses. When a discussion board is used for a class discussion, you are frequently graded both on your willingness to participate and on what you actually post. As this is an asynchronous communication tool, you have time to formulate your response and post it in whatever format works best for you.

There are three ways to approach posting long discussion items. One way is to format your response(s) on a Web page and provide a link. The second is to compose your response in your word processor, then attach the document to your discussion board posting with a brief explanation about the attached document. The third is to organize and compose your response in a word processor, then cut and paste it onto the discussion board. An example of each of these methods is on the following pages.

Example 1 (see Figure 3.5) depicts a short response to an instructor-posted question. This response was typed directly into the discussion board. Most discussion postings are similar to this one. However, there may be a situation where you need to create a longer posting – such as when you are presenting a topic on the discussion board, or you have several items of discussion. In the case of longer postings, as in Example 2 (see Figure 3.6), it is best to compose your message in your word processor, then cut and paste it to the discussion board or attach your word document to your post. In this way you have the opportunity to organize it, format it, and spell check. Examples 3 and 4 depict referencing a URL (Web address) and attaching a document

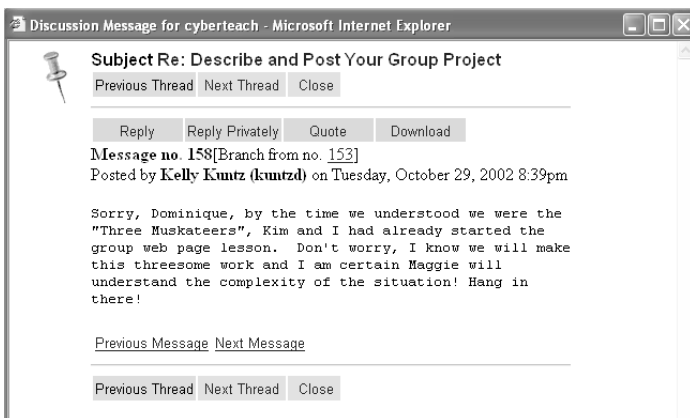


Figure 3.5 Brief discussion board message. Example 1: a brief message within the discussion board when you only have a few lines to post.

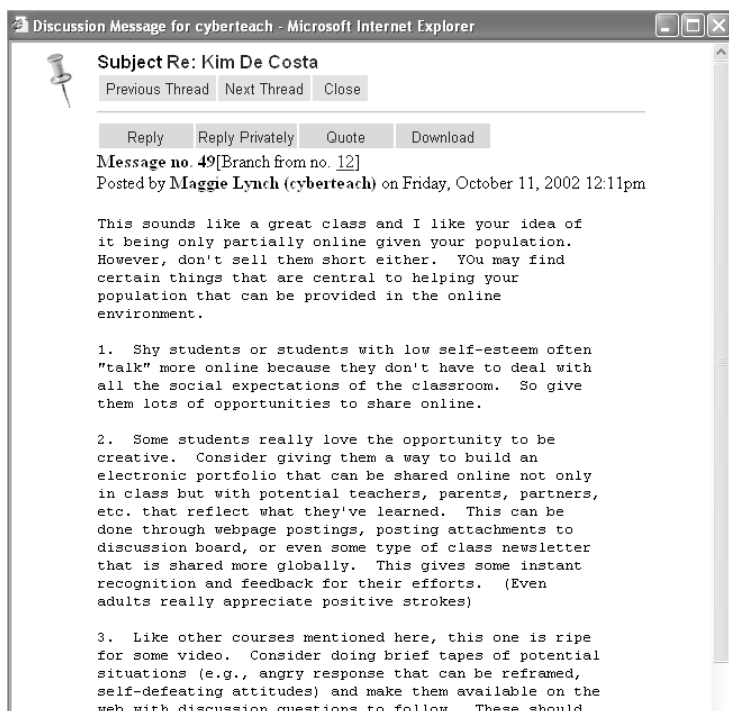


Figure 3.6 Long discussion board message. Example 2: a long description submitted by the instructor. In order to maintain formatting and ensure you have spell-checked your document, it is easier to compose this type of posting in your word processor and "cut and paste" it to the discussion board.

(see Figures 3.7 and 3.8). Using a Web page or an attached document is best for longer postings or sharing of your assignments.

Most discussion board programs today do provide some basic formatting options and spell-checking capabilities. However, it depends on the system your school is using. Finally, if formatting and pictures are important to your message, posting to a Web page or attaching a word-processed document is an excellent way to get your point across.

Tip Not all discussion boards allow for the posting of URLs with a link. But certainly you can include the URL as part of the text in your posting. Then others may type it into their browsers to see your full message.

Web pages

Written communication using Web pages is an art in itself. Web pages can be as simple as a word-processed document (e.g. a student paper) that is posted in HTML format, or as complex as an interactive and graphic site with written words to enhance the meaning.

The primary rule in developing Web pages, just as in writing a report, is to identify the purpose of the page. If the purpose is to provide a research or opinion paper for viewing, then it is best to complete the paper in a word processor, save the file as a Web page (or as HTML), and then post it “as is.” If the purpose is to provide a Web page for teaching or interaction, it is best to develop the page within some type of HTML editor which allows for the easy insertion of graphics, animation, hot links, email responses, and other identified interaction devices. With the myriad of editors available today and the tools available in most word processors, any student is able to post pages to the Web with minimal training.

Synchronous collaboration

Effective collaboration with other students requires you to plan in advance and come to sessions well organized. Most online collaboration is accomplished either through email or through chat rooms. Recent advances in online whiteboard technology (the ability to interactively create drawings online) make it another medium used for collaboration – particularly in the corporate environment. Using email for collaboration is no different from sending assignments to instructors or attaching documents for your classmates to review. This section will elaborate on techniques for collaboration via synchronous communication methods: chat and electronic whiteboards.

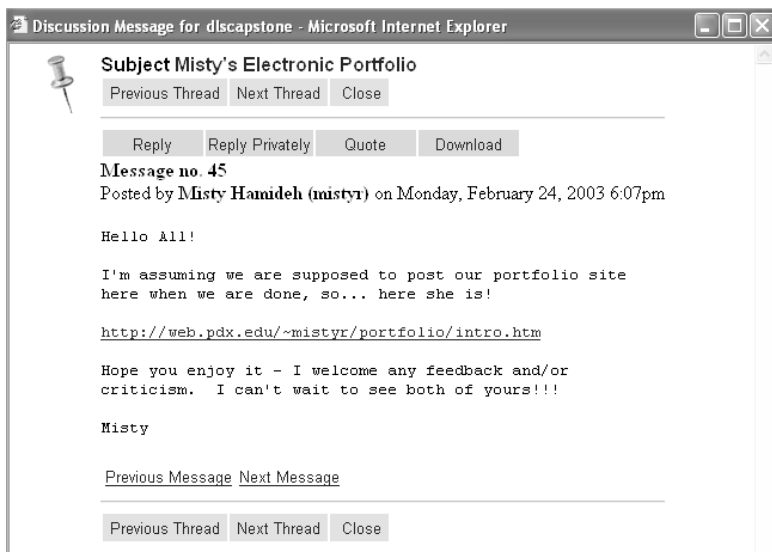


Figure 3.7 URL reference posting. Example 3: reference to a URL for a Web page. When presenting a great deal of information, or a unique format, posting to a Web page and providing a link from the discussion board is the best method.

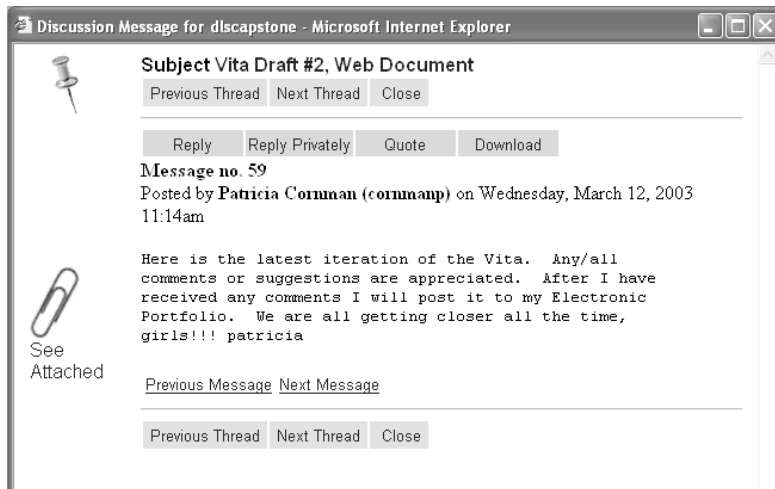


Figure 3.8 Document attachment. Example 4: attachment of a document. When presenting a great deal of information, or sharing an assignment or project with your classmates, using an attachment to the discussion board is another alternative.

Collaboration via chat

Chat provides an excellent opportunity for people to communicate in short sentences or words in real-time. In addition to class discussions, this technology is frequently used for small group planning. The rules for chat are twofold: 1) keep your sentences short, as they are one of many being seen by everyone; 2) if you have a large amount of information, or you know you are a slow typist, come prepared with it pre-typed somewhere else so it can be “cut and pasted” into the chat window at the appropriate time. Preface any large posting with a single line that warns a long post is coming. For example: “Long answer to Philosophy Question 1.” This allows the other members of the chat room to prepare to read several lines/screens of text.

Some chat rooms also have protocols for moderated participation. This means that there is a defined way in which to “raise your hand” and wait to be called on for your input. One way this occurs is to depress your space bar and then hit return. This places only your name in the chat window. The instructor then gives you permission to speak by typing your name with a question mark. Another method is to set a protocol of specific symbols that indicate your input. In the example below, an exclamation point (!) means the student has a comment or answer. A question mark (?) means the student has a question about the topic. Generally, the instructor gives permission to speak in the same order in which your comment or question is placed in the chat (see Figure 3.9).

Many colleges provide multiple spaces on their servers for chat collaboration. If you are partnered with someone not in your local area, negotiate specific times when you will meet in the chat area. If you are unsure of how to access the chat at your school, be sure to contact your instructor or designated technical support person for that information.

The chat environment offers the advantage of real-time conversations through typing information, questions and answers. The first key to collaboration during chat is to establish an agenda and goals. Plan to use your time in the chat room as if you were conducting a business meeting. It is wise to select a moderator for the chat (similar to a meeting chairperson) who will be responsible for setting the agenda, encouraging discussion and closing the topic to ensure time schedules are kept. Be aware that moderating can be difficult and all participants must cooperate to achieve success. Even if your collaboration effort only involves two or three people, it is still advantageous to have an agenda distributed in advance. A good facilitator can make the difference

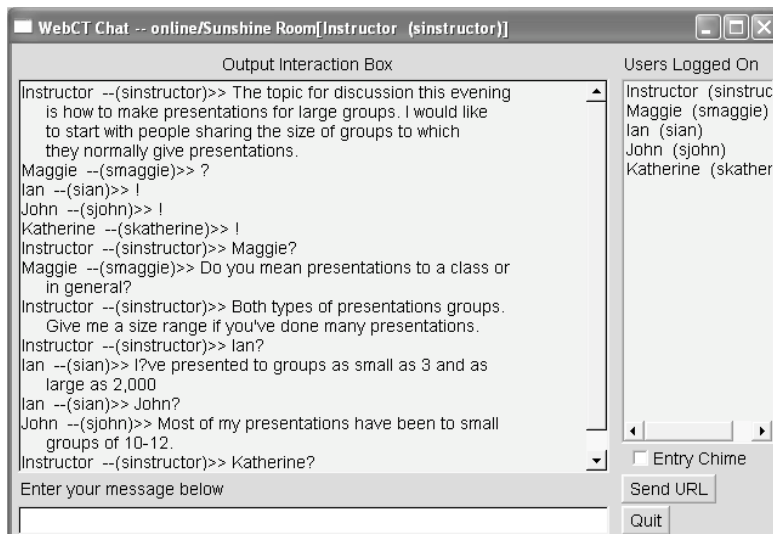


Figure 3.9 Example of virtual hand-raising in chat

between a productive chat session and time wasted by scattered energy and thoughts.

If you are presenting information during the chat session, develop your presentation in advance by typing it in your word processor, preparing a Web page, or having appropriate URLs ready for viewing. If you have typed information in your word processor, you can upload it to the chat environment (if your software allows) or cut and paste it into your chat window as the conversation develops. If your information presentation is more formal, including pre-designed graphics or photographs, it is best to prepare that portion of your presentation and post it to a temporary Web page. During the chat, advise the group of the URL and give them time to view your Web page; then return to the chat room for discussion and feedback.

Tip Chat requires all parties to be typing their responses. Because the differences in typing ability may vary significantly from person to person, the more information that can be presented in advance, the more effective the chat session will become. If participants have an opportunity to read information prior to attending the chat, the entire session can then be spent in productive questions, answers, and resolution or action toward project completion.

Collaborating via electronic whiteboard

Electronic whiteboards are used to communicate real-time graphic interpretations across the Internet. This capability was initially developed for business meetings. For example, an engineer could share his thoughts with another engineer across the country by actually drawing them as they typed back and forth. The written communication rules for this technology are few. Use whiteboards for graphic input and not for writing/typing memos. Use words only to label and capture the essence of the drawings you are creating. Usually electronic whiteboards will be used in conjunction with a chat window or an audio-conference. As in other collaborations, it is best to come prepared for the meeting.

The key to using an electronic whiteboard is to be familiar with the drawing tools available to that software package. Typically, ovals, triangles, lines, arrows, and some type of freeform drawing are available. If you are unsure of which whiteboard software will be used at your school, you might practice using the drawing tools in the Windows Paint program or any similar basic drawing program available to most computer users.

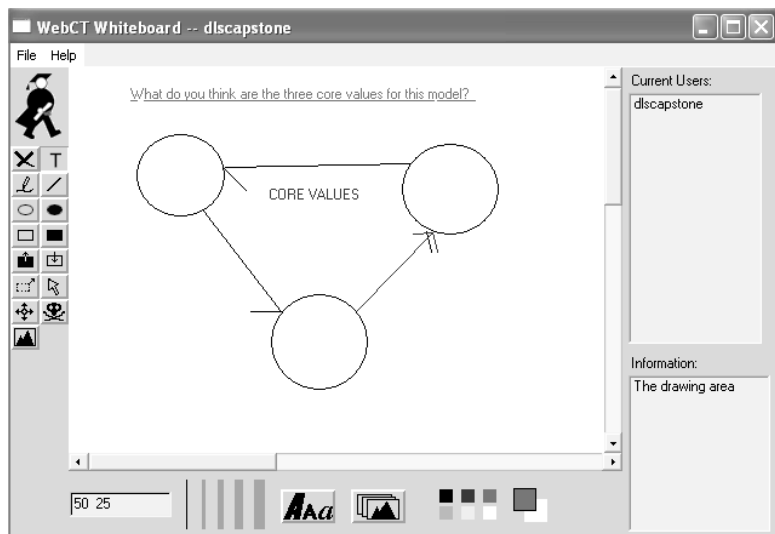


Figure 3.10 Whiteboard

Tip When using the electronic whiteboard DO NOT worry about producing a diagram that will be in final form. Think of the whiteboard as a napkin you might quickly draw on during a lunch conversation, or over coffee at breakfast.

Because the whiteboard is sending graphics from one location to another, the transmission time is significantly slower than using chat or email for collaboration. Keep in mind that it is best to draw one or two shapes, then wait for feedback before drawing again. If you are designated to begin with a completed diagram, it should be prepared in advance then cut and pasted to the whiteboard. Do not spend the time recreating the diagram in the real-time collaborative environment.

If you are collaborating with a group, have each participant use a different color when making additions or deletions to the whiteboard. In that way, everyone will know who is making the suggestion without having to take the time to write their name on the diagram or type in their name in the chat window. As with all of these collaborative technologies, it helps to practice with a friend well in advance of your need to participate effectively in a conference.

The media you need to understand

Learning occurs in the mind, independent of time and place.

(Plato, 428–348 BC, *The Greek Anthology* (1906), 111,197)

As indicated in the previous chapter, online learning takes place in two modes: asynchronous and synchronous. Each of these modes has a variety of technologies that help you learn the content and communicate with your instructor and classmates. This chapter will provide more specific detail of each of these technologies.

Managed learning environments

Many schools now use managed learning environments (MLE) – as they are called in Europe – or course management systems (CMS) – as they are called in the US – to make the integration of both asynchronous and synchronous tools easier for the student and the instructor. An MLE is usually a software system that houses course Web pages, email communications, discussion boards, chat rooms, and whiteboards all in one place and supported by one software company. The nice thing about these environments is that everything is consistent from one course to another or even from one university to another using the same program. Though the course design may vary significantly from one course to another, the easy availability of tools and easy access to class materials remains similar.

The top commercial examples available today are WebCT and Blackboard. As an example, WebCT is currently used by thousands of colleges and universities in over 85 countries around the world. Throughout this chapter, all the examples of tools are with WebCT. Though the actual implementation may differ slightly from one MLE to another, the functionality and use of the tools is the same. In other

words, the way the discussion board works in WebCT is very similar to the way a discussion board works in Blackboard or in any other tool. So, no matter what software your institution may elect to use, the skills you will employ and the way in which these tools work vary little (see Figures 4.1 and 4.2).

Figure 4.1 WebCT opening page. Here is a typical opening student page for WebCT. This student has three online courses. Notice that the system provides immediate access to announcements, links to help, and personal bookmarks. This is typical of a managed learning environment.

Figure 4.2 Class page in WebCT. Here is a class page in WebCT. Note that in addition to each of the learning modules, there is also a link to the class syllabus, a calendar, a discussion board, and private e-mail. You navigate to each piece by clicking on the item.

If you are interested in how these courses may vary and wish to try your hand at navigating, one place to go is the WebCT Exemplary Course Project pages (<http://www.Webct.com/exemplary/home>). These are courses that have been selected as good examples of online learning. You can access the sample lessons for free and get a sense of how easy it is to move around in the course.

Institutions without a CMS or MLE

There are also many institutions that do not use a MLE. These institutions provide their online courses through a series of Web pages that have links to communication tools and use your own email software for communication. The example in Figure 4.3 is from a training course designed for a newspaper enterprise in the US. Though this is all presented via Web pages, note how the student still has access to easy navigation as well as communication tools such as a discussion board.

Whether you take an online course that uses a MLE or builds a group of linked Web pages, the skills you need to use each of the synchronous and asynchronous tools will remain the same. Once you understand the basics of navigating and using these tools you will be able to move easily from one MLE to another or from one Web-navigated course to another.



Figure 4.3 Lee Enterprises advertising sales training. This course does not use an MLE, instead it uses Web pages with a navigation bar and a link to a discussion board.

Using email

For most online education courses you will need to have a minimum set of email skills. The list below identifies these skills.

- Enter personal details for email address and mail server
- Collect email from the mail server
- Receive an attachment and store it on your computer
- Open and print a word processor attachment
- Reply to an email message
- Create and send a new email message
- Address a new email message
- Attach a word-processed document to an email message

If these skills are beyond your capability at the moment, you may wish to do a short course through your college or to try one of the many tutorials available online.

- <http://www.learnthenet.com/english/section/email.html>.
- http://www.domaincarecenter.com/microsoft_outlook_email_help_guides.htm.
- <http://visualtutorials.com/email.htm>.
- <http://wp.netscape.com/browsers/using/newusers/messenger/>.

While there are no “rules” relating to sending email, there are guidelines (or netiquette) that you should follow. In general, rules of common courtesy for interaction with people should be in force for any situation, and on the Internet it is doubly important where body language and tone of voice must be inferred. The following 20 email tips are good ones to remember whenever you use email.

- 1 Unless you have your own Internet access through an Internet provider, be sure to check with your employer about ownership of electronic mail. Laws about the ownership of electronic mail vary from place to place.
- 2 Unless you are using an encryption device (hardware or software), you should assume that mail on the Internet is not secure. Never put in a mail message anything you would not put on a postcard.
- 3 Respect the copyright on material that you reproduce. Almost every country has copyright laws. If you are forwarding or re-posting a message you’ve received, do not change the wording. If the message was a personal message to you and you are re-posting to a group,

- you should ask permission first. You may shorten the message and quote only relevant parts, but be sure you give proper attribution.
- 4 A good rule of thumb is to be conservative in what you send and liberal in what you receive. You should not send heated messages (called “flames”) even if you are provoked. On the other hand, you shouldn’t be surprised if you get flamed. It is prudent just to ignore it.
 - 5 Beware your personal reactions when reading email. Remember, you cannot see the person’s body language or hear a tone of voice. Before reacting to a possible insult, consider that the sender did not intend it that way. For example, in one email the sender said “I disagree with your logic and can’t see how you came up with that response.” The receiver immediately took that statement as a personal affront to her level of intelligence, and thought the sender was questioning her educational training in the topic. In fact, the sender was merely disagreeing with a statement.
 - 6 In general, it’s a good idea to at least check all your new mail subject headers *before* responding to a message. Sometimes a person who asks you for help (or clarification) will send another message a few minutes later which effectively says “Never Mind.”
 - 7 Make things easy for the recipient. In order to ensure that people know who you are, be sure to include a line or two at the end of your message with contact information. You can create this file ahead of time and automatically add it to the end of your messages (known as a “signature” file).
 - 8 Be careful when addressing mail. Some group addresses look like it is just one person. Know to whom you are sending. Watch “cc”s when replying. Don’t continue to include other people if the messages have become a two-way conversation with one person.
 - 9 Remember that people with whom you communicate are located across the globe. If you send a message requesting an immediate response, the person receiving it might be at home asleep when it arrives. Give recipients a chance to wake up, come to work, and login before assuming the mail didn’t arrive or that they don’t care.
 - 10 Verify all addresses before initiating long or personal discourse. It’s also a good practice to include the word “Long” in the subject header so the recipient knows the message will take additional time to read and respond. Anything over 25 lines is considered “long.”
 - 11 Remember that the recipient is a human being whose culture, language, and humor have different points of reference from your

own. Remember that date formats, measurements, and idioms may not travel well. Be especially careful with sarcasm.

- 12 Use mixed case. ALL UPPER LETTERS LOOKS AS IF YOU'RE SHOUTING.
- 13 Use asterisks for emphasis. "That *is* what I meant." Use underscores for underlining "_Fahrenheit 451_ is my favorite book."
- 14 Use smileys (a colon followed by a parentheses) to indicate tone of voice, but use them sparingly. :) is an example of a smiley (look sideways). Don't assume that the inclusion of a smiley will make the recipient happy with what you say or wipe out an otherwise insulting comment. Another way to indicate emotion is carots around a word. For example, after a joke you might type <giggle>. Or after a story that touches you type <teary eyed>.
- 15 Wait overnight to send emotional responses to messages. If you have really strong feelings about a subject, indicate it via FLAME ON/OFF enclosures. For example:
FLAME ON:
"This type of argument is not worth the bandwidth it takes to send it. It's illogical and poorly reasoned. The rest of the world agrees with me." FLAME OFF
- 16 Be brief without being overly terse. When replying to a message, include enough original material to be understood but no more. It is extremely bad form to simply reply to a message by including all of the previous message. Edit all the irrelevant material.
- 17 Mail should have a subject heading which reflects the content of the message.
- 18 Just as email may not be private, mail (and news) are subject to forgery and spoofing in various degrees of detectability. Apply common-sense "reality checks" before assuming a message is valid.
- 19 If you think the importance of a message justifies it, reply briefly and immediately to let the sender know you got it, even if you will send a longer reply later.
- 20 "Reasonable" expectations for conduct via email depend on your relationship with a person and the context of the communication. For example, the norms accepted with your close friends may not apply in your email communication with people in online classes. Be careful with slang or local acronyms, and using swear words is almost always forbidden.

Using listservs or a discussion list

Another form of email service is a listserv or discussion list. These lists are different from a discussion board because they are operated through a mail server instead of a Web server. Any type of listserv or discussion list works by having a computer keep a list of all the email addresses of people in your class or organization. When you send a message to the list, the computer automatically resends your message to everyone on that email list. When anyone responds to the email, the entire list of people also receive that response. In other words, every posting and response are public to everyone on the list. Today, most institutions providing online courses prefer to use discussion boards or Webboards for class discussions rather than the email discussion list.

Tip To join or subscribe to a listserv or discussion list, you actually have to send an email message to the service coordinating the dispensing of the messages. The typical way to subscribe is to leave the subject line blank, and to type in the body of the message the word **SUBSCRIBE** and the name of the listserv. For example, to subscribe to an online education listserv for biology students, you might type the following in the body of the message:

SUBSCRIBE BIOLOGY-LIST

When your subscription has been confirmed, you will then begin automatically receiving all messages from the list in your email inbox.

When participating in a list be careful what personal information you choose to display. For example, your email address and any other identifying information you send with email (e.g. a signature line) is automatically displayed to everyone on the distribution list. This also impacts you as a representative of a business or institution. Many organizations have made policies regarding accepted participation in a list. For example, if you are giving a response that is your own opinion, and not that of your organization, you may need to make that statement explicitly.

The list moderator is the controlling authority for all submissions. When you submit anything to a list the moderator has the option of reading it, editing it, or choosing not to let it get posted (depending on the rules under which the list was established). It is unusual, however, for most moderators not to post your messages unless you have used bad language or are caught “flaming” a previous posting.

There are thousands of public lists on the Web. If you would like to practice participating in one, or simply have an interest in a particular

topic the easiest way to find one is to search Web pages for the topic name followed by the words “listserv” or “discussion list”. Given below are two sites that provide list information in searchable directories covering many topics:

- CataList <http://www.lsoft.com/lists/listref.html>
- H-net <http://www.h-net.org/lists/>

Using discussion board systems

Discussion boards are also referred to as “webboards” or “bulletin boards.” This communication board provides a way for you to contact all the members of your class by posting only one message. In an online learning environment, it is common for instructors to have a discussion board set up for each class with several topic areas where you can post information or respond to questions. Discussion boards are accessed via the Web and are similar to Web pages in appearance. The primary difference is that when you post a message it is immediately posted to the discussion board for all to view (see Figure 4.4).

Sri Lanka Staff Development

[Home](#) • [Discussions](#)



Select a topic to see its messages

[Compose Discussion Message](#) [Search](#) [Topic Settings](#) [Manage Messages](#) [Manage Topics](#)

Topic	Unread	Total	Status
All	4	129	
Mod5: CMS Systems Pros and Cons	0	1	public, unlocked
Mod4: Web Page URLs	0	1	public, unlocked
Mod4: Group Project Postings	0	1	public, unlocked
Mod4: Learning Communities	1	2	public, unlocked
Mod3: Transitioning	2	12	public, unlocked
Mod3: Difficult Learning Experience	1	18	public, unlocked
Mod2: Core Values	0	16	public, unlocked
Mod2: Articles	0	14	public, unlocked
Mod1: Introductions	0	21	public, unlocked
Mod1: Compare and Contrast Technology Use	0	12	public, unlocked
Mod1: Formulate a Strategy	0	19	public, unlocked
Q&A	0	10	public, unlocked
Student Lounge	0	2	public, unlocked

Figure 4.4 Discussion board topics

In this discussion board there are 13 individual topics. The instructor has them divided by modules. Module 1 responses were required during the first week of classes. Module 2 responses required to the second week, and so on. There are also two freeform discussion topics – topics that don't pertain to specific areas – that are typical of many boards. One is a Q&A topic. This is a place where students can post general questions about the course that may not relate to any of the required postings. For example, a student might ask “When will the grading be completed from the mid-term exam?” In this way, the instructor only needs to read one question like that and respond once for the entire class to view, instead of responding to the same question 10 times in emails. The second freeform topic is called “student lounge.” The student lounge is a place that some instructors set aside as a social meeting place for students to get together and talk about anything unrelated to the course. Typical conversations might be about upcoming vacations, where to find information about university services, or even arranging times to meet in person at a conference or a local restaurant.

Most online courses now require a login-id and password to access the course and subsequently the discussion boards. This security will ensure that your instructor and classmates, as well as special designated guests, will be the only ones participating in discussions. Public discussion boards outside of your class, on the other hand, allow anyone to access them and welcome postings from all over the world.

Discussion boards vary in style from program to program and campus to campus. However, they all function similarly. The main page of each board lists various topics from left to right (as seen in Figure 4.4). To enter a topic, you click on the topic name and a list of messages pertaining to that topic will appear.

To read a message, you need only click on the text that interests you. In Figure 4.5, most of the topics have the same subject line because each is a response to the instructor's initial posting. If the student does not change the default entry it will automatically post “Re:” and the previous subject line. Once you have clicked on the linked text you will have an opportunity to read the pertinent posting and to respond. Notice the indentation with the arrow. This is called “threading.” A thread is a response to a particular posting. When you follow a thread, you are clicking on the major topic and then following the subtopics to the end.

All discussion boards have some type of form for responses. In the examples in Figures 4.6 to 4.8, the format maintains a response button on the top of each page. Other formats will provide a link – through a button or in words – to the response form at the bottom of the page.

Compose Discussion Message Search Mark All As Read Update Listing			
Select topic: Week2 - Copyright Fair Use		Show all / Show unread Threaded / Unthreaded	
Select all Select none Apply to selected message(s) below		Compile	Go
Status	Subject	Author	Date
▼ 0/62	<input type="checkbox"/> What did you learn about ...		
	<input type="checkbox"/> What did you learn about ...	Maggie McVay Lynch (ci513ml)	July 29, 2003 5:42pm
	<input type="checkbox"/> Re: What did you learn ab...	Ruth Elison (elison)	July 30, 2003 12:46pm
	<input type="checkbox"/> Re: What did you learn ab...	Victoria Hyde (vhyde)	August 4, 2003 7:39pm
	<input type="checkbox"/> Re: What did you learn ab...	Shane Fisher (shane)	July 30, 2003 5:26pm
	<input type="checkbox"/> Reply to Shane	Kelly Hartl (psu21445)	August 4, 2003 7:53pm
	<input type="checkbox"/> Re: What did you learn ab...	Stephanie Weygandt (weygandt)	July 30, 2003 6:52pm
	<input type="checkbox"/> Re: What did you learn ab...	Craig Topolski (topolski)	July 30, 2003 8:46pm
	<input type="checkbox"/> Re: What did you learn ab...	Dominique Stroup (dstroup)	August 1, 2003 11:40am
	<input type="checkbox"/> Re: What did you learn ab...	Marcia Munt (marciam)	August 2, 2003 5:16pm

Figure 4.5 Discussion board postings. In this example, students are responding to a teacher posted question about copyright and fair use.

Discussion Message for ci513ml - Microsoft Internet Explorer

Subject What did you learn about Fair Use?

[Previous Thread](#)
[Next Thread](#)
[Close](#)

[Reply](#)
[Reply Privately](#)
[Quote](#)
[Download](#)

Message no. 121
 Posted by **Maggie McVay Lynch (ci513ml)** on Tuesday, July 29, 2003 5:42pm

In class we talked about Fair Use, but you may have forgotten some of the important parts of it. Review at least one of the following sites, and then answer the questions below by posting a reply to this topic.

University of Maryland's Fair Use Guidelines
<http://www.umuc.edu/library/copy.html#fairuse>

PBS Teacher Source on Fair Use
http://www.pbs.org/teachersource/copyright/copyright_ed_multi.shtm

Select at least two of the questions below to answer. When you post your response, backup your answer with logic and research that you believe provides proof that your answer is correct.

Figure 4.6 Instructor initial posting. From the messages listed above, here is part of the instructor's initial posting to the class that is displayed when you click on the first post in the thread.

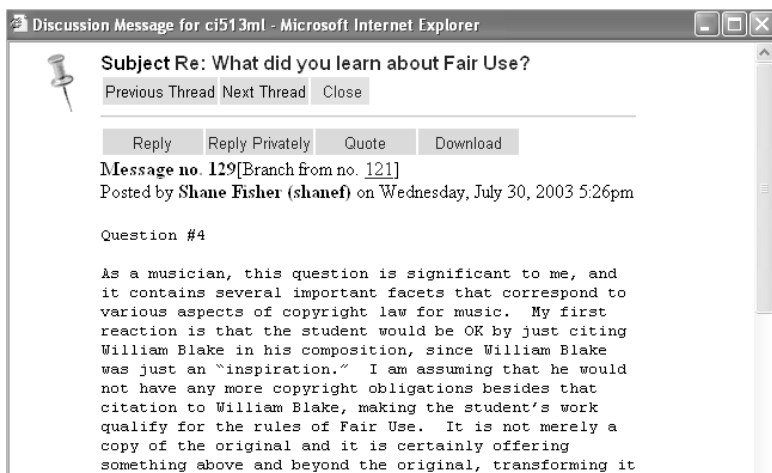


Figure 4.7 Student response – Shane. Here is a response posted by Shane, one of the students in the class. Note that each time you click on a message to read it, you are presented with the opportunity to immediately send a reply by clicking on the reply button at the top.

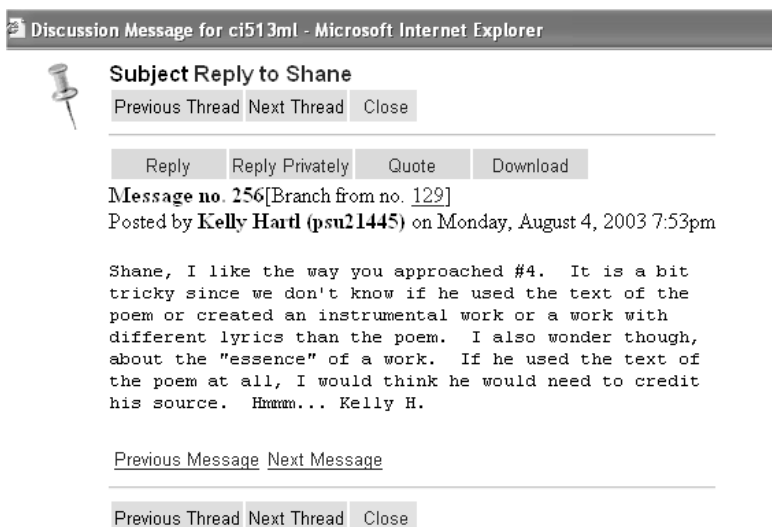


Figure 4.8 Reply to Shane by Kelly. Following the discussion thread one step more, above is a student's reply to the first student's posting. Note you also have the ability to move up and down the thread with the "previous thread (previous message)" and "next thread (next message)" buttons.

Reply to Message: 256

Topic Week2 - Copyright Fair Use

Subject Re: Reply to Shane

Message

Height of edit area 12 Resize ☐ Don't wrap text ☒ Wrap text

Equation Create new equation Equation editor

Attachments: Browse... Attach file

There are no files attached.

Post Preview Cancel

Figure 4.9 Reply form. In this example when you click on reply, the form above is presented. It is comprised of two required boxes (subject and message) which must be filled in by those wishing to post new material. An additional box allows for including an attached file. An attached file may be a document, a picture, a spreadsheet, or other type of electronic document that you know can be read by your classmates.

In any case, the form will guide you to post your comments, questions, and suggestions.


In most reply forms, you move from one box to the next by using the “tab” key after entering your text. In this example (Figure 4.9) you would:

- type an appropriate subject line in the “Subject” box, then hit “tab”.
- in the “Message” box enter the body of your message.

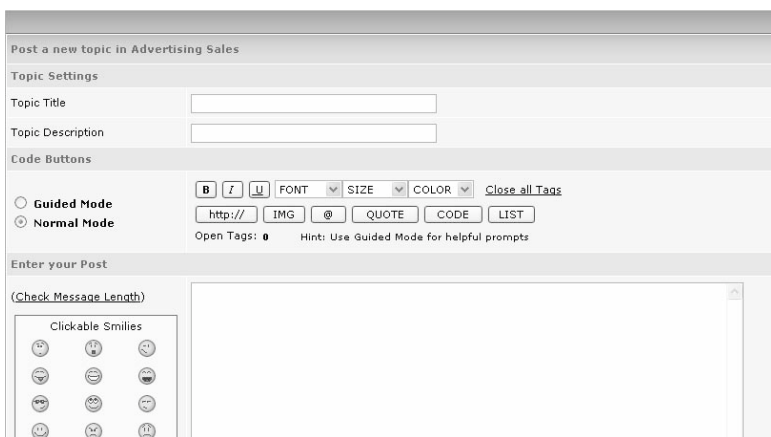
Tips Some discussion boards also require you to enter your name and email address. If this is the case use your common name (e.g. Maggie Lynch), and for email be sure to include your entire email address (e.g. mmlynch@pdx.edu). If you want to enter a Web address, be sure to enter the entire URL (e.g. http://www.pdx.edu). That will often make it

clickable, allowing the reader to click on the address and immediately go to the location you indicated.

If your message contains more than one paragraph, leave a blank line between paragraphs. Most discussion boards now have text wrapping (automatic return to the left margin). This means you *do not* want to use the “enter” key when your text approaches the right scroll bar of the message box because this will make the message display awkwardly in the recipients browser. Once your message is complete, click on the “Post” or “Submit” button (usually at the bottom of the form). Your message will then immediately appear on the Discussion board.

Tip If you do not see your message on the discussion board, click the “reload” button  of your Web browser. You should then see your entry without a problem.

If you are familiar with HTML, you can use tags in the body of your message. For example, if you want to emphasize a word or idea, you can bold it by inserting the `` and `` around the words. Also, some discussion boards have formatting options for your message included with the software as in the example in Figure 4.10.



The screenshot shows a web form for posting a new topic in 'Advertising Sales'. The form includes fields for 'Topic Title' and 'Topic Description'. Below these are 'Code Buttons' for formatting: Bold (B), Italic (I), Underline (U), Font (dropdown), Size (dropdown), Color (dropdown), and a 'Close all Tags' link. There are also buttons for inserting links (http://), images (IMG), email addresses (@), quotes (QUOTE), code (CODE), and lists (LIST). A 'Normal Mode' radio button is selected. At the bottom, there is a 'Enter your Post' section with a 'Check Message Length' link and a 'Clickable Smilies' grid containing various smiley face icons.

Figure 4.10 Discussion board formats – HTML. Note this example of a discussion board from InVision™ allows for several formatting options – the B for bold or the I for italics. It also provides ways to easily enter a Web page address (http://) or a picture (IMG), and allows you to click on a “smilie” if you want to indicate an emotion or mood with your post.

Posting web pages

Today anyone can create a Web page thanks to the quality of HTML editors and the ability of word processors to save documents as Web pages. These editors and word processors allow you to design your pages by just typing in the text and “dropping” the images where you want them. The software then writes all the HTML code behind the scenes. Check with your institution as to which type of editor they prefer you to use.

Tip for Microsoft Word™ users It is easy to save your files as HTML. Depending on the version of Word you are using. You can either select from the menu line “File – “Save as Web page” or select “File – “Save as” and in the “type” window select Web page or HTML page.

Remember, links are the primary interface mechanism within Web pages. When using links it is important to provide the entire URL address (including the http:// or other locator).

Once you have completed your page, you need to publish it to your on-campus Web site or through your own Internet service provider (ISP). There are several software packages that can help you do this. Check with your institution as to what to use and where to publish.

If your school uses a course management system, such as WebCT, it may also provide a way to publish your pages within the course. This course tool is usually called something like “student presentation tool” or “shared space.” Ask your instructor whether he or she is using this tool in your course.

Asynchronous audio and video

As computer speeds increase and dial-up modems give way to cable and satellite access, you will begin to see more and more use of audio and video in online courses. Currently, these technologies are used in a very limited fashion because the download times can be frustrating.

One way in which courses that contain audio within a Web page designate that use is with an icon that looks like a loud-speaker or bullhorn. The student clicks on the audio image to listen to whatever is being presented. The two types of presentations most often heard are music that relates to the topic or a reading that may enhance the topic (e.g. a poem or a brief speech).

Another use for audio is pre-recorded announcements or greetings. Some courses contain a database of remarks and greetings that change on a regular basis based on particular criteria relating to the course and/

or the student's performance. By clicking on the audio icon you would get a different announcement or greeting each time. For example, one week you may hear your instructor say, "The homework for this week has been changed to include Chapters 3 and 4 in your textbook." The next week, the same icon click would say, "Congratulations, you received an A on your last assignment."

Streamed videos or QuickTime™ movies are finding their way into more and more online courses. Again, because of long download times, this technology is not used in places where students don't have access to fast modems. The most common uses of video are in 15 to 30 second clips that usually display a place, thing, or type of interaction the students may not otherwise have an opportunity to experience. For example, an online history course might have a short clip of the Parthenon or of a person examining a particular relic found at an archaeological dig site. Another example might be seen in a counseling course, where the student can view the "patient" discussing a difficult situation. The video then stops and the student reacts by writing what he or she would do or say in that instance.

As with asynchronous audio, video is designed to enhance the online experience by providing another stimulus to the learning process. As bandwidths and speed increase, it is likely you will see more frequent use of both these asynchronous technologies in online courses.

CD-ROMs are another way you may get audio or video information for your online course. In fact, frequently your class textbook will come with a CD-ROM. These CDs may contain case studies, real-world simulations or role plays, special software (e.g. a statistical program) that will help you work problems, or movies and video situations that relate to your course. The key to integrating a CD into your learning process is to make use of it as much as possible. Most CDs are loaded on your computer with a self-executing program. Typically, you place the disc in your CD Drive, then click on the CD Icon under "My computer." The program then automatically begins to install whatever is needed on your hard drive. If an automatic install program is not included with your CD, instructions are often found printed on the back of the case or in a handout. These instructions would provide a step-by-step process for installing the CD or for viewing the files required for your class.

Tip Although the CD may install a program on your hard drive that doesn't mean you can always run the program without the CD. CDs containing numerous graphics or videos will often run in conjunction

with the program installed on your computer. The program on your computer then directs the CD to access the graphic or video at the appropriate time.

Using chat

Chat is a set of protocols that allows two or more people to have an interactive dialogue via computer. In the online education environment, chat is one of the primary synchronous interfaces used to interact with your entire class during an activity. (See example of a chat session in Figure 4.11.) As with other written messages, the primary rule for using chat is to be considerate of others. Realize that not all participant machines are running at the same speed, nor do all participants have the same typing capability. If you are a fast typist, be sure to allow opportunities for others to chat. Patience will go a long way toward providing the interactive classroom environment desired in a chat session.

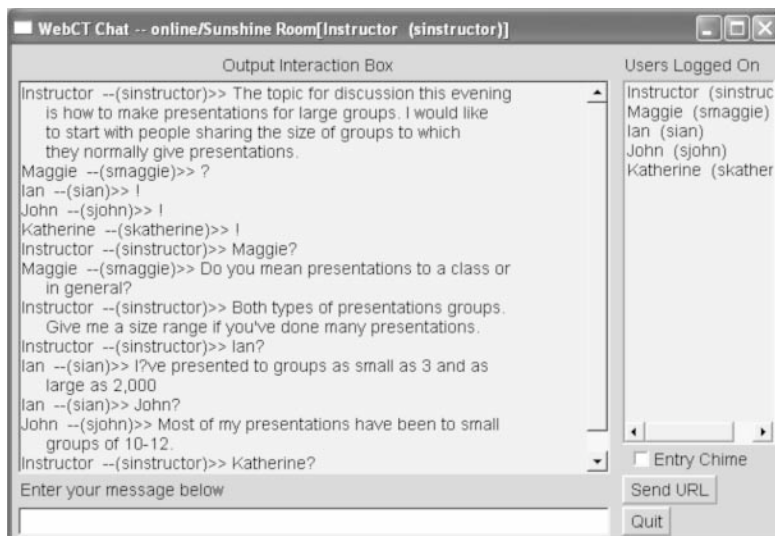


Figure 4.11 Chat window. In this example, you type your message in the window at the bottom. When you have typed everything you want to say, you press the “Enter” key. Your message immediately appears in the window at the top for all to view. Each chat program has different options regarding sending URLs (Web pages) or entering private chats. Check with your institution on the specifics of your program.

A few reminders about using chat:

- Use mixed case and proper punctuation, as though you were typing a letter or sending mail.
- Remember that other people have to read what you write, so be brief. A good rule of thumb is to write out no more than 12 lines (since you're using a split screen).
- If you prepare in advance, you can have ideas already typed in your word processor, then cut and paste that typing into the input window of the chat.
- Always say goodbye, or some other farewell, and wait to see a farewell from the others (particularly your instructor if he or she is participating) before exiting the session. This is especially important when you are communicating with someone physically far removed. Remember that your communication relies on the speed of your connection, the computers connecting along the route, and the recipient's modem. This means it may be a couple of minutes before your response is viewed.
- Chat shows your typing ability. If you type slowly and make mistakes, it is often not worth the time to correct them as you will quickly fall behind in the conversation. Don't worry! Usually, the other people can decipher what you meant and they are likely to make some mistakes in their own typing.

Most chat programs provide opportunities for private conversations, sometimes called "whispers." The manner in which you engage in this differs from program to program. For example, in one program you simply click on the individual with whom you wish to speak privately. Then you type in the chat window and only that person sees your message (usually these private messages are in a different color from normal chat or are prefaced with the word "private"). Be careful how much you use this during a class session as you can easily fall behind in the primary discussion and miss an important point or be called on to respond.

Using electronic whiteboards

Corporations are abandoning the paper, markers, easels and traditional whiteboards as methods of boardroom note-taking and diagramming, and schools are tossing out their chalkboards. They're turning instead to electronic whiteboards – input devices that allow for interactive col-

laboration, application-sharing and remote conferencing, in addition to importing hand-written notes directly into the computer.

“Whiteboarding,” in electronic terms, also refers to a wide range of software packages (see Figure 4.12). Those applications may allow two or more computers to share typing and mouse-controlled sketching. Both users can type and draw together, as if they were sharing one computer, and that work is immediately seen on each computer screen. More complex software packages also include application-sharing, voice communications and even videoconferencing over the Internet. A variety of software products are available for interactive whiteboard use, and most managed learning environments include a whiteboard as one of the communication tools.

Audioconferencing

Audioconferencing is the most common and least expensive form of teleconferencing. All participants in an audioconference (also known as an audiobridge) are connected via a telephone call. This call may be made using normal telephone lines, or it may be made using the computer.

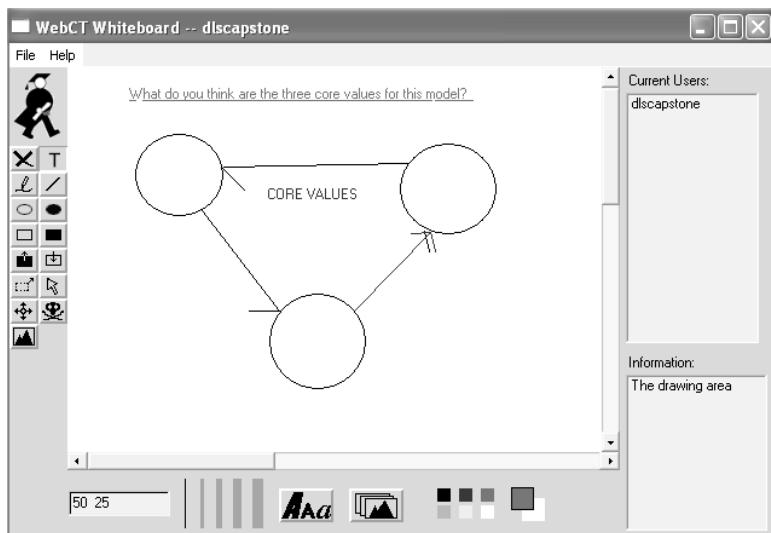


Figure 4.12 Whiteboard. Similar to a chat room, the whiteboard will usually list all of the users on the right, and provide a space for drawing in the center. The drawing tools are usually on the left or the bottom of the screen.

If your course uses normal telephone lines, this call is routed through an operator. Typically, individual students use their regular home or office telephones and dial into a toll-free number. The operator then creates a “bridge” to connect all the lines and allow everyone to speak and to hear each other. The key is to respect the order of speaking and to be careful not to interrupt when someone else is talking.

If the audioconference is taking place over the computer, you will need to have a microphone installed with your computer. You would be directed to login to a particular Web site where the conferencing facilities are available. Then you would talk through your microphone to participate in the discussion. If at all possible, it is best to participate in this type of conference with a headset. In that way, you don’t have to worry about your speakers being turned on or disturbing others near you.

Audioconferencing is used for lectures, discussions of a particular topic, student oral presentations, and question-and-answer periods. If you are in an online education environment that never meets face-to-face, an audioconference gives you the opportunity to hear the voices of your instructor and participants and to gain information through their tone and inflection which you may not accurately interpret in emails, discussion boards, or chat. Some students find that once they have identified the voice and nuances of another person’s speech pattern, in the future they associate that same pattern with the written messages they receive over the Internet. This pattern provides a context for all future communication.

In order to get the most out of an audioconference, it is wise to be prepared well in advance of the call. You should also call into the designated number (or login to the designated site) a minimum of five minutes prior to the beginning of the session. Many schools have the instructor take roll call prior to the beginning of a session. Also many conferences are set up so that if you are late you will not be admitted to the session. A transcript can sometimes be provided of the entire conference, depending on the conference options selected by the school when arrangements were made.

Tips

- Have all textbooks, instructor notes, copies of Web pages marked and available before the conference begins.
- Read the agenda prior to beginning the conference.
- Prepare, in advance, your specific questions or responses regarding assignments or the topic of discussion.

- If you are giving a presentation during the conference, have your notes in front of you while you speak. This will help you to not stumble with words.
- Be sure to eliminate any distractions from the room. They not only disrupt you, but also everyone else who is listening.
- Make arrangements for children, parents, friends, not to interrupt you.
- Remove potential barking dogs from the room.
- Don't eat or chew gum while on the conference. Everyone will hear it clearly.
- Don't play music in the background.
- It is hard for most people to differentiate more than four different voices, so you should always state your name each time you speak (e.g. "Maggie here. I think the best approach to this...").

MUDs and MOOs

What is a MUD or MOO?

MUD was first used in the "virtual reality" game dungeons and dragons. Most MUDs still retain this game-like atmosphere with players moving to higher levels or earning points, often by eliminating (shooting) the other players' characters. MUD stands for multi-user dimension, or Dungeon, reflecting its origin. MOO is an acronym for MUD, but keys on the "object oriented" aspect. MOO is frequently referred to as multi-user object oriented dimension. MOOs, usually developed as more social spaces, lend themselves readily to use in the classroom or as spaces for conferences and meetings. Many people use the terms MUD and MOO synonymously.

Proponents of the use of MOOs in the classroom come from a wide variety of disciplines. Part of the attraction of these virtual spaces is that they allow for classes from different geographic regions to connect in real time. In most MOOs, teachers, and often students, can create the virtual world to suit their needs and desires. And, especially in writing-intensive courses, a large part of the attraction of MOOs is that they are text-based.

An educational MOO has an academic theme and uses a variety of MOO communication tools such as internal email, newspapers, documents, blackboards and classrooms to accommodate a variety of teaching styles. Teachers use these tools in harmony with the goals for the class while exploiting the nature of MOO as a student-centered learning

environment. For example, one instructor teaches a Middle-Eastern History class using a MOO. The instructor designed the space as a story with a mystery flavor and divided the story into discrete items. Each item had a clue for solving the mystery of a particular piece of pottery, or art, or a location where something might have happened. There was no importance to the sequence of browsing around. The MOO provided an interesting and interactive way for students to learn more than dates and times in history.

Below are links to some of the types of MOOs used in education

- **Diversity University, Inc.:** a non-profit organization providing MOO environments for innovative approaches to learning. Click on “Visit DU MAIN” to access the MOO, or see their web gateway: <http://www.du.org/>.
- **MundoHispano:** a well-populated, virtual representation of dozens of cities in the Spanish-speaking world, written entirely in Spanish for learners, teachers, and native speakers. <http://www.umsl.com/~moosprog/mundo.html>
- **MOOfraçais:** modeled after Paris, a well-organized MOO for learners, teachers, and native speakers of French, entirely in French. <http://www.umsl.com/~moosprog/moofraçais.html>
- **schMOOze University:** built to resemble a small college, learners can practice English and socialize with other learners as well as native speakers of English. <http://members.at.infoseek.co.jp/schmooze>
- **PennMOO:** the virtual classroom site in the English Department of the University of Pennsylvania. <http://dept.english.upenn.edu/~afilreis/88/moo-home.html>

A MOO is very similar to a chat room. People participate at the same time (synchronously), it is text-based, and you get a sense of immediacy in the discussions. The difference between a chat and a MOO is that a MOO also has pre-programmed environments, messages, and objects with which students may interact. Participation in a MOO involves the same two basic activities as reading and taking notes in a book – as you MOO you will read, and you will write in response to what you have read. Participants read descriptions of locations, objects, characters, and other participants, and they read what the other characters and participants have to say. Their writing consists of simple commands, and also of dialogue, as they interact with one another and with the objects and characters in the MOO.

What can different kinds of users do on a MOO?

Those who first connect to a MOO are called guests. Guests have the ability to “talk,” send messages across the MOO by “paging,” use MOOmail for sending messages, and move around the MOO. They cannot make any permanent changes in their guest “character,” nor can they create objects. Those who want a permanent character with password access need to request this, usually by sending email or MOOmail to the registrar (often the instructor) of the MOO. Permanent characters can name themselves, describe themselves, and set their gender. Users come to know one another, forming friendships and a sense of community. These relationships can be one of the most rewarding aspects of the MOO experience.

Builders are users that have programming permissions for creating rooms, exits, and objects which they can describe in any way that is consistent with the MOO’s theme. They can also write customized, durable “messages” that automatically appear when certain commands are used. For example, when a user pages “MariLuz” at MundoHispano, that user will see a line of text in Spanish stating that a kangaroo puts the message in its pocket and carries it to MariLuz.

Those who learn the MOO programming language can become programmers who create more elaborate features such as that created by a student named Gregor, at the schMOOze University. He created a monkey that hands out dry towels to swimmers. This program causes lines of text describing the monkey’s actions to appear at regular intervals on the screens of all the users in the same virtual room. The ability to create objects, “messages” and programs gives the user a sense of ownership, an outlet for creative writing, and motivation to return. The wizards (usually the teachers) are at the top of the hierarchy. They create new characters, monitor connections, teach new users, and deal with problems, often with the help of teacher-administrators. They also do deep-level programming and uniquely have access to information such as the users’ email addresses.

What difficulties can I expect when using a MOO?

Some MOO users have quite an emotional response, positive or negative, to the experiences they have. Students have been known to fall in love with or be very offended by other users. While the sense of place and permanence that is achieved on MOO can contribute to the

meaningfulness of the learning experience, some users simply have difficulty adjusting to having a virtual self (their “character”) somewhere in cyberspace. Many instructors who use MOOs regularly also schedule in-class discussions that focus on student reaction to MOO use.

Tip Why use a MOO?

In a MOO, you can:

- move between distinct places (called rooms)
- manipulate objects (e.g. get, drop, activate)
- chat with people or ‘bots’ (robots)
- create new virtual places (rooms)
- describe your character, the places you create and the objects you build
- mail electronic messages
- conduct classes.

In a MOO, you have instant communication

- with each other
- with distant students
- with distant experts.

A MOO extends natural collaboration

- text-based discussion leads to collaborative work
- individual and collaborative identities
- immediate audience response.

Mooing is fun and it is educational

- the activity relies on problem solving and creative writing.

Many MOOs have evolved into sophisticated and flexible environments, full of objects and rooms and people who can be anything or anyone and can interact in a variety of ways. Today, these programs are used for social communities, scientific forums, educational environments, process control systems, business conferencing systems, and many other collaborative endeavors. Many MOO servers have been adapted to work with graphical Web interfaces and even 3D Virtual Reality perspectives. Artificially intelligent “bots” (automatic programs for specific functions or responses) interact with users and with the environments. Users can build and shape their environments and share information, ideas, resources, and communities online with people around the world.

Accessing a MOO

Although MOOs have a higher learning curve than chat programs, the time is well-spent as it will engage your interests. If you find you really love this virtual environment, you may build your own MOO. The underlying code to build your own virtual environment (with a little expertise) is available for free downloading on the Internet, thanks to Pavel Curtis of Xerox Corporation. Many MOOs already have programming in place (via generic objects) to allow for such virtual reality features as blackboards and slide projectors, moderated panel discussions, and more. Most of them also allow you to customize the environment to suit your needs.

The best way to understand this form of communication and educational “gaming” is to try some of them. Try some of the links mentioned previously and determine if this is something you might enjoy. As you enter these spaces as a guest, remember that just as there are “netiquette” rules in email, discussion boards, and chat, virtual environments also depend upon the people in it treating each other with consideration and respect. As a virtual environment, the nature of a MOO is determined by the interactions among the members and visitors who participate in it. Some physical life situations have little bearing on a virtual community. You won’t, for instance, have to fuss about who should open a door to let the other pass. Some situations requiring consideration and respect in physical life are of equal or greater importance in a virtual environment. If you wouldn’t barge into someone else’s office at your job, then perhaps you should think twice about joining someone in a private space without asking first.

Because educational MOOs are designed for learning purposes, the interactions among people should reflect personal and professional respect. Identify yourself and your interests. In fantasy MOOs, players may take on fantastic names, identify their gender as neutral, and otherwise indulge themselves in the magical possibilities of a virtual environment. However, in educational MOOs you need to identify yourself with your true name. Most institutions have adopted this policy, as using your true identity you are less likely to act inappropriately. Below, are a few guidelines for your initial contact in a virtual environment interaction.

- Describe yourself the first time you log on. Here is an example using the typical MOO commands: @describe me as <brief description> “I’m Maggie McVay Lynch from Oregon. I am an instructor teaching courses about online learning.”

- It also helps to describe yourself as a physical character. It is up to you what details you want to include. Example: <a character's description> "Brown hair, brown eyes, dressed in casual clothes with a cup of tea and a sesame bagel."
- Identify your gender. Example: @gender "female"
- Describe your interests. When you have been given a character name and a password, you should create an information file. Some typical things to include would be your name, school affiliation, your field of study, your email address and any major interests you would like to share. Example: @info me "My name is Maggie McVay Lynch from Oregon where I am an instructor. My hobbies are hiking, golf, tennis, and reading science fiction. I can be reached at mmlynch@pdx.edu."

We have spent all our lives developing our social skills by picking up cues about others from their reactions to us. In a virtual space, you are held to much the same standards of consideration, but with fewer of the familiar cues. You can't depend on closed doors, raised eyebrows, or voice inflection. Only typewritten words are presented. Again, here are some guidelines to help ease the way:

- Before trying to page or join anyone, find out first where they are, what they are doing, and who they're with (the command may be @who or @crowd). The person you would like to see may be in a class or having a private conversation. If they are in a public space you can join without paging first.
- Page first. Once you've determined that a person is logged in and not apparently busy, page her or him as a greeting with an invitation to join you.
- Respect private space. One of the greatest frustrations is having someone barge right into a private space without paging to ask if he or she may join the person or group there. You can usually tell when people are in a private space, once you have logged on and checked @who a few times and noticed where they tend to be. Also, don't leave objects in or take objects from the private space.
- Be mature, professional, and friendly. One of the banes of non-educational cyberspace is the freedom some people feel to harass, insult, or otherwise offend people over the net in ways they wouldn't consider in person. Fortunately, it doesn't happen much in educational environments. Certainly, you can joke around, enjoy people's company, be playful as well as serious – but always be

sensitive both to the other people with whom you are interacting and to the sense of purpose in the educational MOO.

- Getting around the MOO can be confusing at first. *Before* asking every character you meet for help, read the “help” texts provided in the environment. Nearly every command has a help text associated with it. Most MOOs make it clear how to access help. Typical commands are: “HELP” or “911” for emergency procedures, or “?”. Also most MOOs have people with authority (i.e. the instructor). These people may be called “moderators” or “wizards.” They usually respond to email quickly, but if you find them online you can certainly ask for help.

Basic commands that apply to most MOOs

First, it is important to know that each MOO is different from all other MOOs – a different look and frequently different commands. It’s very important that you read every screen presented to you from the moment you log in. These screens will usually provide important information as to how you may proceed. Once you have entered the room or shared space, the following 10 simple commands should get you started in most MOO environments.

- 1 **co guest** should get you on, but some have different entry commands. Read the opening screen.
- 2 **@who** usually shows you who else is in the environment, where they are, how long they have been on and how long they have been idle or not entering commands.
- 3 **help** shows an index of help files.
- 4 **help [object or verb]** shows the help file on a specific object or verb.
- 5 **look** by itself will show you the description of the “room” you are in.
- 6 **look [object]** without the brackets will show you the description of the specific object you name.
- 7 **say** allows you to talk to someone in the same room with you.
- 8 **page [comment]** without the brackets allows you to talk to someone who is not in the same room with you.
- 9 **@join [someone]** without the brackets allows you to teleport yourself to the same room someone else is in. *Do not do this without paging them and asking permission beforehand.*
- 10 **@quit** quit or log off the MOO site.

Exits are ways for you to move from one room to the next. It is important to look for exit names in each room (e.g. lounge or library). To leave (exit) the room you are in and go to another room, type that room name.

For additional MOO resources including downloads for software, documentation, programming resources, and lists of MOOs you can visit <http://metaverse.net/moo.html>.

Visual chats or avatar chats

Visual chats, sometimes called multimedia chat or GMUKS (graphical multi-user konversations), and “habitats,” are something of a cross between a MOO and a traditional chat room. As social environments, they are unique in that they are graphical. Rather than limiting users to text-only communications as in most chat rooms, multimedia programs add a visual dimension that creates the illusion of movement, space, and physicality. It allows people to express their identity *visually*, rather than just through written words. The result is a whole new realm for self-expression and social interaction with subtleties and complexities not seen in text-only chat rooms. Though not yet used in an educational arena, there are several ongoing efforts to create these type of environments for students.

One example of a multimedia environment is a program called the “Palace” (see Figure 4.13). There are many “palace” rooms on the Internet, each with its own personality. The Palace software is free. It can be downloaded to your computer from <http://practice.chatserve.com/> or to a school’s server and then customized for whatever graphics the school wishes to present. There are two visual components to this environment. The first is the backdrop or “room” in which people interact with each other. Users can move freely within and between the rooms. Like characters in comic strips, you communicate with others via typed text that appears in balloons that pop out from your head or body (see Figure 4.14).

Head? Body? How do you want to appear? This is the second visual feature of this multimedia environment: “avatars” or “props.” Although these words often are used interchangeably, there is a slight distinction in the minds of some users. Avatars refer to pictures, drawings, or icons that users choose to represent themselves. Props are objects that users may add to their avatars (say, a hat or umbrella), place in the room, or give to another person (say, a glass of water or a bouquet of flowers).

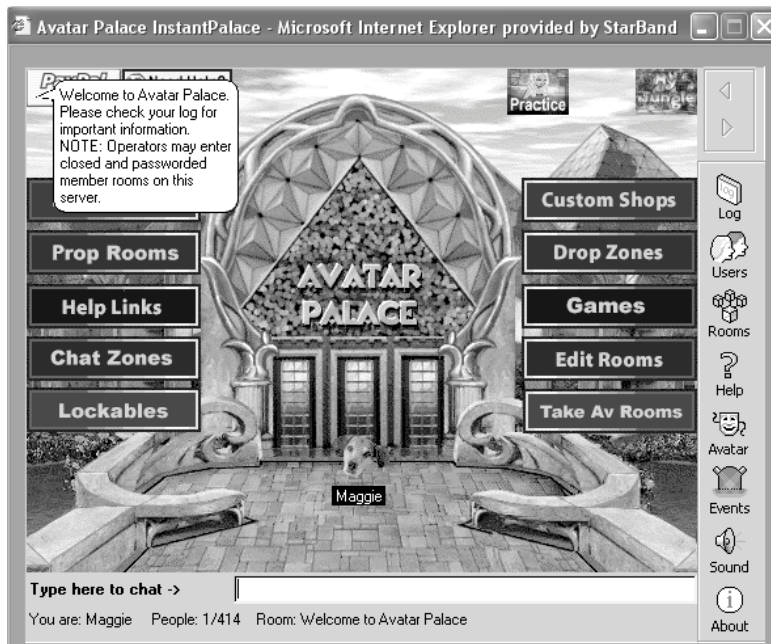


Figure 4.13 Avatar chat-Palace. The Avatar Palace entry page at <http://www.avatarpalace.net/>. From here you can navigate to a number of different rooms. There are many different “palace” locations on the Internet – each with its own themes, social structures, and likely topics of conversation. The Avatar Palace is a safe place for an initial exploration of visual chat because the monitors are strict about language use, acceptable behavior, and the types of avatars that can be displayed. Palace members range in age from 8 to 50 with an average age of between 12 and 15.

Avatars – or “Avs,” as visual chat users affectionately call them, fall into two general categories. The first is the standard set of “smileys” that come with most programs. They display basic human emotions and behavioral signals – happy, sad, angry, winking, sleeping/bored, blushing, head-nodding, head-shaking. The user also can change the color of the face or add to it one or more props, such as hats, wigs, scarves, devil horns, a halo, a glass of beer, a bicycle, etc. Because the faces and props can be mixed and matched, users have at their disposal an almost infinite array of combinations to express themselves.

However, advanced visual chat fans rarely use the smileys. Instead they choose the second major category of avatar creations – those

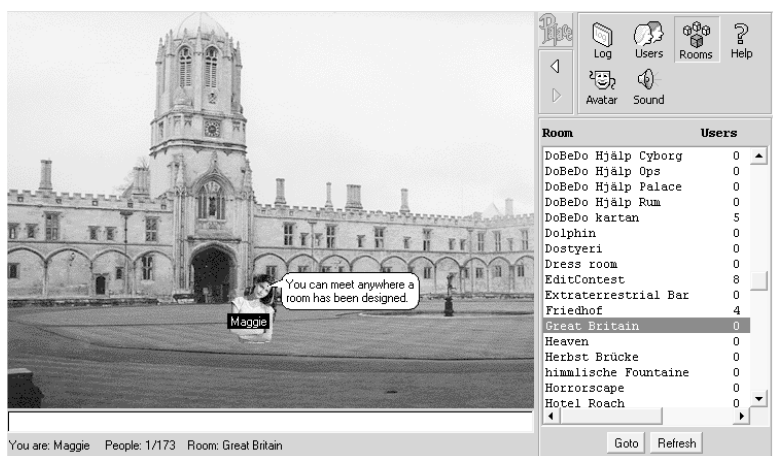


Figure 4.14 Avatar communication bubbles. Communicate by typing in the chat window. This is displayed as a balloon for all in the room to see. You can move from room to room by clicking on your choice on the right.

designed by the members themselves (see Figure 4.15). Visually, you can be anything you want. Only your graphics skills and imagination limit you. In cyberspace, most people don't want to be totally anonymous, but they *do* like control over how their identity is expressed. Some people choose pictures or icons borrowed from internet archives, scanned from hardcopy, or taken from other digital sources. Students may choose to present a true picture of themselves, a celebrity face, animals, cartoon characters, or even an outdoor scene. Users might edit or combine these pictures according to their particular tastes.

Educational video games

Over the past two decades electronic games have become ingrained in our culture. Children's fixation with these games initially alarmed parents and educators, but educational researchers soon questioned whether the motivation to play could be tapped and harnessed for educational purposes. A number of educational electronic games have been developed and their success has been mixed. The great majority of these games are designed for single players; if there is more than one player, the players are usually required to take turns playing. Although learning within a cooperative group setting has been found to be extremely effective, designing educational games to support multiple players working together has received little attention.



Figure 4.15 3D Planet Avatar create. 3D Planet's 3D Assistant Internet Utilities allow you to take any picture, cut and paste features you like or don't like, and change each of those individual features with others from their database.

Already there are many educational video games that can be purchased or used in school. Games like *SimCity* or *Civilizations* provide interesting interactions on specific topics. One can easily imagine a game called *Wall Street* where each student in the class is given shares of stock to trade or buy and learn about the machinations of the market. A UN simulation game might assign each student in the class a specific political role and country. All students then work together to solve a global problem. Several colleges and universities have received grant money to look more closely at how best to take advantage of this video gaming potential.

Desktop videoconferencing

Many desktop videoconferencing products have been introduced that have the ability to project an image of the person who was called in a small window on the computer screen. The software programs allow users to see one another and to work on documents at the same time. Common components include a software program and tiny cameras

that sit on top of the computer screen. Each product enables you to see another person with the same equipment.

Video establishes a strong connection among participants. Since a teacher can see and hear remote learners in real time, he or she can use conversation and body language to enhance communication. Frequent interaction increases understanding and encourages more personalized instruction. Interactive teaching strategies, such as questioning and discussion, can also help engage and motivate learners by making them active participants. Videoconferencing also allows for connection with external resources. Remote experts can help validate understanding, provide feedback, and introduce practical examples. This real-world connection can greatly improve motivation, especially if students participate and the expert is able to demonstrate practical applications of the theory. Video can support use of diverse media. Photos and color graphics look great on video and can help convey a difficult concept or simplify instructions. Room-based systems usually include an attachable document camera that allows transmission of a high-quality still image. This feature can be used to show objects as well as photos and graphics, and many instructors also project “slates” – simple text displays with a few sentences (usually instructions). Slates are an easy way to shift learner focus from the video screen to a learning activity.



Figure 4.16 CUworld

One of the most popular video chats is CUworld. It allows you to see multiple people, hear them, and run a text-based chat room at the same time. To use it requires each person to have a Web camera, a microphone, sound card and video card.

CUworld began as the free CUSeeMe software. It is no longer free; you register for a three-month trial membership, purchase your materials, link to other schools, and get going. The sessions are hosted by CUworld and they now provide monitors and helpers, which makes the membership cost worthwhile if you use this tool frequently. Note: it is Windows only; Macintosh users will not be able to connect. After the three-month trial you must select a membership level ranging from \$5 to \$30 per month depending on your needs.

Desktop videoconferencing is still rarely used in online education today because of the degradation of video quality over regular phone lines. Though CUworld has provided some inroads to the technology, it still has its problems. Good quality videoconferencing uses a great deal of bandwidth, making interaction slow. The picture can become so jumpy or irregular that it is frequently difficult to see what the other person is doing. However, with the increasing use of satellite links for the Internet and media centers set up on college campuses, it is likely that this technology will become a key interface in the near future.

Overcoming isolation and building community

The psychology of being online

Learning is not attained by chance, it must be sought for with ardor
and attended to with diligence.

(Abigail Adams, 1744–1818, Letter to John Quincy Adams,
May 8, 1780)

As a world structured by machines rather than the physical environment, the online experience may have some rather unique psychological features – such as reduced or altered sensory experience, the opportunity for identity flexibility and anonymity, the equalization of social status, the transcending of spatial boundaries, the stretching and condensation of time, the ability to access numerous relationships, the capacity to make permanent records of one’s experiences, and the “uninhibition” effect, to name a few. Fortunately, some of these psychological effects are limited in the online course environment. Outside of the classroom, however, the cyberspace experience can become even more foreign. It can be a world with its own language. As a virtual reality, it can offer you true-to-life experiences as well as highly imaginative scenarios, such as in the video game experience – where people interact in imaginative visual scenes while shifting their image and identity through the use of chosen characters.

Some people thrive in the cyberspace environment of minimal face-to-face interaction, while others feel isolated from their classmates and their instructor. If you are someone who feels comfortable online and is already very involved in the social aspects of online chats, discussions, and gaming, this chapter will help ground you in the expectations of your behavior in the online classroom environment. The online classroom is not as free as the rest of the Internet (for example, you must use your true name and identity in class – not a made up one). On the

other hand, if you have not been online very much or feel uncomfortable with the freeform social environment that seems to exist online, this chapter may help to set your mind at ease. It begins with some practical tips about setting up a physical and psychological space for you to be successful in the online learning environment. Then it explores some of the psychology behind individual and group dynamics online and how you can interact safely and successfully.

Setting your learning expectations

Whether your class experience is fully online or only partially, it is important that your expectations are realistic when you enter the course. When students register and then attend a course of their choice, they arrive with a set of preconceptions about what they can expect from the institution, from the instructor, and from their classmates. Typically, online students anticipate they will communicate with their instructor via email, discussion groups, and Web pages. Onsite students expect the instructor to appear at the appointed room at the appointed time, and there deliver a lecture on the topic of the day, or at least manage the class while they engage in learning activities.

Some students report difficulty in the online environment because they get insufficient information to direct their learning, and without attending lectures find some difficulty in staying on-task with their studies and thus assimilating the many things to be learned. When taking an online course, students must accept a larger responsibility for difficulties they encounter and for their own learning. Students who need the discipline of regular face-to-face meetings to keep them engaged and on-task may never be successful at online learning. Let's look at some practical tips for setting up your environment and tracking your progress with your studies.

Create your own learning space

It is important that you have a place to study that is quiet and away from distractions (e.g. the television, your children, other students). You may have to consider moving your computer to another room if it is located in the same room as your family television or stereo. If you are sharing a computer, in a library or campus environment, you will need to work out a timetable for sharing with other users.

Your study area needs to be comfortable, with adequate lighting and ventilation. It is important to pay close attention to ergonomics to ensure

you don't overstress your back, neck, or eyes. Your computer desk should be large enough to handle the computer, monitor, printer and mouse pad and still give you room for a notebook. A copyholder is a good idea for reading text at eye level while typing. A height and back adjustable chair is essential for correct posture and to keep your eye level in line with the top part of the monitor. Being able to look straight ahead reduces tension on your spine.

Tip Do not slouch in your chair. Be sure to get up and have a stretch break at least once per hour! Make a conscious effort to blink regularly!

When you work in a properly arranged environment, it is much easier to develop good learning, time management, and self-discipline skills. By controlling your environment, you take the first step toward controlling your online learning experience. The way you arrange your furniture, the positioning of your computer and your chair, the accessibility of your books and paper materials, and even the visual aids on your wall and bulletin board are all keys to creating an optimal learning environment at home.

If possible, claim a separate space for yourself somewhere in your home. If you don't have an extra bedroom or home office, simply find a quiet corner you can section off. Choose an area that doesn't get too much traffic and where you can instruct other family members to leave you alone when needed.

After you've set aside your learning space, get to work making it reflect a comfortable and creative environment for you. Some people need a space that allows everything to be neatly filed, categorized, and cubby-holed. Others only need flat surfaces for piles. Think of situations in which you are able to concentrate easily and do a great amount of work without much stress. Is it sitting at a desk facing the wall? Looking out a window? Sprawling on a sofa or on cushions on the floor? Maybe you need a combination of spaces – a sofa for reading and making notes and a desk for writing and communicating on the computer. Below is a list of some important learning environment considerations:

- type and arrangement of furnishings
- lighting
- temperature and air circulation
- organizational tools (bulletin boards, file cabinets, supply storage)
- plants and/or pictures
- background noise vs. total quiet.

The tools of online learning

In addition to the obvious need for a computer, there may be a number of other tools required in your online learning program. For example, many programs also use CDs, videotapes, and faxes. You need to determine what policies your college or university may have about using these ancillary devices. Do you have a VCR to play tapes? Does your computer include a CD drive? Do you have access to a fax machine? Carefully evaluate all the technologies required for your courses.

Your home computer, of course, will be your primary tool. Students new to this environment may be wondering exactly how “fancy” a computer they need. Would your 10-year-old computer work? Do you have to have a PC or a Mac? Again, these are questions you would need to ask the college offering the online courses. Most have a minimal configuration that they will support with their course management system. Because the Internet’s capabilities are changing so rapidly and programmers continue to take advantage of new protocols, it is wise to have a computer that is no more than three years old (two is even better). Below is a listing of the minimum requirements for most online study programs:

- modem or cable access to the Internet at 56K or higher
- reliable connection to the Internet
- adequate hard drive space for your classes (recommend 500MB+).
- a CD Drive
- a sound card
- an Internet browser program that is Java enabled.
- a word processing program (Microsoft Word™, WordPerfect™, LotusNotes™).

Some schools will have very specific hardware or software requirements that they will support. In this case, they usually provide a list to you or include the computer purchase as part of your tuition for the program. Others provide a wide variety of support options, including Macintosh computer compatibility. In addition to the above minimum configuration, a variety of browser plug-ins is commonly required. These browser plug-ins are free and easily downloaded from the Internet as indicated below:

- Real Audio to hear sound recordings on Web pages <http://www.real.com/>

- Acrobat Reader to download PDF files <http://www.adobe.com/products/acrobat/readstep2.html>
- QuickTime™ to view online video clips <http://www.apple.com/quicktime/download/>
- Flash or Shockwave to view certain animations and 3-D technologies <http://www.macromedia.com/downloads/>.

Study routines and time schedules

A timetable will assist you with your learning by organizing your study routine. Map out a weekly schedule that shows academic, work and family commitments, as well as your leisure activities. For a longer-term picture, you might use a term planner (quarters, semesters, or trimesters as they match your school environment). Pin it on the wall or a corkboard near your desk. This is also a good place to post the learning goals you have set for your course.

You are not tied to a study routine based on attending campus at certain times. However, always check when online tests are due, reading assignments should be completed, and papers sent to your instructor. Be sure to give yourself plenty of time to complete any tasks. Map out the due dates on your calendar. Be sure to also mark all dates for required synchronous activities (chat, whiteboard, video or audioconferencing). As your instructor or other students may be in a different time zone from you, double-check the correct time that your attendance is required. Studying online means that you have the opportunity to plan your study routine around other commitments, but even with this flexibility you must schedule specific hours for study if you are to be successful.

When planning the best time to login to your course, you might also need to consider what is the best time to be on the Internet. Depending on the amount of Internet traffic in your local area, certain times of the day will be faster download times than others. For example, many areas have traffic problems between the hours of 7:00pm and 9:00pm when most people are home from work and finished with dinner. You may need to try at different times and adjust your study routine accordingly. If you share a computer with other users, you will have to negotiate your online time with them.

Tip Some users may be connected through an Internet provider that charges for use by the hour or the minute (especially rural students who might not have local call connection). In that case, look for ways to minimize this time.

- Download email messages and disconnect from the Internet before you read them. Answer them offline then connect again to upload them.
- Download some of your course files or Web pages to your hard drive to read later.
- If you are paying by the minute or hour for your online time, be sure to let your instructors know. Perhaps they can help you with other ways to accommodate your budget.

Often students interpret online learning as freedom from a schedule. Though the online student does not attend classes at a building on a regular timetable, the successful student does, in fact, set up and maintain a strict plan of reading, participation, and assignments. In fact, due to the lack of classroom lectures, the work of learning can be perceived as actually “harder” in an online environment. If you do not set up and stick to a schedule of learning activities, you will quickly find yourself too far behind to successfully complete your class.

Most students have a tendency to procrastinate studying. It is common to find a group of college students “cramming” for a test the day before, instead of studying a little each week throughout the class. Similarly, it is common for students to put off writing a paper until one or two days before it is due; then stay up for 24 or 48 hours straight to complete it. In the online learning environment, these same commonalities occur. However, procrastination may put you in danger of not completing the project on time.

In the classroom, you have the benefit of *hearing* the instructor’s lectures. If you didn’t read the textbook, chances are you can “cram” for the test by skimming your notes and skimming the book. In online learning, you *must* read the textbook and the ancillary materials because that is what comprises the lecture. For most people it is not possible in an online environment to “cram” all of the learning into a few days before a project is due.

Remember, you are responsible for your own learning. Most online programs require that you explore the vast information and communication opportunities of the Internet and that you become an active participant in the construction of more opportunities. Only through the creative acts required in the course activities and the electronic collaboration with classmates will you begin to see the value and the challenge of this learning medium.

Tip One difficulty, with the plethora of online resources available for research, is knowing where to draw the line at *enough* research. Set yourself a schedule for how much time you can afford to follow your

research path. When that time is up, *stop* and move on to the actual writing of your paper.

As an online student, you must be an independent and self-directed learner. The following checklist may assist you in preparing for and successfully completing each class.

- Purchase all class materials well in advance of the class.
- Be thoroughly familiar with the syllabus and course structure.
- Check the Internet often for weekly updates and new assignments.
- Log into asynchronous online course conferences and resources (e.g. discussion boards, your email account, course Web pages) at least five out of seven days a week.
- Familiarize yourself with the instructor's electronic office hours.
- Read each assignment sheet thoroughly.
- Note all due dates, including those for the rough drafts, preparatory work, or discussion postings.
- Complete all assigned reading. If you have difficulty reading online, print out the assigned readings and keep them well-organized to help with your studies.
- Email the instructor with any questions well in advance of due dates.
- Follow all instructions and rules for the course precisely.
- Learn and follow the assigned guidelines for email etiquette.
- Type all assignments on a word processor.
- Turn in "readable" exercises and drafts via email attachments of your word-processed document.
- Plan to hand in assignments a minimum of four to five hours *before* they are due to ensure Internet processing time. This type of advance planning will take into account potential computer down time, and time-zone differences.
- Attend all scheduled synchronous sessions.
- Actively access online resources, initiate and guide discussions, encourage cooperation, collaboration, and growth for all participants.
- Serve as an instructor for peers needing help as you are able.

Self-direction

Self-direction is an integral part of independent learning. Many of the items in the checklist above mirror the organization of a self-directed person. One of the most important characteristics of a self-directed person is the ability to set and meet goals.

Meeting goals requires developing objectives, timelines, strategies, problem-solving, accepting challenge and change. As a student, successful learning is your primary goal. Keeping a journal of your goals, strategies, performance criteria, and how you met the goals can be very useful. At the end of a course, or a degree program, you can use those notes to include in a portfolio, on a resume, in interview discussions and many other places which capture your entire learning experience. Below are a few concepts to consider and write down in your educational journal.

Learning goals and objectives

Write down your learning goals for each class. Make sure they are clearly defined and appropriate to your entry level skills, knowledge, and interests. You may begin with the stated course goals, but you should restate them in relationship to your own experience. Please remember that your goals and objectives may change over time. If they do, your journal should record the changes as well as the thought process you went through to determine the changes.

Example If a course goal for management communications is to make a presentation using PowerPoint, you might modify it for your personal goal to be “make a PowerPoint presentation to my department regarding Internet training.”

Learning strategies

Write a short description of the methods and resources you plan to use in order to achieve your stated goals and objectives. Be specific relative to each goal and objective. Again, some of the strategies may be derived from your online education course. You need to relate these strategies to your personal life or work environment and make the course meaningful to you.

Example Using the same PowerPoint presentation example above, you might write, “I will practice finding appropriate graphics for my presentation. I will define the types of transitions I want to use.”

Performance criteria

Describe how you plan to demonstrate that you achieved your goals and objectives. Certainly getting a good grade in the class will demon-

strate some achievement. However, what will make you feel good about what you have learned? Using the skills on your job? Teaching your new skills to someone else?

Example: “I will use my PowerPoint skills in each management presentation I do.”

Diversity of perspective

A self-directed learner is able to view a problem from several directions. Frequently you will be faced with difficult assignments or concepts. Keep track of the number of types of ways you approach problems and solutions, including analysis of various technologies. These notes will help you in the future when you face similar problems or circumstances. Also, taking notes is one way to solidify the process in your mind.

Example: “It was difficult to determine how the page should look. Viewing other classmates’ presentations and comparing them to my previous overhead slides was helpful.”

Individual effort and contribution

At the end of each project, or at the end of a course, write a short description of what you actually did to achieve your goals and objectives. Be sure to include input and involvement on group projects. In our daily lives, we are inundated with data, projects, and problems to solve. Sometimes, after a few weeks or months pass, we no longer remember what our effort or contribution was to that project. These notes will help you again in sharing information, putting together experience essays, writing your resume, and speaking in interviews about your education.

Example: “The presentation was the combined effort of Jack, Sharon, and Barb. Each of us brought ideas and old overheads to the table to begin the process. Then we...”

Individual reflection

The process of reflective learning is discussed in detail later in this chapter. However, for your journal, the ability to be both self-congratulatory and self-critical will illustrate that you have thought about what you learned and identified what you need to learn relative to your personal goals as well as class activities and projects.

Example “My presentation was well-received by the management team. They particularly liked the graphics I selected. However, I was not as well prepared as I would have liked for the discussion and questions that followed. In the future I will...”

The learning experience provided in higher education has been changing to encompass ways to immediately apply your learning to “real-world” environments. Unlike traditional education paradigms of the past, which train students only in theory and historic practices, many colleges and universities now incorporate opportunities for direct application of skills to specific jobs or to your current work context. This education paradigm allows you the opportunity to synthesize your studies with both your personal and professional life.

It is becoming a common practice, particularly in adult online education, to have your homework assignments relate directly to your professional work experience. For example, instead of doing a presentation for your classmates, you will be required to do a presentation at your office and have your boss verify that it took place. In a leadership class, you may be asked to analyze your specific work environment, considering management styles, stakeholders, and processes.

The synthesis of your personal and professional life with your educational pursuits requires some advance planning on your part. First, you need to identify what bridges you need to build at your office to accommodate any assignments. It might be advisable to let your boss and other co-workers know about your continuing education efforts and get advanced permission to occasionally do special projects for the office.

Traditional “one right answer for all students” types of assessments have been done through worksheets, reports, and tests completed during a face-to-face class session. This type of knowledge testing has proven difficult to monitor in an online environment. Therefore, as much as possible, online education programs have been working to obtain student results through products that are meaningful and meet practical application standards. Instead of a final exam, you may be asked to produce a final project that you were able to apply to your work life. (If you are not working the instructor would provide a work scenario for you.) A part of your final paper would describe how you used it at work and how effective it was. In this way, no two papers are alike and it is more difficult for students to “cheat” to find the right answer.

The Chinese character representing the word “learning” combines a symbol that means “to accumulate knowledge,” with a symbol meaning “to practice constantly.” Together these suggest that learning

could be the “mastery of the way of self-improvement.” Using a reflective learning technique is an important key to success as an online student.

Research suggests that individuals and teams learn in a cyclical fashion consisting of four phases: reflecting, connecting, deciding, and doing. (Veterans of the quality movement will also recognize the “plan-do-study-act” cycle, popularized by Deming.) Students need to tap into this cycle to create not only time to think and notice feelings, but time for questioning assumptions and brainstorming solutions. The key to reflective learning is to become a powerful observer of your own thinking, feeling, and acting.

Reflective learning is a “process skill” that invites you to direct your attention in a different way. One way to observe your learning process is to ask yourself questions around for key areas:

- 1 **Data:** Reflect on actions. What happened? What did you do? What caught your attention? What did others do?
- 2 **Associations and emotions:** What did you feel? What worked? What energized you? What were the low points? What frustrated you?
- 3 **Interpretations:** What new knowledge emerged? What has become most significant to you? What are the implications of that new knowledge? How does this apply to your success?
- 4 **Decisions:** How will you be different? What will you do differently as a result?

You might actually write down your associations and feelings by using two columns labeled “What I liked” and “What I didn’t like.” After celebrating what is going well under the “liked” column, use the “didn’t like” column to decide what you will do to enhance your learning process in future classes. An example of these types of associations, along with the third column, is given in Table 5.1.

By using a similar chart, you may discern a pattern of behavior you have used to learn but of which you were unaware. Your pattern of learning also reflects your ability, or inability, to take action and improve the process. In Table 5.1 the “what I will do” column reflects both behavior and thinking, giving keys to changing the learning pattern to be more effective.

To understand and improve how you learn, you must become explicitly aware of what processes you use to assimilate, examine, and incorporate new knowledge into your daily life. Reflective practice is a

Table 5.1 Associations and feelings

<i>What I liked</i>	<i>What I didn't like</i>	<i>What I will do</i>
Working in chat to discuss concepts with my classmates.	If too many people were in chat, I couldn't type quickly enough to get a word in edgewise.	Work on a typing tutorial to improve my speed. Find a quick word to let people know I need to slow down – like “Wait!”
Taking time to reflect on a question then posting it to the discussion board.	Sometimes it's hard to follow the thread of conversation on the discussion board.	Suggest to the instructor to provide some type of category organization to the discussion board to make it easier to follow.
Seeing a picture which describes the process I am studying.	Only reading about processes.	Make pictures of processes for myself as I read, or ask the instructor to depict the process in a picture for me.
When I could see how the subject directly applied to my work environment.	When it seemed that the subject didn't apply to anything in my life.	Look for applications to my life and when I can't find them, ask a class-mate or the instructor for real-life examples.
The ability to research things on the Internet.	How long it takes to get things through my campus library.	Talk to the campus library and see how I can speed things up. Look into my local library and any inter-library loan programs they may have.

technique to help you think about *how* you think. It is the practice of observing yourself learning. In one loop you are doing the learning and in the second loop you are observing yourself learning.

One way to practice reflective thinking is to keep a journal while you are learning. Choose a time schedule for contemplating your learning process on a regular basis – daily, weekly, bi-weekly. For example, each time you are at the computer write down quick notes about how you are learning a new concept. Include what you feel about this new knowledge. At the end of each week, reflect on your learning activities and describe what techniques or patterns of behavior you might be using to learn. Were you guessing? Asking for help? Using trial and error? If you didn't ask for help, why not? Were you embarrassed? Lost? Frustrated? Angry? Excited? Did you feel good?

Did you gain energy or were you worn out? Did you keep bashing your head against a brick wall? Were you flexible or rigid? Did you learn better with others or by yourself?

If you don't have clearly formed ideas, put down impressions and feelings. After your first online course, you will be able to look back over your notes and certain patterns will begin to emerge. These are your *actual* learning patterns. At the end of that first course, you should be able to accurately identify your behavior when faced with learning challenges. Please note there are no *correct* patterns, just your own patterns. Understanding your own patterns gives you the power to change them or improve them if you desire.

Keeping a journal is difficult. As you get wrapped up in your studies, you will forget to observe yourself. If you miss a session, give yourself permission to skip it and write what is fresh. Remember, you are seeking an overall pattern. Just gently remind yourself to observe and continue learning. Stay balanced by focusing equally on both loops. Sometimes you will resist this reflective process, and that resistance is also important to note in your journal. It is vital to acknowledge how you feel about the learning. If you write in your journal, "This is stupid" or "I'll fake this later" you have expressed important fundamental qualities of your learning pattern. Acknowledge it. It is neither bad or good, it is simply how you learn right now.

Reflective learning is a process that should be used anytime you are acquiring new knowledge. As you reflect, you change. As you change, new reflections become evident. The end product is your ability to learn effectively. With each class you will come to some conclusions about what, if anything, you might want to alter in your learning approach. As you continue through your courses, monitor your actual behavior by thinking reflectively about your particular style. Keep questioning yourself about your underlying assumptions in regards to how and what you should be doing to learn something new. When you know how you learn best, you will be able to let your instructors and work supervisors know; perhaps they will agree to allow you to identify ways to integrate your tasks with your personal style.

Constructing knowledge

Think about learning as a collaborative experience where understandings are developed. Constructing knowledge is not the one-way transmission of information from the instructor to the learner. It is not the "empty vessel" theory of learning, where the learner's brain is

perceived to be an empty container, ready to be filled. Constructing knowledge involves the opportunity to critically analyze information, converse with others about its meaning, reflect upon how the information fits within your personal belief and value structures, and arrive at a meaningful understanding of that information. In this process, information becomes transformed into knowledge.

Constructing knowledge involves active learning through participation and dialogue. It shifts away from a prescriptive to an engaging approach to learning. This method is particularly important, and lends itself well, to the online learning environment because learning online supports dialogue and the collaborative development of understandings.

In this environment, you can work together with other learners to solve problems, argue about interpretations, and negotiate meaning. While conferencing, you are electronically engaged in discussion and interaction with peers and experts in a process of social negotiation. Knowledge construction occurs when you explore issues, take positions, discuss positions in an argumentative format, and reflect and evaluate your position. As a result of contact with new or different perspectives, these activities may contribute to higher level learning.

Think about how rich the discussion in your course can be in the online environment if everyone is involved in shaping the experience. Everyone has something to offer. Therefore, it is of utmost importance that you participate fully in the discussions and interactions with your online class. Think of this environment as the equivalent of sitting with your classmates on the lawn or in the student center and bandying about the concepts covered in class. Try to make your online discussions just as free, just as informal. Don't worry about your writing being perfect in discussions. Leave that for your formal papers. Take the opportunity to get out ideas, argue points, and ultimately construct your own knowledge of the subject.

Applying learning outcomes to your daily life

Graduates of both traditional classes and online education programs will face an increasingly complex society in their personal, social, and professional life. To be successful in the future, you need to develop a high level of competency in multi-faceted reasoning strategies, effective communication skills, interpersonal skills, and lifelong learning strategies. These key strategies have rarely been a systematic component of the curriculum design in college education in the past and their

development has been mainly left to chance. However, the trend in both traditional and online education is to explicitly teach and assess these more complex learning outcomes instead of testing memorization capabilities.

Online education programs lend themselves to these goals. It is apparent that giving students the usual multiple choice or true/false tests is ineffective over the Web and requires an intricate setup of test proctoring wherever the student is located. Therefore, online education programs tend to be more performance-based in their assessment of student knowledge. This means that instead of “regurgitating” the material you have studied, you will be required to perform the skills identified as learning outcomes. For example, in a written communications class you would be required to write a “real-world” business proposal in the context of your own work life, rather than simply discuss what should go into a proposal or identify the parts of a business proposal on a test.

This student-centered method allows you, the student, to tap into the advice, experience and support of the instructor and your classmates. In the process, you are also learning how to advance your ability to learn from others. It’s not about getting a grade – it’s about attempting a task and getting immediate, knowledgeable feedback, then having the opportunity to *use* that feedback to experiment and improve until you have a usable product – your improved ability to learn.

A performance task is an opportunity for you to demonstrate your ability to integrate and fluently use knowledge and skills and good judgment in a meaningful activity. In the online learning environment, many programs relate these performance tasks directly to your own professional environment or provide you with actual case studies of professional environments to use as your background. The following characteristics can be recognized in a performance task:

- It requires you to use knowledge and skills in the context of real life situations or issues.
- It reveals how you go about dealing with a given situation, not only the end result.
- It integrates the demonstration of multiple learning outcomes.
- It requires the use of complex reasoning strategies.
- It focuses on multiple dimensions of your learning.
- It requires you to select a form of representation to display what has been learned.

This performance-based orientation affords you the opportunity to immediately apply your learning to your professional life. Frequently students are encouraged to include real work projects as a part of applying their studies. This allows them to accomplish both class and work goals at the same time.

Psychological, individual, and group dynamics

Digitizing people, relationships, and groups has stretched the boundaries of how humans interact. In different online environments you may experience variations of the psychological features discussed here. Just as in the face-to-face world, each group with which you interact has its own distinct psychological quality – an environment which determines how people experience themselves and others. How people behave online will always be a complex interaction between the dynamics of cyberspace and the individual characteristics of the person.

Individual cyberspace psychology

Who are you in cyberspace? Do you act the same in person as you do online? One of the interesting things about the Internet is the opportunity it offers to present yourself in a variety of different ways. In the non-classroom environment, you can alter your persona just slightly or indulge in wild experiments with your identity by changing your age, history, personality, physical appearance, even your gender. The username you choose, the details you do or don't indicate about yourself, the information presented on your personal Web page, the persona you assume in an online community – all are important aspects of how you manage your identity in cyberspace. Identity is a very complex aspect of human nature.

In the online course these chameleon-like qualities are restricted. In most classes you are required to be truthful about your name, your personal history, your goals, and your reason for being in the class. You are also required to do your own work, identify yourself when communicating online, and follow the rules of online etiquette. However, beyond these basic identity characteristics you are still free to choose how you wish others to perceive you in this environment.

For example, if you are a normally shy person in class – perhaps because you feel uncomfortable speaking in front of others – you may discover that you are more assertive online. Many students find that

without having to worry about their physical appearance they are freed to express themselves more completely. Another common personality change online regards the perception of race or age. Depending on your circumstances, you may feel that people have preconceived ideas about you before you speak because you are of a different race or age than the majority in the group. Again, these characteristics are not evident online (unless you tell them) and thus some students feel freed of those prejudices.

In each class, you decide how much you wish to reveal about yourself. For some people this is confusing, particularly as you try to determine how to react to others. Yet others also use the online environment to fully express who they are and take advantage of being the student they always wanted to be. Suler (2002) identified several specific characteristics of cyberspace psychology that are discussed in the next few pages.

Reduced sensations

Can you see a person in cyberspace – his or her facial expressions and body language? Can you hear voice inflections? Whether an environment in cyberspace involves visual and/or auditory communication will greatly affect how people behave and the relationships that develop among people. Though the promise of audio and video conferencing will give us some of these cues in the future, most online communication today is still text-based and, thus, seeing and hearing is very limited. For the most part people communicate through typed language. Even when audio-video conferencing becomes efficient and easy to use, people will never be able to physically interact with each other – no handshakes, pats on the back, or hugs of encouragement. The limited sensory experiences of cyberspace has some significant disadvantages, as well as some unique advantages (see Table 5.2).

Identity flexibility

The lack of face-to-face cues has a curious impact on how people present their identity in cyberspace. Communicating only with typed text, you have the option of being yourself, expressing only parts of your identity, assuming imaginative identities, or remaining completely anonymous – in some cases, being almost invisible, as with the “lurker” (someone who is able to observe all communications but does not participate). Anonymity has an uninhibiting effect that works two ways. Sometimes

Table 5.2 Advantages and disadvantages of cyberspace communication techniques

<i>Advantages</i>	<i>Disadvantages</i>
1 When the interaction is asynchronous, it doesn't occur in "real time" so you can respond to your classmates whenever you wish (within the due date time-frame) and at whatever pace you wish. This gives you time to think about what you want to say and to compose your reply exactly the way you want.	1 If you are a person who works out your thought processes by talking things out with someone, you may find this time lag difficult to handle. People who learn by asking a lot of questions and build knowledge by checking it against other opinions may be frustrated.
2 Chat and instant messaging systems, which also involve typed text, are much more synchronous than email and message boards. However, they too often involve a slightly but meaningfully longer delay than face-to-face interactions.	2 Though instant-messaging meets the needs of a "talk-it-through" personality, it also requires you to be a decent typist and someone who feels comfortable writing down thoughts.
3 The written dialogues of online learning may involve different mental mechanisms than in-person talk. It may reflect a style that enables some people to be more expressive, subtle, organized, or creative in how they communicate. Some people feel that they better express themselves in the written word.	3 Some people feel they don't express themselves well in writing. In fact, their expression relies very heavily on emotion transmitted through their body language or voice tone. These same people would suggest that they cannot ever express their whole meaning in written words alone.
4 Online communication tools enable you to save the typed text. You can preserve everything that has been said and then, at your leisure, review it. This kind of reevaluation of communication is impossible in a face-to-face environment, where you almost always have to rely on the vagaries of memory.	4 When reading a typed message, there is a strong tendency to project – consciously or not – your own expectations, wishes, anxieties, and fears into what the person wrote. This may lead to further conflict and, because it is written, sometimes builds a feeling of resentment that lasts longer.

people use it to act out some unpleasant need or emotion, often by verbally abusing other people. Or it allows them to be honest and open about some personal issue that they could not discuss in a face-to-face encounter.

As discussed previously, in the online classroom you normally don't pretend to be someone other than your true identity. However, there may be instances – such as in a visual chat where your avatar choices are limited, or in a role-play simulation where you assume an imaginary persona – where your identity is purposely obscured. If your school has a multimedia chat community, you have no choice but to wear an imaginative looking avatar to represent yourself. Many other environments fall somewhere in between reality and fantasy.

The tricky issue with the real versus fantasy self is this: what is one's *true* identity? Most people assume it must be the self that is presented to others and consciously experienced in their day-to-day living. But is that the true self? Many people walk around in their face-to-face lives wearing “masks” that are quite different from how they think and feel internally. It is likely that the “face” you present to your family is different from the one you present at work, and that is also different from your school persona. Once online, people sometimes begin discovering things about their personality that they never realized before. Their daydreams and fantasies often reveal hidden aspects of what they need or wish to be. Online this may bring about surprising results – even from people you thought you knew. If people drop the usual face-to-face persona and bring to life online those hidden identities, might not that be in some ways *more* true or “real”?

MEDIA AND IDENTITY

We express our identity in the clothes we wear, in our body language, through the careers and hobbies we pursue. We can think of these things as the media through which we communicate who we are. Similarly, in cyberspace, people choose a specific communication channel to express themselves. There are a variety of possibilities and combinations of possibilities, each choice giving rise to specific attributes of identity. People who rely on text communication prefer the semantics of language and perhaps also the linear, composed, rational, analytic dimensions of self that surface via written discourse. They may be the “verbalizers” who have been described in the cognitive psychology literature, as opposed to “visualizers” who may enjoy the more symbolic, imagistic, and holistic reasoning that is expressed via the creation of avatars and Web graphics. Some people prefer synchronous communication, like chat, which reflects the spontaneous, freeform, witty, and temporally “present” self. Others are drawn to the more thoughtful, reflective, and measured style of asynchronous communication, as in discussion boards and email. There are personalities that want to show

but not receive too much by using Web cams or creating Web pages; or those who want to receive but not show too much by lurking or Web browsing; and still others who want to dive into highly interactive social environments where both showing and receiving thrive.

The media chosen can intimately interlock with the extent to which a person presents a real or imaginary self.

Equalized status

In most cases, everyone on the Internet has an equal voice. Everyone – regardless of status, wealth, race, gender, etc. – starts on a level playing field. Some people call this the “net democracy.” Although your status in the outside world ultimately will have some impact on your life in cyberspace, there is some truth to this net democracy ideal. What determines your influence on others is your skill in communicating (including writing skills), your persistence, the quality of your ideas, and sometimes your technical know-how.

Temporal flexibility

In previous sections of this book, there has been a discussion of “time stretching.” During chat you have from several seconds to a minute or more to reply to the other person – a significantly longer delay than in face-to-face meetings. In email, you have hours, days, or even weeks to respond. Cyberspace creates a unique dimension where ongoing, interactive time stretches out. This provides a convenient zone for reflection.

In other ways, cyberspace time is condensed. If you are a member of an online community for several months, you may be considered an “old-timer.” Internet environments change rapidly because it is a lot easier to write and rewrite software infrastructure than it is to build with bricks, wood, and iron. Because it is easy to move around in cyberspace, the membership of online groups also changes rapidly. Your subjective sense of time is intimately linked to the rate of change in the world in which you live. With the context of sights, sounds, and people changing around you so quickly in cyberspace, the experience of time seems to accelerate.

Social multiplicity

With relative ease you can contact individuals from all walks of life and communicate with hundreds, perhaps thousands, of people. When

“multitasking” you can juggle many relationships in a short period of time – or even *at the same time*, as in chat or instant messaging, without the other people necessarily being aware of your juggling act. By posting a message on a discussion board read by countless numbers of users, you can draw to yourself others who match even your most esoteric interests. Using a Web search engine, you can scan through millions of pages in order to zoom your attention onto particular people and groups. The Internet will get more powerful as tools for searching, filtering, and contacting specific people and groups become more effective. The ability to sift through so many online possibilities for developing relationships amplifies an interesting interpersonal phenomenon well-known to psychologists. A user will act on unconscious motivations – as well as conscious preferences and choices – in selecting friends, specific classmates to be in a study group, or identifying perceived “enemies.” This process, called transference, guides you toward specific types of people who address your underlying emotions and needs. Pressed by hidden expectations, wishes and fears, this unconscious filtering mechanism will help you to choose the best online classmates who will meet your needs, become good study partners, and challenge you intellectually.

Recordability

Most online activities, including email correspondence and chat sessions, can be recorded and saved to a computer file. Unlike real world interactions, the user in cyberspace can keep a permanent record of what was said, to whom, and when. These records may come in very handy to the user. You can reexperience and reevaluate any portion of the relationship you wish. You can use quoted text as feedback to your study partner. It’s fascinating to see how different your emotional reactions to the same exact record can be when you reread it at different times. Depending on your state of mind, you may invest the recorded words with all sorts of meanings and intentions.

Media disruption

It is natural to expect the Internet to cooperate with you whenever you desire. After all, most of the time you turn on your computer and it responds immediately. Much of the time, you send an email and you get a response back much more quickly than if you sent a letter by post. Nevertheless, no matter how complex and sophisticated electronic

tools become, there will always be moments when software and hardware don't work properly, when noise intrudes into the communication, and connections break. There will be moments when the telecommunication system gives you nothing, not even an error message. The frustration and anger you may experience in reaction to these failures is a reflection on the natural dependency any online user now has on them.

When the system fails, that lack of response also opens the door for many students to project all sorts of worries and anxieties onto the machine that gives no reply. It is at this time that some students are prone to suddenly drop their classes. Sometimes it is out of a sense that they can never depend on the connection again. Other times it is out of worry that others in the class will think poorly of their skills or ability to participate effectively. It is important to remember that the best way to handle this situation is to turn off your computer and walk away for a while (maybe even a couple of hours). Then return and try again. Most disruptions are relatively short in duration – lasting only a couple of hours. In some countries, however, the disruptions can last up to a day or a week. If this is a problem for you, the best thing to do is to let your instructor know of your access situation. Agree to a plan, in advance, as to how you will contact him or her regarding long outages or how you will make up any time that is lost in your studies.

Group dynamics

The same types of group dynamics that occur in face-to-face environments also occur in the online environment – issues concerning leadership, communication patterns, group boundaries, cohesion, alliances and sub-groupings.

However, given the special psychological features of cyberspace, online groups can also be quite different from in-person groups. Text-only communications, equalization of status, and the opportunity for altering or hiding one's identity are all unique dilemmas tossed into the online group process. The stretching of temporal boundaries also makes asynchronous groups unique not only as compared to in-person groups, but in relation to online chat sessions as well.

Anyone who has participated often in a work group in business, education, or a volunteer organization has experienced the hassles of scheduling meetings, as well as the sometimes frustrating complexities of how small groups function. Extending the group into cyberspace can eliminate the discontinuity due to scheduling problems. In groups

where people need to speak to each other more often or maintain contact during vacation, holiday, or summer breaks, an email list or discussion board can be the perfect solution. The asynchronous communication of these tools allows members to participate in the ongoing virtual meeting at their own convenience and at their own pace. Some of the unique features of asynchronous, typed-text communication also may alter the interpersonal dynamics of the group, which offers the opportunity to better understand and improve how the group functions.

Some practical tips for group work online

It is likely you will be asked to work in small groups with any online class you take. This group may be as small as you and one other person, or as large as seven or eight members. No matter the group size, these tips can be useful in helping you to work together effectively and meet deadlines in a timely manner.

ASYNCHRONOUS GROUPS

- 1 It's a good idea to have a facilitator or leader for the group. If the group is using email to communicate, it is the leader's responsibility to gather all the members' email addresses, to create a distribution list, and to make sure all members have a copy.
- 2 Whenever any member replies to an email or a discussion board posting, he or she should quote enough of the previous communication to set the context for the reply. This will help build group cohesion and keep everyone understanding the nature of each communication.
- 3 The first order of business should be to set some ground rules about how work will be distributed, what are the interim due dates, and how the overall paper or project will be evaluated and changed by the group prior to submittal.
- 4 If there are members who are not participating fully in the discussions or planning, it is best to first talk to them privately (private email or call them on the phone if they live in your local calling area). Politely ask if everything is OK and remind them of their agreement to participate. See how to handle conflict detailed later in this chapter.
- 5 If a member seems to be "bossy" or not treating you or another member fairly, follow the same structure. First talk to him or her privately.

- 6 Stick to your timeline and insist that others do so as well. If your group is having continuous unresolved problems and it is affecting your ability to meet your homework deadlines, bring it to the attention of your instructor.

SYNCHRONOUS GROUPS

Synchronous groups follow all of the same tips above. However, because of the synchronous nature there are some of additional requirements for the group leader. Leading online groups is a skill that will, hopefully, be demonstrated by your instructor. If not, the group and group leader may want to ask for assistance.

- 1 When you meet with your group for the first time, you should send a short message saying “Hello” and asking for a roll call. In that roll call, ask everyone to reply and indicate that they have received the message and can participate in the synchronous discussion. Don’t start any formal discussions until you verify that everyone can send and is receiving the text.
- 2 Once it is clear everyone is on board, send an introductory message containing some suggestions about how to use the tool. Don’t assume that everyone understands the technical and social aspects of participating in a chat or instant-messaging forum. Some experienced online users may see the suggestions as old hat, but it’s a good idea to make sure everyone is starting on the same page. Also clarify what will happen if someone is suddenly disconnected. Will the group wait for him or her to return? When that person reconnects, will you review what happened? Or will you simply continue with your work and ask him or her to read the transcript later?
- 3 During the session, if someone is not participating, directly ask him or her if everything is OK. You might type something like, “Maggie, I notice you haven’t contributed something for a while. Can you still see these messages? Is everything OK with your computer?” This helps to put Maggie on notice that you are paying attention to each contribution and it helps you to know if there is a technical problem she might be having.
- 4 At the close of the session, the leader should review what was agreed among the members and what the next steps will be. Set a time for meeting again, and thank everyone for participating.

As a rule of thumb, whether participating synchronously or asynchronously, it is a good idea to always be encouraging of your classmates. Remember, many of them worry about their technology, the quality of their postings or statements, and contributing successfully to the group project. Usually, if you confirm their efforts they will in turn be supportive of you.

Group boundary differences and issues

PACING

Because email involves asynchronous communication, people can speak to the group whenever they want and as frequently as they want. Avid email users may have more input into the discussion than casual or inexperienced users, possibly altering in a dramatic way the usual in-person pattern of participation. Set realistic expectations for email (e.g. once a day).

WRITING, NOT TALKING

Typed text usually forces people to be more concise and to-the-point, resulting in a filtering out of extraneous conversation that typically pads a face-to-face meeting. The discussion may feel more efficient to some people, or blunt to others. Some members may be frustrated by the tedium of having to type everything they want to say, feeling a face-to-face dialogue is easier and more thorough. Because online communication involves writing and not speaking, those with superior writing skills will have a communicative advantage. They may not be the same people who have the verbal advantage in an in-person meeting. Those who are ignored, interrupted, or talked-over during a face-to-face meeting may have a stronger voice in cyberspace. Those who dominate an in-person meeting may lose some of their influence online. It is important for each member to help ensure that others have equal opportunity for expression and that those who struggle with written communication are not ridiculed, but helped and supported in their efforts.

UNINHIBITION

The inability to hear or use voice tone and inflection results in a “masking” effect that may make people more willing to express thoughts

and feelings that they otherwise would keep to themselves during an in-person meeting. As a result, new ideas may pop up. Surprising opinions are expressed. Conflicts that were previously warded off now rise to the surface. In an ideal situation, this uninhibiting effect can jostle a group into new and productive lines of discussion. In unfortunate circumstances, the uncovering of hidden problems may destabilize the group, reducing its ability to communicate and work effectively. If possible, an in-person meeting is one way to remedy that situation. If that is not possible, you may need to bring the instructor into the group to help work through the issues.

PERMANENT RECORD

Any member can easily save all of the group messages to an archive. This permanent record is handy for reviewing who said what and when, how decisions were made, and for attaining a bird's eye view of the course of a discussion. Without visual and verbal cues, it's sometimes easy to misread the meaning or emotion within someone's message – particularly if you happen to be having a bad day. Going back to read a message at a later date can help you see it in a fresh light, with a new mind set and a bit more objectivity.

On the other hand, using those same messages to aggressively prove a point is disruptive. Remember, no one writes perfectly online. Give your classmates the benefit of the doubt. Instead of accusingly sending back a copy of their typed response with an angry written comment, consider quoting their response and then saying something like, "I'm confused. When I read your response quoted here I thought you meant ... now it seems you have changed your mind. Did I misunderstand the first time?" This gives people an opportunity to clarify their true meaning and doesn't immediately put them on the defensive or escalate bad feelings.

Resistance to being online

Because group work is difficult, and online group work is very different from being in-person, some people may show resistance to participating – even if it is required by the instructor. Even if someone in your group is uncooperative, you need to find ways to work through the resistance and still get the required projects completed. Understanding why some people have problems with online learning is an important first step to this process.

A person's resistance may manifest itself in several ways: infrequent messages sent to the group, brief or unsubstantial discussions, frequent pleas for in-person meetings, habitual private (backchannel) email or private in-person discussions (rather than bringing issues to the group), critical comments about using online communication, and other assorted direct and indirect expressions of hostility. In rare circumstances some people may staunchly refuse to participate, which can create considerable uneasiness and distrust in the group. There are a variety of possible reasons for resistance:

- *Being unfamiliar or uncomfortable with using computers, email, or discussion boards* Some people may need time and experience to adapt; a little bit of training could be helpful. A requirement to be posting email or discussions constantly may be frightening for new users. Limiting the number of postings may be helpful in easing their fear.
- *A fear of displaying one's writing abilities* It's very helpful to establish a norm where all writing styles are accepted – including being casual and making errors in spelling and grammar. Strict standards about “correct” writing will not be productive.
- *A fear of “going public”* People may worry that someone might save their messages for later use as “ammunition” against them. This anxiety may coincide with the worry that people outside the group may have access to the list or may be given email by a group member. Such concerns may be a low-level symptom of preexisting distrust within the group. From the beginning, emphasizing the importance of confidentiality can help alleviate some of these worries.
- *Angry withdrawal, indifference* These barriers are most likely a symptom of preexisting interpersonal dynamics within the group. The uninhibiting effect of online communication may help people discuss and resolve these issues, but don't count on it.

Integrating online with offline

Because many students will be participating in online classes as only part of their class experience, it is possible they will do some assignments as a group online and then be expected to come back to the classroom and do something with that same group in-person. Because online discussions are a very different style of communicating from being in-person, the two channels may become disconnected from each other. What is said in one domain may not be said in the other. Sometimes

the discussions occurring in email or on a discussion board may even evolve into a kind of “subconscious” voicing of issues that are actively avoided in-person.

It is possible to work through these issues through electronic communication, allowing the beneficial effects to seep into the face-to-face meetings without openly discussing them in those meetings. However, the best approach is to head off the potential problem before it becomes too deeply embedded. Make an attempt to discuss important issues in both domains and, if possible, try to understand the psychological barriers that might prevent people from doing that. Understanding those barriers will lead to valuable insights into the interpersonal dynamics of the group.

Under ideal conditions, in-person and online discussions will complement and enrich each other. The group will come to recognize the pros and cons of each realm. It will learn to maximize the advantages and minimize the disadvantages of each, effectively integrating the two. When the group moves fluidly from one realm to the other, when both realms give expression to all important group functions – brainstorming, decision-making, problem-solving, socializing, conflict resolution – then the group has fully succeeded in extending itself into cyberspace.

Online conflicts and constructive criticism

Sometimes conflict can get blown out of proportion online. What may begin as a small difference of opinion, or misunderstanding, becomes a major issue very quickly. Conflict can be difficult at the best of times, but something about online communication seems to ignite “flaming” and make conflicts more difficult to resolve.

There are a number of reasons why conflict may be heightened online. One is the absence of visual and auditory cues. When you are in a face-to-face environment, you see facial expressions, body language, and hear tone of voice. Someone can say the exact same thing in a number of different ways, and that usually effects how you respond. For example, someone could shout, and shake his or her finger at you, or speak gently and with kindness. Another person could stand up and tower over you, or sit down beside you. How you feel, interpret, and respond to someone’s message often depends on how he or she speaks to you, even when it’s a difficult message to hear.

Online, all you have are the words on a computer screen, and *how you hear those words in your head*. While people who know each other

have a better chance of accurately understanding each others' meaning and intentions, even they can have arguments online that they would not have in-person. While many people are convinced that how they read an email is the only way it *can* be read, the truth is, how you read a text, or view a work of art, often says more about yourself than it does about the message or the messenger.

All of your communications, online and in real-time, are filled with projections. You perceive the world through your expectations, needs, desires, fantasies, and feelings, and you project those onto other people. For example, if you expect people to be critical of you, you will perceive other people's communication as being critical – it *sounds* critical even though it may not be. You do the same thing online; in fact you are more likely to project when you are online precisely because you don't have the visual or auditory cues to guide you in the interpretations. How you "hear" an email or discussion posting is how you hear it in your own head, which may or may not reflect the tone or attitude of the sender.

You usually can't know from an email or post alone whether someone is shouting, using a criticizing tone, or speaking kindly. Unless the tone is *clearly and carefully* communicated by the messenger, or you are very skilled at understanding text and human communication, you most likely hear the voice you hear, or create in your head and react to that. This is one of the reasons why controversy and potential conflicts are best dealt with by using great care and *explicit expressions of tone, meaning, and intent*.

Projections come from your life experiences – how you have been treated, how important figures in your life have behaved, how you felt growing up, how you responded and coped, etc. Everyone projects or transfers feelings and views of important figures into their daily lives and onto other people.

To take a look at your own projections or transference with people online, think back to the last time you felt angry at someone online. What was it about the email that made you so angry? What did you believe that he or she was doing to you or someone else? How did you react internally and externally? Was your reaction to this person (whether spoken or not) influenced by someone or something from your past? While it certainly happens that people are treated with disrespect and anger online, if there are any parallels between this experience and any of your past experiences, it's likely that how you felt and responded was colored by your past. When your past is involved, particularly when you are unaware of it, you invariably project and transfer old feelings onto the present situation.

Tips for resolving online conflict

The following are tips for handling conflict online with respect, sensitivity, and care:

- 1 *Don't respond right away* You may want to write a response immediately, to get it off your chest, but don't hit send! Wait 24 hours. Sleep on it and then reread and rewrite your response the next day.
- 2 *Read the post again later* Sometimes, your first reaction to a post is influenced by how you're feeling at the time. Reading it later – and sometimes a few times – can bring a new perspective. You might even experiment by reading it with different tones (matter-of-fact, gentle, non-critical) to see if it could have been written with a different frame of mind than the one you initially heard.
- 3 *Discuss the situation with people you trust and who know you* Ask them what they think about the post and the response you plan to send. Having input from others who are more objective can help you step back from the situation and look at it differently.
- 4 *Choose whether or not you want to respond* You do have a choice, and you don't have to respond. You may be too upset to respond in the way you would like, or it may not be worthy of a response. If the post is accusatory or inflammatory and the style tends to be aggressive or bullying, the best strategy is to ignore it.
- 5 *Assume that people mean well, unless they have a history or pattern of aggression* Everyone has bad days, reacts insensitively, and writes an email without thinking it through completely. It doesn't mean that they don't have good intentions. On the other hand, some people pick fights no matter how kind and patient you are with them. They distort what you say, quote you out of context, and make all sorts of accusations to vilify and antagonize you. Don't take the "bait" by engaging in a struggle with them – they'll never stop.
- 6 *Clarify what was meant* Online, it is easier to misinterpret what is heard and read, particularly when you already feel hurt or upset. It's a good idea to check if you understood the email or post correctly. For example, you could ask, "When you said ... did you mean ... or, what did you mean by ...?" Or, "when you said ... I heard ... is that what you meant?" It is possible that what you think was said is not even close to what was meant. Give each person the benefit of the doubt and the chance to be clear about what he or she meant.

- 7 *Think about what you want to accomplish by your communication* Are you trying to connect with this person? Are you trying to understand him or her and be understood? What is the message you hope to convey? What is the tone you want to communicate? Consider how you can convey that.
- 8 *Verbalize what you want to accomplish* Here are some examples, “I want to understand what you’re saying.” “I feel hurt by what you said. I want to talk about it in a way that we both feel heard and understood.” “I want to find a way to work this out. I know we don’t agree about everything and that’s okay. I’d like to talk with you about how I felt reading your post.” “I hope we can talk this through because I really like you. I don’t want to be argumentative or blaming.”

Tip Use “I” statements when sharing your feelings or thoughts. For example, “I feel ...” versus “You made me feel ...” Choose your words carefully and thoughtfully, particularly when you’re upset.

- 9 *Place yourself in the other person’s shoes* To avoid unnecessary conflict or a lot of hurt feelings, it helps to take into account to whom you’re writing. One person might be able to hear you say it exactly how you think it, and another person would be threatened by that style of communication. Think about the other person when writing your email or post. Do your best to communicate in a way that is respectful, sensitive, and clear. People often feel that they should be allowed to express their anger when someone hurts them and not have to control these feelings. Of course you can respond any way you want, especially online, but if you want to communicate with this person and have it accurately heard and understood, it helps to think about how he or she will hear it.
- 10 *Use emoticons to express your tone* In online communication, visual and auditory cues are replaced by emoticons, for example, smiles, winks, and laughter. It helps to use emoticons to convey your tone. Having a conflict or misunderstanding doesn’t mean you don’t like the person any more, but people often forget that reality, or don’t think to say it. It may be most needed during a tense interaction.
- 11 *Start and end your post with positive, affirming, and validating statements* Say what you agree with, what you understand about how they feel, and any other positive statements at the beginning of your email or discussion posting. This helps set a positive tone. End on a positive note as well.

Handling conflict constructively is hard at the best of times, and it can be even more difficult online. It can take a great deal of effort, care, and thoughtfulness to address differences, tensions, and conflicts online. Paradoxically, some of the same things that contribute to heightened conflict online can contribute to peaceful resolutions as well. The Internet is an ideal place to practice communication and conflict resolution skills. It is your choice whether to take advantage of the uninhibiting status of electronic communication and say what ever *negative* thing you want, or to feel free to try new, and more positive communication styles and to take all the time you need to do that. As with any new technology, the Internet can be used to enhance your personal growth and relationships, or to alienate you from others. It is your choice.

Adapting your learning style to the online environment

A little learning is a dangerous thing;
Drink deep, or taste not the Pierian spring:
There shallow draughts intoxicate the brain,
And drinking largely sobers us again.

(Alexander Pope, 1688–1744, *Essay on Criticism*, part ii, line 15)

Assessing your learning style

To gain a better understanding of yourself as a student, you need to evaluate the way you prefer to learn or process information. Strengths and weaknesses can have a strong impact on your academic success in certain tasks. It is important to identify your preferred learning style so that you can develop a set of strategies to capitalize on strengths and compensate for weaknesses.

Many researchers divide learning style into three broad categories: auditory, visual, and kinesthetic. Auditory learners need to *hear* what is going on. They quickly pick up concepts from lectures. When auditory learners solve a problem, they tend to talk it out. Visual learners need to *see* or make pictures of concepts. In a lecture, they might take notes, draw a diagram of the concepts or make a table of the important points. Kinesthetic learners need to *do* things physically to understand concepts. They may build a model to physically simulate the problem. People may, however, use different styles together or in different situations. No one style is better than any other but it is important to be aware of your preferred style so you can help yourself when information is not presented in that style and you are having difficulties understanding the content.

Many students who perform well in the traditional classroom/lecture environment have highly developed auditory learning. The online

environment tends to favor students with a visual learning style. Web-based courses contain more visual instructional tools, requiring more reading and graphic interpretation. Therefore, auditory and kinesthetic learners need to find ways to accommodate this new medium.

The following puzzle is designed to help you analyze your problem-solving style and see how others may differ from you in their approaches. As you work through the problem, try to be aware of how you think while you are solving it, specifically:

- 1 Which strategies work and which ones don't?
- 2 What do you do when an approach doesn't work?
- 3 How do you feel about the problem?

If possible, have someone observe you as you solve the problem. You may be unaware that you are speaking aloud, making motions with your hands, or closing your eyes to "see" the action.

Problem

A man and a woman are standing side by side with their weight on their right feet. They begin by walking so that each steps out on his or her left foot. The woman takes three steps for each two steps of the man. How many steps does the man take before their right feet simultaneously reach the ground?

Write down your work as you solve the problem, then analyze your process using the above questions and any other observations you wish to make.

Once you have your answer and your list of how you went about solving the problem, compare them to the different approaches used below.

Two visual approaches

- 1 Visualize two walkers including the imagery, sounds, smells, and footprints. As you watch them walking, determine the answer.
- 2 Draw a diagram of the footsteps and determine the answer.

Two kinesthetic approaches

- 1 Simulate the walkers by using your fingers on the desk
- 2 Simulate the walkers by asking a friend to reconstruct the problem with you.

An auditory approach

Talk through the problem with someone else, each of you sharing difficulties and potential solutions, until you have determined the correct solution.

Using multiple approaches

Some problem solvers limit themselves to one approach; others jump around between approaches without spending enough time with each to develop an adequate solution. Problem solving is frequently an unconscious process, which makes it difficult to determine your preferences and patterns. With practice this thinking can be made conscious through identifying strategies used and strategies avoided.

To analyze your personal learning style, it helps to take an inventory which identifies these patterns for you. Many inventories exist both in books and on the Internet. A learning style inventory, based on sensory input, looks at your preferences for an auditory, visual, or kinesthetic style. Before proceeding in this book, go to <http://web.pdx.edu/~mmlynch/learningstyle> to take a survey of your style. It will take you about one half-hour to complete. When you press “Submit”, your responses will be analyzed and the survey will provide some feedback on your preferred learning style.

As you analyze your results, you may wish to make some notes regarding specific strategies you will undertake to ensure success in your online learning program.

Analyzing the learning styles inventory results

There is no right or wrong scores in the inventory. Totals for each category range from 0 to 100, with most categories averaging counts between 30 and 70. If your score in any one category is more than 50 it shows you are adept at using that style. Some people will find that they have a strong preference for one style, with tallies over 75 in a particular category. Others will find they have a balance of scores across two or more categories (e.g. 58 in Visual and 62 in Auditory). This indicates you are equally comfortable in each of those areas.

Remember *You adapt your learning style to the situation in order to be successful. Gaining awareness and knowledge of your style preferences is the first step. The second is identifying strategies that work for you without completely giving up your preferences.*

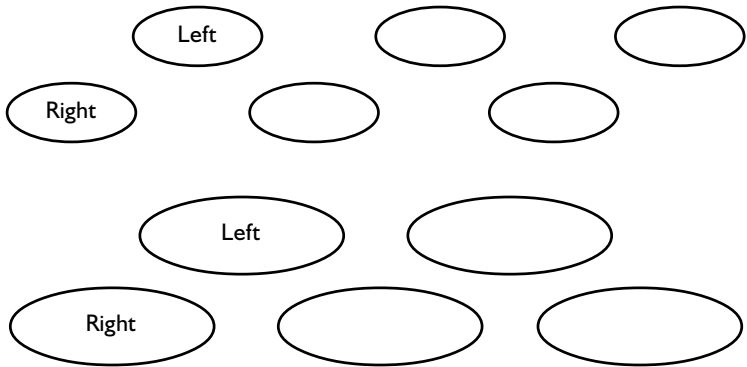


Figure 6.1 Using a visual approach

Research shows that approximately 60 percent of the population has a preference for visual learning. This would lead one to wonder then how all these visual learners were successful in school. The answer is successful adaptation. Through practice and some learned strategies, visual learners were forced to adapt and increase their auditory skills to survive the lecture environment. On the other hand, preferences often lead to career choices. For example, those who chose a profession that involves use of their hands (e.g. mechanic, plumber, electrician, carpenter) are often showing a preference to be a kinesthetic learner.

If you are a visual learner, you will probably enjoy classes in an online environment. To enhance your success online, use charts, maps, notes, and flashcards as you study. Putting your thoughts on paper will also enhance your visual memory. Writing out questions, answers, and discussions, will give you frequent, quick visual reviews. Practice visualizing or picturing words/concepts in your head.

Auditory learners may wish to use tapes. As you read something, say it aloud and tape your reading. Because online learning is very visual, you will need to work hard to bring that medium into your auditory style by talking with others. Any time your online course offers an opportunity for sound, be sure to take advantage of that option. If your preference is very high (a score of 50 or more) you might consider purchasing a voice recognition software package, which will read the words from your screen. Unfortunately, current technology makes the voice sound very mechanical, but can still be a wonderful adaptation for those who are primarily auditory learners.

A kinesthetic learner will have the most difficulty in the online environment. You will need to work to bring visual stimuli into a kinesthetic reality. Trace words as you are saying them or point to them as you read. Writing facts and concepts down several times will help you retain the information. The motion of writing helps translate concepts in your mind. Keep a supply of scratch paper near you and always take notes as you read, listen, or watch presentations. Make study sheets. Most importantly, develop ways to apply your learning to a tactile world. In the problem-solving example above, the kinesthetic learners used their fingers to solve the problem or actually went out and walked with someone. These are the same adjustments you will need to make to ensure success in your online education program.

Multiple intelligences

Conceived by Howard Gardner, Multiple Intelligences are nine different ways to demonstrate intellectual ability. The Multiple Intelligence Learning Styles table (Table 6.1) describes each of these intelligence types in terms of three categories: how you think or solve problems, what you love to do, and what you need to be successful. As you review the table and find where your preferences fit, carefully evaluate the “need” column associated with your intelligence type(s). This may provide some initial clues as to how to improve your studies in the classroom. For example, the linguistically intelligent person needs books, tapes, writing tools, etc. Alternatively, the musically intelligent person needs music playing, singing, concerts. This would suggest that this person would be more successful if they study with music in the background, or study and memorize facts by putting them into a musical jingle.

Look over Table 6.1 and evaluate where you fit best. Once you have identified your preferred style or intelligence type, you can plan your studies better and adapt information presentations to your own style. Online education has the advantage of providing information in a variety of approaches. However, any one part of a course, or an entire course, may be presented in a method that doesn’t work best for you. It is up to you, then, to adapt it and make yourself successful in that course.

There are many other ways to measure learning styles – more than can be covered in one chapter. If you have an interest in gaining more knowledge in this area, a useful Web site that describes many models and has links to some online inventories can be found at Indiana State University: <http://web.indstate.edu/ctl/styles/l1.html>

Table 6.1 Multiple intelligences learning types descriptors

<i>Learners who are strongly</i>	<i>Think ...</i>	<i>Love ...</i>	<i>Need ...</i>
Linguistic	In words	Reading, writing, telling stories, playing word games, etc.	Books, tapes, writing tools, paper, diaries, dialogue, discussion, debate, stories, etc.
Logical, mathematical	By reasoning	Experimenting, questioning, figuring out logic puzzles, calculating, etc.	Things to explore and think about, science materials, manipulatives, trips to the planetarium and science museum, etc.
Spatial	Images and pictures	Designing, drawing, visualizing, doodling, etc.	Art, videos, movies, slides, imagination games, mazes, puzzles, illustrated books, trips to museums, etc.
Bodily, kinesthetic	Through body sensations	Dancing, running, jumping, building, touching, gesturing, etc.	Role play drama, movement, things to build, sports and physical games, tactile experiences, hands-on learning, etc.
Musical	Via rhythms and melodies	Singing, whistling, humming, tapping feet and hands, listening, etc.	Sing-alongs, trips to concerts, music playing, musical instruments
Interpersonal	By bouncing ideas off other people	Leading, organizing, relating, manipulating, mediating, socializing, etc.	Friends, group games, social gatherings, community events, clubs, mentoring, apprenticeships
Intrapersonal	Deeply inside themselves	Setting goals, meditating, dreaming, being quiet, planning	Secret places, time alone, self-paced projects, choices, etc.
Naturalistic	Notices patterns, picks up on similarities and differences in their surroundings	Collecting, classifying, caring for the environment, animals	To use sensory skills, to create, keep or have collections, scrapbooks, logs, or journals about natural objects
Emotional/intuitive	With feelings, respond intuitively	Motivating others, getting groups to work together, making and implementing decisions	Aesthetically pleasing environments, opportunities to experience awe and wonder

The variety of models used to characterize learning styles can sometimes seem confusing. There are many layers of human learning preferences. Think of exploring these layers as peeling an onion, each layer having a particular purpose but all important to the overall flavor of your personality.

Instructional and environmental models are those that describe the most observable traits. Dunn *et al.* (1982) describe five dimensions that mark various environmental preferences:

- 1 Environmental preferences regarding sound, light, temperature, and class design
- 2 Emotional preferences addressing motivation, persistence, responsibility and structure
- 3 Sociological preferences for private, pair, peer, team, adult or varied learning relationships
- 4 Psychological preferences related to perception, intake, time, and mobility
- 5 Psychological preferences based on analytic mode and action.

While the latter category overlaps with subsequent layers in the onion, each of these preferences can be mapped through tests, observations, and productivity studies that illustrate how different approaches to the same subject or task can result in very similar gains.

Social interaction models describe the outer layer of the onion and consider ways in which people in specific social contexts will adopt certain strategies. William Perry's (1970) well-known model showed how college students developed through different intellectual maturation levels as they went through college. Mary Belenky (1986) illustrated how women preferred different strategies from those recognized and rewarded in typical universities. More recently Marcia Baxter Magolda (1992) has described how strategies used by students varies by gender and by maturity and is responsive to the teaching context in which students find themselves.

Information processing models describe the middle layer in the onion and are an effort to understand the processes by which information is obtained, sorted, stored, and used. Probably the most recognized idea about information processing is the right brain/left brain discussion. A more complex approach is Kolb's (1984) approach to experiential learning which has become a much-used model. He maps out four quadrants and shows how they can serve as stages of holistic learning (individual styles are seen as particular strengths in the process). Howard

Gardner's theory of multiple intelligences, presented earlier in this chapter, is another popular model for information processing.

Personality models describe the innermost layer of the onion, the level at which your deepest personality traits shape your orientation toward the world. The popular Myers-Briggs type indicators categorize people as extroverts/introverts, sensing/intuiting, thinking/feeling, and judging/perceiving. This model anchors your preferences in your very make-up.

Adapting your style to the online environment

There are a number of strategies you can use during your learning experience. Some are the same ones you would choose in a traditional classroom. Others may be unique to the online environment. You will not be listening to lectures and taking notes, so you must adapt your style by taking notes as you read, write, and interact online. You must be more self-directed and independent. You must plan how to learn.

This section provides some suggested study strategies, many of which you have probably already used. As you read through them, evaluate which ones work for you given your preferred learning style and which ones need to be expanded or adapted to the online environment you are pursuing.

There are a number of other strategies to consider in independent work: thinking, questioning, reading, and writing. Each of these will have an impact on your success as an online student.

Study strategies

Advanced organization

Preview what you are going to learn. For example, if you want to improve your understanding of general concepts before an interactive chat or meeting with your class for the first time, look through the introduction in advance or read the first few chapters in your textbook.

Direct your attention

Pay attention to studying something, and not doing other things like surfing the Internet. In an online study environment it is easy to get caught up in the links on a topic and to wind up far afield.

Selective attention

Study things you can remember easily, for example because they are useful in your job or have immediate impact on an assignment. If you need to do a presentation for your course, you can study presentations; if you need to write a report at work, you can learn how to write a report. Don't worry about learning the whole course in one sitting.

Self-monitoring

Correct yourself if you make a mistake or ask for help immediately when you find you are not understanding what is going on in a class. Remember, the instructor cannot look at you and see that "glazed" look of incomprehension. You have to communicate via email or chat or posting your question to the class discussion board.

Delayed production

When you first start to learn a new concept or topic, you may need to take it slowly. In the beginning you may feel overwhelmed with written information both online and in your text. Don't try to use all the jargon words immediately or combine all the concepts at once. You may want to just listen at first, or discuss and clarify concepts with a classmate or instructor before completing your first assignment.

Self-evaluation (self-assessment or testing)

Prior to taking a test or participating in a discussion where you are evaluated, test yourself first. Get together with a classmate via chat and go through some of the topics in advance to be sure you have the concepts, and the phrasing you need, clear in your mind. Then you will perform significantly better during the assessment.

Self-reinforcement

Give yourself a present when you have successfully learned something. For example, take a break for 10 minutes and play a computer game. It is important to give yourself breaks and reinforce all the hard work you are doing.

Working alone or with other people

There are reasons for working with other people as well as working alone. In an online environment, you may choose to work with other people through email and chat.

REASONS FOR WORKING WITH OTHER PEOPLE

- You get additional ideas from your peers.
- They may suggest improvements.
- They may be able to identify your mistakes.
- They can encourage you to do better.
- Explaining things to a classmate can broaden your understanding.
- Sharing the work helps you do it more quickly.
- You can share your thoughts and feelings.
- Teamwork skills and experience are important for your career.

REASONS FOR WORKING ALONE

- To set your work apart from that of your classmates.
- Sharing a task might teach you only part of the task, not how to do it all.
- You don't want to be influenced by, or share your ideas with, other people.

Thinking strategies

One of the most useful thinking strategies is to categorize concepts as you read or learn. Without an instructor lecturing and providing groupings for you, it is up to you to do this. You will get part of this classification process from the organization of your textbook or your online learning units. But you may need to sort the concepts in a way that helps you to understand them. Putting things into groups and in order helps you to build a framework for learning. This process also reflects the way your brain organizes information. For example, in an administration class you can group concepts together according to categories like human resources, communication, management styles, and reports. You can also use this same process to solve a problem or design a writing assignment.

If you are a visual learner, you can process conceptual information with a picture. Some people like to draw flow charts or hierarchical groupings, or simply doodle on a page and put the concepts within

those pictures. These visual images, often called mind maps or concept maps, are merely drawings of how you are thinking and organizing your thoughts.

An example of a mind map for finding a job is given in Figure 6.2. In this example, the map begins in the middle with the main concept, then adds a second level of primary categories and finally the sublevels to those general categories.

Note that the map does not have to be in a traditional hierarchy like an organization chart. It is simply a way to see how things are related. This may then help you understand not only the concept you are mapping, but also the relationships within that concept. In working with others, it is also a good brainstorming tool, and can help you see others' thinking processes.

Question strategies

The most common reason for a question is simply clarification. Online, ask someone to repeat, paraphrase, elaborate or give examples by typing

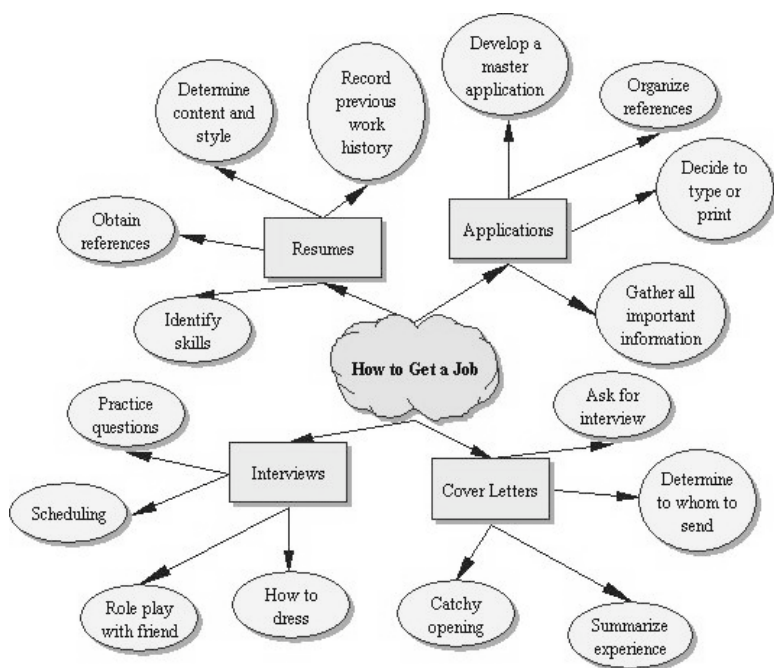


Figure 6.2 **Mind map – find a job.** Example of a mind map or concept map.

a quick note to the effect of “I’m not sure what you mean. Can you tell me again?” Or you may ask for further explanation: “Could you explain that for me?” or “Could you give me an example?” If this is taking place during a chat session, these examples alone will work. In an email, you may wish to preface your question with what was specifically said or presented previously. You may do this by quoting the previous message or by copying a section from a page that needs more clarification.

If you have several questions, it is best to present the entire list at one time. For example, you may wish to get specific clarification on how the instructor is going to grade an assignment. Rather than ask a general question like, “How is the assignment going to be graded?” You might make a list of specific questions and number them in order of importance.

- 1 Are different sections weighted differently in terms of points?
- 2 Is there a specific format for margins, font sizes, and length for term papers?
- 3 Do you need to see my work on the calculations?
- 4 Do you want my paper submitted as an email attachment or posted as an attachment to the discussion board?
- 5 Does grammar count?

Reading strategies

Online programs require more reading than any other form of learning. Because you are not listening to lectures, it is up to you not only to read the textbook, but also to read articles and web pages that relate to the topic you are studying. The following strategies may help you to understand and retain information more readily.

- 1 *Highlight.* Highlight text or passages that capture the essence of the concept or topic. Write brief notes in the margins. For example, in a chapter on business ethics you might make margin notes of each important concept or how that concept relates to your business environment.
- 2 *Outline.* Another strategy is to outline the book chapter or article. Studies have shown that writing concepts while you are reading or listening help you to remember. Outlining also provides a way to organize the concepts in your mind.
- 3 *Infer.* You can also use the strategy of making predictions as you read, based on your knowledge of the world, of how people think,

write and talk, and of what the author is like. For example, if you are reading a book about communication styles, you already have a great deal of personal knowledge about communication in your daily work life. You can take the information presented and already predict the outcome. This helps you to learn more quickly. The concept “tag” may be all you need to get from the information (e.g. anger is associated with conflict management in communication. The concept tag is “conflict management”). It is also a good idea to read any sections about the authors and their work, as well as the table of contents to help you make predictions about their beliefs.

Writing strategies

Note-taking or outlining is always a good writing strategy. The same reading strategies of highlighting and outlining also apply here, as reading and understanding your research is the first step toward writing a good paper. Another strategy is to write down the main ideas, important points, or a summary of a topic on index cards. In this way, it is easy to return to these cards as you organize your paper. It is also easy to use these cards to remember the large variety of research articles you have used for the paper.

As you review these methods and pay attention to how you learn, you may develop other strategies that work well for you. Be sure to write them down and then consciously make an effort to use them as you proceed through your online education program.

Adapting to different teaching strategies online

Traditional teaching, as we now know it, i.e. a instructor lecturing to a large assembly of students, is of medieval origin. In an age when books were scarce, it made sense for the learned instructor to broadcast knowledge in a lecture. However, it was probably true then – and it is certainly true today – that talking alone is not an efficient learning method. The physical set-up promotes student passivity; students are treated as empty vessels to be filled up with knowledge from the expert instructor. Second, lecturing leads to a view of learning as memorizing and conquering a multitude of facts. This is particularly true in the sciences where “truth” evolves and the number of facts increases rapidly in order to keep up with the latest research, producing shallow understanding at best.

The modern student's response to this lecture, memorize, restate method is to engage in a process of learning only enough to get by. In their minds the goal becomes not wisdom but passing the course. Their overarching concern becomes "What does the instructor want me to know for the test?" In this teaching paradigm, universities are locked in a vicious cycle. Teachers continue to teach using the methods by which they were taught; their students arrive with an expectation of this same method of education, and so it continues.

Student-centered teaching

The ineffectiveness of the traditional lecture and test approach has become ever more apparent in our rapidly changing world. Even in the traditional classroom, but particularly online, student-centered approaches to instruction are finding widespread adoption today. This paradigm seems to be inherently more suited to producing deep understanding because it is based on the principle that learning must be personally constructed. In other words, understanding does not exist inside the brain but is an outward expression of some kind of performance, usually writing, verbalizing or problem-solving. This view of understanding sharpens and changes the traditional education methodology because it must be aimed at the very specific goal of flexible performance rather than regurgitation of facts.

Although the student-centered learning paradigm is elegant and convincing to most educators, switching to a student-centered approach is fraught with difficulties for both instructors and students. Some students find self-directed education easy, but these are the exceptions as most need structures to help them learn in this mode. Partly it is the switch from passivity to activity, which requires more energy. Partly, the difficulty is in the discomfort of changing something many have accepted unquestioningly throughout their educational experiences, and partly it is a question of not knowing where to begin. Some examples follow of processing tasks that you may find commonly used in an online, student-centered learning environment.

Problem-solving by triads

Triads are groups of three students in which each has an assigned role. Two are problem-solvers, whose task is to try to solve the problem by discussing it out loud, and the third is a scribe whose job is to record

the unsuccessful and successful paths followed by the problem-solvers. After 4–5 minutes the scribes report to the class publicly – on the discussion board or in a chat – and the general methods tried are compared and discussed.

Concept maps

This is a tried-and-true approach, and very effective at pinpointing underlying strengths and weaknesses in understanding. The instructor asks students to create their maps on a whiteboard in a small group. These maps are then posted, as attachments or Web pages, and then discussed in a larger class group.

Commentaries

Students are asked to provide a substantial commentary on an opinion piece they read in the newspaper. These commentaries are posted to the discussion board and then other students are asked to critique the commentary, and to add their agreement and disagreement to the commentary.

Problem expansion

Problem expansion invites the student to break up the problem into all its component words and phrases, examine them, and question their significance. Once the bulk of the knowledge is identified, the way to solve the problem becomes more obvious.

Student resistance to student-centered learning

People generally shy away from things that do not conform to their perception of the way education should be. Students are particularly resistant because the university seems to be set up to promote traditional lectures. Some students even complain, “I have paid a lot of money to study at this university and to be taught by an expert.” One could argue that, in fact, students are getting even more return on their investment because in the student-centered, online environment the teacher is working to meet their specific learning needs. This allows for more one-on-one time with the instructor, which may help you to learn more thoroughly and to be even more successful in your studies.

Peer learning and teaching

One of the techniques sometimes used in online education is to have the class participants actually teach a lesson to each other. This technique is used not only to enhance your retention of the information; but also as an opportunity for you to demonstrate critical thinking, leadership, and collaboration skills. Research has demonstrated that peer interaction improves the academic performance and attitudes of the students who receive instruction and those who provide it.

Peer teaching may take a variety of forms in online education, such as:

- teacher assistants leading discussion groups, seminars, or tutorial groups
- senior students assisting individual students (called the proctor model)
- student learning groups that are instructor-less or self-directed.

You, as a student, bring a lot of invaluable life experiences into the classroom; these should be acknowledged and used. You can learn much from dialogue with respected peers and they can learn from you.

Teachers as facilitators or mentors

If you haven't been involved in education for a while, or you are moving from a very traditional method of instruction, you may be in for a surprise with the online education style of classes. Actually, both traditional and online education have been changing the role of the teacher from one of distributing information to one of facilitation and mentorship. In the online education environment, this is even more pronounced. Online students must be more independent, because the technology provides an overwhelming amount of information, making it essential that teachers guide and advise. In addition, your instructors will not know when you are having trouble unless you inform them. They depend on you to supply this information, as they can no longer "see" your confusion by non-verbal cues.

As an adult, your life experience is a rich resource for learning. Though instructors also have their own expertise, online learning tends to focus more on your knowledge and its relationship to the course. Although an instructor might share what works and what does not work, it is more likely they will take on the role of providing resources, and will expect you to learn by integrating your life experiences with new information to construct meaning. You will need to experiment.

Sometimes you will make mistakes, but mistakes are an opportunity for learning. The online teacher is there to facilitate your learning process, not to tell you how to learn.

Adult learning is linked to what the learners need to know or do in order to fulfill their roles and responsibilities. As each adult is at a different stage in the career cycle, it is possible that every assignment given by an online teacher is different for each student. Many higher education curriculums now include the option for developing your own homework assignment with instructor approval. For example, instead of giving specific instructions for the topic of a written assignment, the instructor will ask you to write a 2,000-word paper which reflects what you have learned in the class as it applies to your professional life. This requires you not only to understand the content of the class, but also to actually use it.

Adult learners are problem-centered rather than subject-centered. The nature of all learning provides for some type of content-centered section. However, in the online environment, this section is usually brief and limited only to summaries and to links to additional reading resources. Instructors still rely heavily on the textbook and then provide online or interactive resources to round out your learning experience. While students are encouraged to ask questions about the content of their instruction, the emphasis is on the *process* of their learning.

Instructors who are guides and mentors will emphasize problem-solving skills. Rather than giving you information, they now assist you in finding your own answers. They may help you generate lists of possible options and then encourage *you* to experiment to find what works best. Some of the best mentors/teachers answer many questions with a question. Though this may seem frustrating, it ensures that you are finding the answers on your own instead of memorizing a set of responses given by the instructor.

Multiple teachers/multiple locations

It is becoming common practice for colleges and universities to take advantage of the global access to instructors. Schools frequently hire an instructor for only one or two classes to be offered online. The global accessibility of the World Wide Web allows for education to be facilitated by multiple teachers at multiple locations. For example, in a recent course offered at Nova Southeastern University in Florida, one of the instructors was in the Netherlands, another instructor (co-teacher) was in Indiana, and the 30 students in the class were scattered through many

different countries – Canada, Jamaica, Israel, the United States, and Switzerland.

The advantage to you in this arrangement is the opportunity to receive instruction from some of the top people in your field of study without attending the university where they reside. Additionally, a course may be offered in conference or symposium style. This allows exposure to many instructors during the term. You may have one instructor for the first three weeks, then another for the next three weeks, and so on. This has become particularly popular with courses regarding “trends.” Each instructor will cover the material that pertains to his or her expertise.

Due to the physical distance between some instructors and the school, some universities have implemented a system of class coordinators who assist with the day-to-day administrative work for a course. This person’s role is to act as a liaison between the students, the instructors, and the university at the physical campus. The actual functions of these coordinators vary from campus to campus. Some of the duties may include student advising, collecting final grades and posting them to the registrar’s office, informing instructors of student profiles for each class, processing course registrations and tuition payments, acting as a liaison with the bookstore and library, and answering or forwarding questions to the appropriate on-campus resource. In general, these coordinators are the individuals assigned to assist you and to ensure you are not lost in the university bureaucracy because you are not physically at the campus.

Other colleges add to the coordinator concept by keeping enrolled students in specific groups, known as clusters or cohorts. This concept is somewhat similar to being a part of “class” that will move through the curriculum together and graduate together. This is particularly popular in graduate programs, but is becoming more prevalent in undergraduate programs as well. The advantage to the cohort or cluster concept, usually a group of 15 to 30 students, is that you have more opportunity to get to know a few people very well over the course of your studies. Your cohort members will become your study partners and you will share the same frustrations and joys as you undertake your program together. The cohort concept helps to make the online community very much like a residential community and often helps in retaining students throughout their degree program.

Doing research online

When you steal from one author, it's plagiarism; if you steal from many, it's research.

(Wilson Mizner, 1876–1933, quoted in A. Johnston, *The Legendary Mizners*, Chapter 4)

Certainly the skills required to do research do not change for the online student. You need to locate relevant books, journals, magazine articles, newspapers, academic publications and conference proceedings. Though you are not physically on a college campus, you still have access to your public libraries, local community college and university libraries, as well as bookstores in your area. The primary difference is not being able to walk into your campus library to look for books or articles. Or can you?

Perhaps the greatest impact on civilization since the creation of the printing press will come from the ability to digitize information regardless of format. Digitization allows for the transformation of information from one form to another (e.g. print to sound) and for a range of retrieval options. Technological advances have resulted in many changes in the traditional library, and are both a cause and cure for the information explosion. Digital technology generates information at faster rates, and 90 percent of all information produced since 1979 has been transformed to digital format. Digital retrieval systems offer the only hope of managing this much information.

The focus is now shifting from acquisition to access. Rather than every library in a system buying a periodical or book, only one will need to buy it – in electronic form – and make it available, through inter-library loan, to others on the system. Libraries will be able to build virtual collections and reference works specifically tailored to their

users. As the ability to amass comprehensive printed collections declines, the importance of virtual collections using the relative strengths of several libraries will grow.

New electronic access software programs make it easier for you to do your own reference searches, then download the abstracts or full text articles from databases or digitized library collections. Electronic access means that libraries can remain “open” 24 hours a day. More journals and magazines are becoming available for electronic access because of the move to electronic desktop publishing and the inexpensive alternative of scanning document pages to a PDF format (portable document format) – a standard form for storing printed publishable documents on the Web. If the materials you need are not digitized, many libraries will provide fax or mail service for specific pages if necessary.

Many public and college libraries now have access to large electronic journal databases, such as First Search, Academic Search Elite, and ProQuest. To access these databases you must be enrolled in the college programs and receive special logins and passwords. These databases provide a wealth of online full-text articles, thus not requiring the library personnel to send you anything separately. Check with your university facility to see what the availability is for online research.

Basic Web searching using search engines

Because the Web is not indexed in any standard manner, finding information can seem difficult. Search engines are popular tools for locating Web pages, but they often return thousands of results. Using special software, search engines constantly explore the Web and log the words from the Web pages they find into their databases. Because some search engines have logged the words from over a billion documents, results can be overwhelming. Without a clear search strategy, using a search engine is like wandering aimlessly in the stacks of a library trying to find a particular book.

Successful searching involves two key steps:

- 1 You must have a clear understanding of how to prepare your search. You must identify the main concepts in your topic and determine any synonyms, alternate spellings, or variant word forms for the concepts.

- 2 You need to know how to use the various search tools available on the Internet. Search engines, such as Google (<http://www.google.com>), are very different than subject directories, for example Yahoo! (<http://www.yahoo.com>). Even search engines themselves can vary greatly in size, accuracy, features, and flexibility.

Internet search engines have become very important to general users and students, and are now multi-million dollar businesses. Choosing the best search engine for your needs, and then determining how to enter the words or phrases which work best, will make your research go much more quickly. Some estimates put the number of Internet search engines available at nearly 150. This chapter will touch on a few of the most popular ones.

Search engines use software robots to survey the Web and build their databases. Web documents are retrieved and indexed. When you enter a query at a search engine Website, your input is checked against the search engine's keyword indices. The best matches are then returned to you as hits. The key is to keep your query as specific as possible. If you enter something very general, like "baby," you will get hundreds of thousands of hits – everything from "naming babies" to "baby animals" to "making babies." You need to learn to narrow your search.

Remember You must provide the most information possible to obtain an accurate search result. Unlike a librarian, search engines don't have the ability to ask a few questions to focus the search. They also can't rely on judgment and past experience to rank Web pages in the way humans can.

Search engines determine relevancy by following a set of rules, with the main rules involving the location and frequency of keywords on a Web page. With the "baby" example, search engines first look for the word "baby" in the title or toward the top of the Web page. Those that work on the frequency rule will analyze how often keywords appear in relation to other words in a Web page. Those with a higher frequency are often deemed more relevant than other Web pages.

So, why do some search engines seem to give back more results than others? To begin with some search engines index more Web pages than others. Some search engines also index Web pages *more often* than others. The result is that no search engine has the same collection of Web pages to search through. Search engines may also give Web pages a "boost" according to certain criteria. For example, WebCrawler (<http://www.webcrawler.com>) uses popularity as part of its ranking method.

It can tell which of the pages in its index have a lot of links pointing at them. These pages are given a slight boost during ranking, since a page with many links to it is probably well regarded on the Internet. Some hybrid search engines, those with associated directories, may give a relevancy boost to sites they've reviewed. Yahoo! uses this method. The logic is that if the site was good enough to earn a review, chances are it's more relevant than an unreviewed site.

Subject directories

A subject directory is a catalog of sites collected and organized by humans. Subject directories start with a few main categories and then branch out into subcategories, topics, and subtopics. Subject directories are useful when you do not know exactly what you need. For example, if you knew there was a well-known football (soccer) team in Manchester, England but could not remember the name, you might use subject directories to research it. You would begin by selecting "Sports" at the top level, then "soccer" at the second level, "by region" at the next level, then "countries," then "United Kingdom" then "cities and towns", then "Manchester," then finally "Manchester United." This may seem like an arduous task, but it is similar to how you would approach many research projects – looking for connections among topics or ideas.

Because humans at Yahoo! organize the Websites in subject directories, you can often find a good starting point if your topic is included. If you have more information at the beginning, you can use keyword indexing to find records much more quickly. Keyword search options usually eliminate the need to work through numerous levels of topics and subtopics. In this case, it would have been faster to enter "Manchester football" in the keyword search instead of working through the levels.

Because directories cover only a small fraction of the pages available on the Web, they are most effective for finding general information on popular or scholarly subjects. If you are looking for something specific, use a search engine.

Keyword indexing

If Yahoo! can't give you a hit, it automatically sends your query to its partner Google for a search through a keyword index. Google is one of the newer search engines, but it has rapidly become a favorite. In fact,

the word “google” is now frequently being used as a verb, a synonym for searching, as in “I’m going to google the Web to find the info I need.” Google combines keyword searching with ranking importance. Its technology considers pages that are linked to it from other sites as more important than pages that only have a few links from other sites. In other words, if many Webmasters consider a Web site valuable enough to create a link to it, Google deems that a good reason to justify a high ranking for that site.

Unless the author of a Web document specifies the keywords for the document (this is possible by using special HTML code when building the webpage), it’s up to the search engine to determine them. Essentially, this means that search engines pull out words that are believed to be significant. Words that are mentioned toward the top of a document and words that are repeated several times throughout the document (location and frequency of keywords again) are more likely to be deemed important.

Some sites (like AltaVista (<http://www.altavista.com>) and Open Text (<http://www.opentext.com>)) simply index every word on every page. Others index only part of the document. For example, Lycos (<http://www.lycos.com>) indexes the title, headings, subheadings and the hyperlinks to other sites, along with the first 20 lines of text and the 100 words that occur most often. InfoSeek (<http://infoseek.go.com>) uses a full-text indexing system, picking up every word in the text except commonly-occurring stop words such as “a,” “an,” “the,” “is,” “and,” “or,” and “www.” Inktomi (<http://inktomi.com>) also ignores stop words.

The problem with keyword indexing is that search engines have a tough time distinguishing between words that are spelled the same way, but mean something different (e.g. hard cider, a hard exam, and the hard drive on your computer). This often results in hits that are completely irrelevant to your query. Some search engines also have trouble with so-called stemming. For example, if you enter the word “big,” should they return a hit on the word, “bigger?” What about singular and plural words? What about verb tenses that differ from the word you entered by only an “s,” or an “ed”? Search engines also cannot return hits on keywords that mean the same, but are not actually entered in your query. A query on “romance” would not return a document that used the word “heart” or “love” or “intimacy,” if it did not include the word “romance.”

Tips for working with keyword indexing

- Enter synonyms, alternate spellings and alternate forms (e.g. dance, dancing, dances) for your search terms.
- Enter all the unique terms that are likely to be included in the document or site you are seeking.
- Avoid using very common terms (e.g. history, painting) which may lead to an avalanche of irrelevant search results.
- Using the “Help” feature, determine how your search engine uses capitals and plurals, and enter capitalized or plural forms of your search words if appropriate.
- Use a phrase or proper name if possible to narrow your search and therefore retrieve more relevant results.
- Use multiple operators (e.g. AND, NOT) if a search engine allows you to do so.
- If you receive too many results, refine and improve your search. (After perusing the results, you may become aware of how to use NOT e.g. – Boston AND hockey AND NOT Bruins.)
- Pay attention to proper spacing and punctuation in your search syntax (i.e. no space when using the plus sign means +term).

Concept-based indexing

Unlike keyword indexed-based systems, concept-based indexing systems try to determine what you mean, not just what you say. Essentially, they do this by checking documents for the dominant themes or concepts, which are then indexed. A concept-based search returns hits on documents that are about the subject/theme you’re exploring, even if the words in the document don’t precisely match the words you enter into the query. Excite (<http://excite.com>) is currently the most popular, general purpose search engine site on the Web that relies on concept-based searching.

How does it work? There are various methods of building concept-based indices, some of which are highly complex, relying on sophisticated linguistic and artificial intelligence theory. Excite sticks to a numerical approach. Excite’s software determines meaning by calculating the frequency with which certain important words appear. When several words or phrases that are tagged to signal a particular concept appear close to each other in a text, the search engine concludes, through statistical analysis, that the piece is “about” a certain subject.

Using our previous example, the word “heart,” when used in the romance context, would be likely to appear with such words as love,

flowers, candy, passion, and valentine. In that case, the search engine would return hits on the subject of romance. On the other hand if the word “heart” appeared with words like, artery, cholesterol, or blood, a very different context is established, and the search engine would only return hits relevant to a medical inquiry.

Tip Concept-based indexing is a good idea in theory, but it’s far from perfect in practice. The results are best when you enter a lot of words, all of which roughly refer to the concept about which you are seeking information.

Refining your search

Most engines offer two different types of searches – basic and refined. In a basic search, you just enter a keyword without sifting through any pull-down menus of additional options. Depending on the engine, though, basic searches can be quite complex. Refining options differ from one search engine to another, but some of the possibilities include the ability to look for more than one word, to give more weight to one search term than to another, and to exclude words that might be likely to muddy the results. You might also be able to search proper names, phrases, and words that are found within a certain proximity to other search terms.

Some search engines also allow you to specify the form in which you’d like your results to appear, and whether you wish to restrict your search to certain fields on the Internet or to specific parts of Web documents (e.g. the title or URL). Many, but not all search engines allow you to use Boolean operators to refine your search. These are the logical terms *and*, *or*, and *not* and the proximal locators, *near* and *followed by*. All the search engines have different methods of refining queries. The best way to learn them is to read the help files on the search engine sites and practice.

A synopsis of some of the common Boolean search operators is below.

AND	All the terms you specify must appear in the document, e.g. computer <i>AND</i> hard <i>AND</i> drive. If you were looking for computer hard drives you might use this if you wanted to exclude common hits that would be irrelevant to your query.
OR	At least one of the terms you specify must appear in the document, e.g. education <i>OR</i> learning. You

	might use this if you didn't want to rule out too much. This is particularly useful when you are using synonyms in a topic that is not frequently researched.
NOT	The terms you specify must not appear in the document. You might use this if you anticipated results that would be totally off-base, e.g. nirvana <i>AND</i> Buddhism <i>NOT</i> rock <i>NOT</i> music.
+ and –	Some search engines use the characters plus (+) and minus (–) instead of Boolean operators to include and exclude terms. The + works the same as <i>AND</i> . The – works the same as <i>NOT</i> .
NEAR	The terms you enter should be within a certain number of words of each other. For example, science fiction <i>NEAR</i> novel.
FOLLOWED BY	One term must directly follow the other. At present, only the Open Text engine allows the use of the term <i>FOLLOWED BY</i> , although several other search engines allow you to query on phrases.
Phrase query	These require that you enclose the phrase in quotation marks, “space, the final frontier” – the engine will then search only for the phrase exactly as written. It would omit anything about space as a new frontier.

Now that you know some of the secrets of using search engines for your research, how do you choose which directory to use? First, you want to evaluate what you are looking to do. Choose a search engine, directory or library in accordance with the kind of search you are doing and the kind of results you are seeking. Are you looking for a Web site? Are you looking for information that might be contained in a news server? Are you looking for academic articles that may only be retrievable through old archived sites?

Determine your goal. Do you want a specific hard-to-find document on an esoteric subject, or general information on a broader topic? Do you need to search the entire Web, or is what you are seeking likely to be found on a number of sites, or only the most popular sites? In making your choice, determine whether the information you are looking for is likely to be in a page's title or first paragraph, or buried deeper within the document or site.

Another class of search engine is the metasearch or multiple search engine. These engines allow you to perform a keyword query in many search engines at the same time. MetaCrawler (<http://www.metacrawler.com>) is probably the best known for this. However, other popular ones are Dogpile (<http://www.dogpile.com>), Cyber411 (<http://euklid.mi.uni-koeln.de/~jbe/ref/www.cyber411.com/>), and Savvy Search (<http://www.search.com/>). These engines will explore Yahoo!, InfoSeek, AltaVista and many others at the same time. Most meta-search engines will give you only the top ten hits from each engine. Others will allow you to set the number of hits you want to get from each. This can be a quick way to survey the entire Web for content on a topic.

Finally, the newest development in the search engine arena is specialized search engines that are subject specific. For example, DejaNews (<http://groups.google.com/>) indexes only the content of newsgroups. InfoSpace (<http://infospace.com/>) contains an index of addresses and phone numbers for anyone in the US listed in a phone book. Some of the specialized engines are also being included in the metasearch engines mentioned above.

Selecting a search engine

At this point, you may be thinking, “How do I make a choice among all these search engines?” Below are brief descriptions of some of the most popular search engines, as reported by Search Engine Watch (<http://searchenginewatch.com/>).

AltaVista

(<http://www.altavista.com/>) A large search engine with a number of advanced search features. Also useful for locating multimedia files, such as images, audio, and video files. AltaVista includes a directory which categorizes Websites according to broad categories. Most intriguing is the Babel Fish translation feature that currently handles Chinese, Japanese, Korean, French, German, Italian, Portuguese, and Spanish translations to and from English, plus one-way translation from Russian to English. You’re guaranteed to find lots of results with AltaVista, but will probably need to sift out ephemeral pages from the authoritative ones. A good choice when you need to find that needle in a haystack.

AlltheWeb

(<http://www.alltheweb.com/>) Another very fast, award-winning, and popular search engine. AlltheWeb is a good choice for finding all kinds of information and file types. It currently offers excellent support for locating multimedia files such as images, music, and videos on the Web.

Ask Jeeves

(<http://www.askjeeves.com>) Jeeves lets you search either by keyword or in plain English and presents answers in an uncluttered format. The site also offers channels focusing on shopping, travel and mobile phone content. Jeeves gets more intelligent all the time as staff process repeated queries and create specific answers. The human-created answers appear at the top of the list of possible responses. If Jeeves doesn't have a human-created answer, it connects to an automated search index or other search partners to find the answer.

Google

(<http://www.google.com/>) One of the largest and quickest search engines, and a good choice for research. Works on the principle that important, authoritative pages will tend to be those that are heavily linked by other pages. Useful for finding well-known and well-cited Web pages, organized by most- to least-cited pages on your topic or search terms. Other search services, such as HotBot, have arranged with Google to use its software or portions of its index. You'll get similar (but not necessarily identical) search results using such search engines, but only searching Google directly will produce comprehensive results from their service.

HotBot

(<http://hotbot.lycos.com/>) This search engine now offers users a choice between four widely-known Web crawlers – FAST (now called AlltheWeb, <http://www.alltheweb.com/>), Google, Inktomi, and Teoma (<http://www.teoma.com>) – to search the Web for your terms. Advanced search features differ according to which crawler is chosen.

Overture

(<http://www.content.overture.com/>) Previously known as GoTo.com, this search engine is primarily focused on “pay for placement” results, meaning that companies or individuals pay money for their Web pages to appear high in search result lists. Overture describes this service as “commercial search,” and uses the phrase “pay for performance” to describe this advertising emphasis. Because of its pay for placement organization, this search engine is good for research on topics such as commercialism of the Internet, advertising, business, popular culture, and similar topics. As of July 2003, Yahoo! had acquired Overture, which could signal changes in store for Yahoo! as well.

Yahoo!

(<http://www.yahoo.com/>) Easily one of the most recognizable and popular Web directories, and as of 2002 also a Web search engine. The directory portion of Yahoo! relies on people to submit and to categorize sites. The Web search engine portion is powered by Google (and previously by Inktomi). Since late 2002, Yahoo!’s default search is the Web search feature; directory results must explicitly be chosen by the user.

Tips for successful searching

Remember, you are smarter than a computer. Use your intelligence. Search engines are fast, but dumb.

A search engine’s ability to understand what you want is very limited. It will obediently look for occurrences of your keywords all over the Web, but it doesn’t understand what your keywords mean or why they’re important to you. To a search engine, a keyword is just a string of characters. It doesn’t know the difference between cancer the astrology sign and cancer the disease ... and it doesn’t care.

Know where to look first

Are you looking for information about a person? A company? A software product? A health-related problem? Do you need to research a term paper? Document a news story?

There are various databases containing specific information that might be more useful to you than a general search engine (e.g. news servers). However, you can find these databases by using a search engine.

Fine-tune your keywords

If you're searching on the name of a person, place or thing, remember that most nouns are subsets of other nouns. Enter the smallest possible subset that describes what you want. Be specific. Try to meet the search engine halfway by refining your search *before* you begin.

For example, if you want to buy a car, don't enter the keyword "car" if you can enter a brand name such as "Toyota." Better still, enter the phrase "Toyota Dealerships" *AND* the name of the city where you live.

Be refined

Read the help files and take advantage of the available search refining options. Use phrases, if possible. Use the Boolean *AND* (or the character *+*) to include other keywords that you would expect to find in relevant documents.

Also learn to *EXCLUDE* with the Boolean *NOT*. Excluding is particularly important as the Web grows and more documents are posted. Run your initial query over again several times, each time adding further refinements to narrow down your list of relevant hits.

For example, if you want to find medical details about how to diagnose Alzheimer's disease, try entering "Alzheimer's" *AND* "symptoms" *AND* "diagnosis." If you want to find Alzheimer's care and community resources, query on "Alzheimer's" *AND* "support groups" *AND* "resources" *AND NOT* "symptoms."

Query by example

Take advantage of the option that many search engine sites are now offering for "query by example," or "find similar sites," to the ones that come up on your initial hit list. Search engines provide this option based on a set of criteria that can help you expand your hits.

Creating an effective search statement

When structuring your query, keep the tips in Table 7.1 in mind.

Internet references for top search engines

<http://www.northernwebs.com/set/setsimjr.html>

<http://www.monash.com/spidap2.html>

<http://searchenginewatch.com/>

Table 7.1 Tips for structuring search queries

Tip	Example	Description
Be specific	Noritake dinner plates	Whenever possible use nouns, proper names, and objects as keywords
Important words first	+ hybrid + electric + gas + vehicles	Put the most important terms first in your keyword list. To ensure they are searched, put a + sign in front of each one
Use more keywords	Interaction vitamins drugs	Use at least three keywords in your query
Phrase query	“search engine tutorial”	Combine keywords, whenever possible, into phrases and offset them with quotation marks
No common words	“bottled spring water”	Avoid common words, e.g. water, unless they are part of a phrase query
Write it down first	+ “portland state university” + “financial aid” + applications + grants	Write down your search statement and revise it before you type it into a search engine query box

Evaluating Internet resources

When researching a topic for your course, it is easy to locate a wealth of information using search engines on the Web, but how reliable is this information? The old saying, “Don’t believe everything you read” holds especially true for the Internet. Any person or group with any agenda can post articles, books, or images to the Internet. There is no assurance that what has been posted is rooted in academic inquiry or real-world experience. It is wise to have a consistent procedure for evaluating anything you read online.

Tips:

- **Purpose:** Based on the content, tone and style, does the purpose match your research needs?
- **Audience:** Who is the intended audience for the document? School teachers, parents, children, science fiction fans?
- **Source:** Are the authors identifiable? Do they introduce themselves and give some background information? Academic authors or professionals will often provide a résumé or credentials page, or site affiliations with a recognized educational institution or other organization.
- **Site Sponsor:** The sponsor of the site is identified by the URL extension: .edu for educational sites; .gov for government sites; .org for organizational sites; .com or .net for commercial sites.
- **Content:** Do the authors present logical arguments? Look for point-of view and evidence of bias. Sources of information (references) should be clearly stated and you should be able to trace them to books, articles, or reputable organizations or individuals.
- **Depth:** Is the site comprehensive? Determine if the content covers a specific time period or aspect of the topic, as compared to a historical review or specific research on a population relating to the topic.
- **Current:** Has the site been updated recently? Are the links still working and are they relevant and appropriate. If the site is extensive, does it provide a search capability or targeted links within the page.

There is an informative tutorial online, “The Internet Detective,” which was created in Europe specifically for students and faculty doing academic research. You can find it at: <http://www.sosig.ac.uk/desire/internet-detective.html>. The tutorial is free to use, but you need to register your own personal ID so that the system can remember your quiz scores and your place in the tutorial. The tutorial takes around two hours to complete, but your ID means you can do it at more than

one sitting. You also have the option to download it to your computer. However, if you download it you won't get the full interactive functionality of the tutorial.

Finding and contacting experts on the Web

Although the Internet is a great research resource, it cannot answer all your research questions. Sometimes the volume of information is just too large, or the complexity of the search makes it difficult to use the search engines provided. But many times the Internet cannot give the answer you are looking for because your question is subjective. For example, you're looking for advice on whether a five-year-old child can learn to use a mouse effectively. It is possible you'll find that answer somewhere online, but it's more likely you'll find only general information about computers and children, leaving you to apply it to the question in which you're interested.

In a case like the one above, it would be best to ask a human. Just as you might include the talents of a research librarian in your local college or public library, you can access an expert via the Web. Fortunately, the Internet is not short of humans, and some of them are experts who encourage questions!

If you find a Website that covers your area of interest, and you have a question, you will need to email the expert and ask. But before sending an email, be sure to check the expert's Website to make sure the question isn't already answered in a FAQ (frequently asked questions) section. Sometimes the FAQ will say, "I'm very busy! Please don't send me questions!" If you still don't find your question answered, then prepare a brief email message describing your question and thanking the expert, in advance, for assisting you. Be sure to include some of the following information:

- Make sure your email address is enclosed with your message. Even though it is in the email header, you should not count on the expert automatically noticing that. You want to make it as easy as possible for the expert to get the answer to you.
- If you are gathering information for an assignment, let the expert know. He or she might be able to point you to additional sources of information.
- Be sure to double-check any information sent by the expert; don't assume it's true because you heard it on the "Net." At the very least the information should give you a lead to further research.

- Remember, experts do not have an obligation to answer your question. If you don't hear back, don't take it personally; they might be very busy. Sometimes if you ask a question that's already answered in their FAQ, they won't answer.

Online news articles

The research you do on the Internet frequently involves comparing the theory you learn in class with experience in the "real-world." Class assignments may ask you to provide a news story that demonstrates a concept or illustrates how a theory does not apply. Fortunately, the Web provides a number of resources for news and news archives.

National and major stories news resources

If the news in which you're interested is national or global, you can start with the AP Newswire (<http://www.ap.org>). From the front of this page click on the "Product and Services" button then choose the gateway to the wire at <http://wire.ap.org/specials/bluepage.html>. You'll be given a choice of different gateways to the wire service, broken down by state. Once you've picked a wire gateway, you'll get a chance to browse by subject or search a week's worth of stories. If you are trying to find how a story of national interest evolved over several days, the AP wire will get you a lot of information. Two other organizations to consider are BBC News at <http://news.bbc.co.uk/> and CNN at <http://www.cnn.com/>. If you need to do research outside of Europe and the US, the News Voyager service provides coverage of major newspapers in every country around the world at <http://www.newspaperlinks.com/home.cfm>.

For a story of local interest, such as a mayor's future political ambitions, be sure to pick a wire service in the area in which you're interested. Often newspapers which carry the AP wire break out the stories by region and topic, which makes things easier to find.

Another resource for wire and large-scale stories is Yahoo! News (<http://dailynews.yahoo.com/>). Yahoo! News carries reports from AP, Reuters, National Public Radio, and more. They carry ten days' worth of stories, so there's not a lot of depth to the archive, but when you're looking for something that happened recently, it's quick and easy to use.

Archived news and wider searches

If the news you are researching isn't recent, you need to check "after wire" indexes and other resources. Several are available, each with its own unique indexing system. The different resources are summarized below.

BBC World News Archive

(<http://www.bbc.co.uk/worldservice/>)

The BBC News Service makes many news stories from Europe and the world available for free. You may also search their past articles archive, dating back to the site's launch in November 1997. Available in 43 languages; many stories and articles are available in audio or video versions. Provided by the British Broadcasting Corporation.

The Irish Times (<http://www.ireland.com/newspaper/archive/>)

The archives contain all articles published on [ireland.com](http://www.ireland.com), including The Irish Times online, Breaking News, Sports, Jobs, Property, Motors, Business and Special news and event sites.

Newstracker (<http://news.excite.com/index/id/home.html>)

Indices over 300 publications and offers them for free lookup. Newstracker also tracks particular news topics of current interest. For more esoteric concerns, you can create your own free "clipping service" which will track keywords you specify.

NewsHub (<http://newshub.com>)

Adds content every 15 minutes. Its sources do not seem to be as extensive as Newstracker, but it lists updated stories on its front page and has a feature called "MiniHub" that lists the latest stories in a particular area of interest.

Total NEWS (<http://www.totalnews.com>)

Arranged by categories, it becomes a nice search engine once you get some experience using it. This site doesn't have an extensive clipping

service, but it does seem to contain a deeper archive than you might find other places.

***NewsTrawler* (<http://www.newstrawler.com/>)**

A search engine of news sources divided by region and by topic. You can mark checkboxes to indicate which resources you want. This is a good source if you're looking for information from one particular geographic area.

***TotalNews* (<http://www.newsindex.com>)**

Does not maintain an archive – they only index current news. With over 300 sources it provides a broad check for current reports or ongoing stories.

Conducting research with online library databases

A quick way to get the ball rolling on your research is to ask yourself the following five questions:

- 1 What do you already know about your topic?
- 2 What do you want to know about your topic?
- 3 What keywords can you think of that are related to your topic? (You will use these when you search the online catalog and journal databases)
- 4 Does your topic fit into a specific discipline? If so, what? (See tip below)
- 5 What research tools does the library offer on this subject?

Tip Academic scholarship tends to be divided into one of the three disciplinary areas – social sciences, sciences, and humanities. The library's resources are also organized this way. Identify some databases or subject guides that might be helpful for your topic.

Social Sciences: psychology, sociology, anthropology, education, business, etc.

Sciences: biology, chemistry, geology, engineering, computer science, etc.

Humanities: art, music, literature, dance, theater, etc.

Locate background information

Two key sources of background information on your topic are:

- *Your course materials:* Be certain to review the bibliographies in your textbook or other course readings.
- *Reference books and other reference sources:* Get to know your library's reference collection and where it is located. In most places, the Reference desk is always staffed by knowledgeable librarians. Please ask if you need help locating reference materials on your topic.

Develop a research strategy

Developing a research strategy means identifying some initial parameters to your research. You may stray far and wide from your initial search plan, but it will help you get started by narrowing down your topic to a reasonable size. Here are some things to consider in your analysis:

- Determine the scope of your topic: is it too broad for a short paper? Too narrow for a long paper?
- Should you narrow the scope to a specific aspect, set of aspects, or time period?
- Should you broaden the scope by selecting a wider range of topical aspects?
- What is the time frame?
- What is the geographic area? Is it local, national, international?

Once you've answered these questions you will want to:

- Collect background information
- See if there is an online subject guide
- Check the online catalog for books
- Check the databases for articles
- Based on what you've found, revise your search strategy

Finding journal articles online

There are thousands of possible databases that your school or public library may use. Databases are often purchased with negotiated contracts for the number of users. This is a means for libraries to carry signi-

ificantly larger collections of journals and papers than they could previously afford, because they are only charged by the usage.

It is critical that you take time to get to know your library resources and how they are accessed. These databases are usually updated monthly with new articles and information. Two types of databases can be used to assist in your research.

General databases

These are interdisciplinary and will work for finding just a few articles on a topic or beginning research on a more in-depth project. General indexes are interdisciplinary and cover a broad range of topics. Academic libraries select indexes that catalog periodicals appropriate for academic-level research. These indexes may include some magazines (e.g. *Time*, *The Economist*, etc.) and newspapers but also comprise many key journals from a wide range of subject areas (e.g. *College Literature*, *Journal of Psychology*, etc.). A typical general database is Academic Search Elite.

Subject-specific databases

These are better for finding articles from journals in a specific discipline. You will turn to these when you have exhausted your findings in a general index such as Academic Search Elite, or when you're doing an in-depth project in a specific discipline.

Some databases provide full-text articles, while others provide only the citation for an item. If an article is not full-text, you will need to check your library to see if they subscribe to the journal. Many library catalogs can also be searched online. If the library does carry the journal, selected articles can usually be emailed, printed and scanned, saved to a disk, or sent via post to your home.

A description of some of the more popular databases is summarized in the Appendix.

Searching databases follows many of the same rules as using search engines.

Tips

Break your topic down into keywords

"I want to know how oil leaks from the Exxon Valdez have affected fish populations"

Keywords for searching: oil AND Exxon Valdez AND fish

Combine your keywords with AND or OR. This works for almost all databases

Combine different concepts with AND: oil **AND** fish **AND** Exxon Valdez

Combine similar concepts with OR: oil **OR** pollution **OR** leaks

Put phrases into quotes

“Mississippi River Delta”

“chicken-fried steak”

“war on terrorism”

Use the “Help” menu

Every database has extensive online help screens. Look for a “help” button in the upper navigation bar of the database.

Macromedia Flash (SWF) Movie Created by Cantasia Studio - Microsoft Internet Explorer provided by StarBand

EBSCO Research Databases

Basic Search Advanced Search Choose Databases

Keyword Subjects Publications Images

PORTLAND STATE

Database: Academic Search Elite

Find: in Search Clear

end in

end in

Search Tips Folder has 0

Refine Search Search History / Alerts Results

Limit your results: Limiters Expanders

Full Text ☐

Magazine

Scholarly (Peer Reviewed) Journals ☐

Publication Type

Periodical
Newspaper
Book

Published Date Month Yr. to Month Yr.

Number Of Pages

Figure 7.1 Initial search criteria. In the top fields you enter your search criteria by keywords, author, or title. The drop-down boxes allow you to select the Boolean operators you desire (AND, OR, NOT). In the bottom fields you may limit your results to full text, specific publications, and dates of publication.

Evaluate your results

It's tempting to grab the first three full-text articles that come up in a search, but be careful. You want to choose articles that are high-quality and substantial enough for your paper or project.

The screens in Figures 7.1–7.3 demonstrate how these databases are used. Though these screens show Academic Search Elite, most of the databases work using the same steps and search formats.

Citing online resources

When you read an article and then use the author's words or ideas in your paper you *must* give the author credit in the form of a *citation*. This is true for online sources such as Academic Search Elite, just as it is for printed sources. When you download articles, you may want to make a note of the information needed, so that you can use it to create citations in your work.

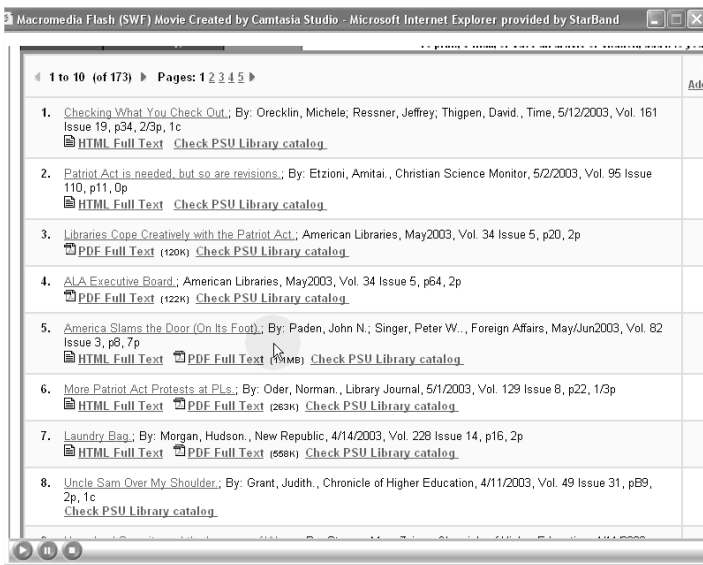


Figure 7.2 Article List. The articles meeting your search criteria are then displayed. The various availability types (HTML, PDF, Abstract only, etc.) are indicated. You click on the article(s) you wish to view. You may select multiple articles by using a checkbox on the far right (not in this picture).

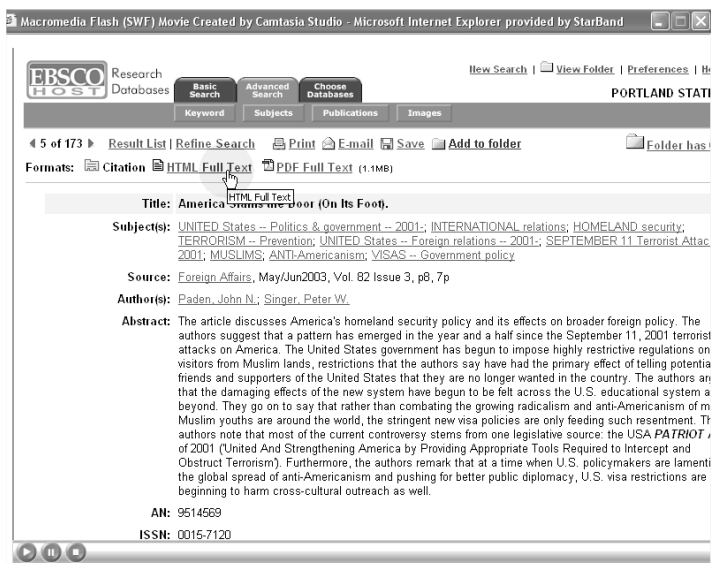


Figure 7.3 Article citation and abstract. Each selected article is displayed in turn. The full citation and abstract is provided. If you are interested in the article, you next select the format in which you wish to receive the article (HTML Full Text is selected above). If, after reading the abstract you determine this article is not of interest, you may move forward to the next citation or press your “back” button to return to the list of articles.

There are two parts to citations of articles you research from an online service such as Academic Search Elite:

- The first part of the citation reflects the nature of the publication in which the article was published. For example, newspaper, magazine, or scholarly journal. The formatting for each type of source publication is different.
- The second part of the citation references Academic Search Elite and, if known, the specific online database available in which you found the article. The formatting for this part of the citation remains the same, regardless of the publication type.

If you’re citing an article or a publication that was originally issued in print form but that you retrieved from an online database to which your library subscribes, you should provide enough information so that the reader can locate the article either in its original print form or retrieve it from the online database (if they have access).

Provide the following information in your citation:

- Author name(s) (if not available, use the article title as the first part of the citation)
- Article title
- Publication name
- Publication date
- Page number/range
- Database name
- Service name
- Name of the library where service was accessed
- Name of the town/city where service was accessed
- Date of access
- URL of the service (but not the whole URL for the article, since those are very long and won't be re-used by someone trying to retrieve the information).

Below are two examples of how a citation differs depending on the style. These may not be exactly what your college or university requires. As new technology is introduced, citation styles frequently change and manuals are updated. It is always wise to check with your instructors as to the current requirements at your institution.

APA Example:

Schaefer, Bradley E. (1998, December). Meteors that changed the world. *Sky and Telescope*, [8 pages]. Retrieved October 29, 1998 from Academic Search Elite (Research Library Periodicals) on the World Wide Web: <http://academicelite.lib.pdx.edu>.

MLA Example:

Schaefer, Bradley E. "Meteors That Changed the World." *Sky and Telescope* Dec. 1998. *Research Library Periodicals*. Academic Search Elite. Portland State University Lib., Warren. 29 Oct. 1999 <http://academicelite.lib.pdx.edu>.

Different citation styles – which should you use?

It is best to ask your teachers which citation style they want you to use. If they have no preference, you may wish to follow these general guidelines:

- APA: psychology, education, and other social sciences.
- MLA: literature, arts, and humanities.

- AMA: medicine, health, and biological sciences.
- Chicago: used with all subjects in the “real world” by books, magazines, newspapers, and other non-scholarly publications.

Good resources for learning more about proper citations:

- The Evidence Network: <http://www.evidencenetwork.org/bibliocitations.asp>
- University of Nottingham site: <http://www.nottingham.ac.uk/www/citation.html>
- Columbia Guide to Online Style: http://www.columbia.edu/cu/cup/cgos/idx_basic.html
- APA Style.org: <http://www.apastyle.org/elecref.html>
- Online! A reference guide to using Internet sources: <http://www.bedfordstmartins.com/online/citex.html>

Chapter 8

Ethical issues

If you take away ideology, you are left with a case by case ethics which in practise ends up as me first, me only, and in rampant greed.
(Richard Nelson, 1950–, *Independent*, London, July 12, 1989)

The root word for ethical is the Greek “*ethos*,” meaning character. The root word for moral is Latin “*mos*,” meaning “custom.” Both words are broadly defined in contemporary English as having to do with right and wrong conduct. Character and custom, however, provide two very different standards for defining what is right and what is wrong. Character would seem to be a personal attribute, while custom is defined by a group over time. People have character. Societies have custom. To violate either can be said to be wrong, within its appropriate frame of reference.

This chapter will look at both ethics and morals in online education and in online communities. The first section of this chapter discusses the personal ethics of treating others with respect, sincerity, and fairness. The second section looks into illegal behavior in the use of online resources, and the ethics of participating in those actions or looking the other way when others participate in them. In the end it is up to you and your own sense of character as to how you conduct yourself.

Culture, language, and the ethics of discourse

Discourse ethics are motivated by the values of respect, truth, sincerity, fairness, equity participation, and accountability. For the norms to be valid within a group, community or culture, they must be regulated through the protection of practice that enhances mutual understanding of the norms from other cultures.

The Internet is a melting pot in which people of different races, religions, nationality, and abilities meet to share experiences and skills with each other, and to learn from each other. It is one of the challenges of an online community to establish how these differences and similarities can be used to help achieve the needs of the group. Furthermore, language differences can be a major obstacle to clear expression. Often online students whose native language is not English have concerns and questions about how they will be perceived online.

Most intercultural miscommunication is caused by well-meaning statements, where each person behaves according to his or her own cultural norms, rather than by deliberate unpleasantness. To help prevent such difficulties, all participants need to recognize that cultural, gender, and religious identity constitute an important part of each person in the class.

Another problem is that some people do not know how to engage in supportive discourse. A competitive culture teaches adversarial communication. An unhelpful result is a tendency for people to ignore other belief systems because they don't match their own rather than work together to help one another learn. When adversarial communications stray into a fight for domination, the result is usually either "flaming," which generates anger and more need for control, or withdrawal by some members who refuse to participate in this type of environment.

In online communities as in any other, the ethical issues of respect for individuals are paramount for the effective operation and survival of the group as an entity. One way to ensure this ethical participation is to agree to a code of conduct or ethics in discourse from the beginning. This code should include issues such as:

- the unacceptability of lying
- the amount of self-disclosure required
- judging the borderline between controversial and offensive
- how to handle conflict

Language

Language is an important element of cultural identity. It enables us to communicate ideas, beliefs, values and feelings. The Internet offers the potential for international collaboration and the provision of courses, which attract participants with a wealth of different languages and cultures from around the world. Many providers of internationally

available online learning opportunities use English as the common language.

However, even with the choice of a common language, there are still variations and differences that continue to cause problems. For example, any traveler will quickly point out that English has many differences in its use among countries like the US, the UK, Australia, New Zealand and Canada. As an example, throughout this book the term *instructor* was used to indicate a person who heads the class and is responsible for ensuring student mastery of a topic. In some parts of the world, this person is called the “tutor,” in others it is the “teacher,” and in yet others the “professor.” One can’t even use them as synonyms because each term has its own nuances of different meanings in each of the English-speaking countries named above.

Native and non-native speakers

The difficulties of language and communication are magnified when the class members consist of both native and non-native English speakers. A key problem is finding the right level of communication with which all of your classmates are comfortable. The use of jargon or colloquialisms may be a source of misunderstanding and confusion for some non-native speakers. Therefore, it is very important for you to use plain language and to be as clear and brief as possible. Furthermore, you need to show patience in supporting the language attempts of others in your course.

One way of reducing problems is to get to know your classmates early on. Ask them about their native language and how comfortable they feel communicating online. Whenever non-native speakers post, it is up to you to offer encouragement and support of their efforts. Below is an example of a non-native speaker’s first posting in a class and the supportive response from another student. It is this type of support that will continue to help the discourse remain positive.

Non-native speaker’s first post

Buenos Dias Fellow Class Members!

Please forgive my writing skills to this board. My native language is Spanish and thus it is difficult for me. It took me houres to get here! I am worry my expressions are not clear and maybe foolish. But my bigger wish to share my ideas makes me not regret a post. If something is not clear, people must ask me for clearafication. It helps me sort out my own

mind but theirs as well. I even dare to hope I will improve my english along the road.

Native-speakers ethical reply

Buenos Dias Jaime (I hope I spelled your name right).

I find your first post to be clear and to the point. I admire that you can write English so well. I must admit that my Spanish capabilities are limited to “buenos dias,” “buenos noches,” and “gracias.” So you are already far ahead of me in your language abilities. Please do contribute frequently and don’t worry about your skills. I for one promise to ask for clarification if you are unclear.

Netiquette

Cross-cultural learning groups present a wonderful opportunity for participants to benefit from diverse views and experiences, often far beyond what they might find in their local community. Online groups, like all learning communities, need ground rules to guide how they interact with each other. These rules, known as “netiquette,” are sometimes established by the university and other times established within each course. The ground rules should address how participants wish to identify themselves, the community’s mode of operation and style of communication (formal/informal), and frequency of participation. These rules can help reduce students’ worries about offending each other by overstepping unknown boundaries. Many of these rules have been discussed in previous chapters, but it is also helpful to take into consideration the depth of cultural beliefs and ethics around some specific rules.

Most online forums adopt an informal style of address in which participants including the instructor are addressed by their first names. However, this may not be true in all contexts. There could be a cultural or social need for some to remain formal. For example some national groups feel reassured with a preamble to open discussions, and others have specific requirements for discussion that all greetings must include titles. i.e., “Good morning, Dr. Lynch,” as opposed to “Good morning, Maggie.” Some may prefer a period of relationship building while others are accustomed to getting right to work. Whatever the online conversation style participants prefer, some may have deeply held feelings concerning the written text.

In many non-Anglo cultures the written text is seen as something more than an individual presentation or personal opinion. Differences of opinion about such postings may be seen as an attack on the writer or the person's group. This can be explained by the fact that in some cultures the written text is seen as a fixed form of expression in which everything is important and thus worth reading. In this situation additional emphasis is also placed on the status of the author of the text. The higher the status of the author, the more authoritative the text, and the less acceptable that it be challenged. This makes the task of producing written text based on personal opinion particularly challenging for some learners. These students will tend to rely more on collective opinion or that based on someone of higher recognized status than their own, or even choose not to participate in discussions because they believe their opinion cannot possibly have value.

If you have classmates in this situation, you can be helpful by pointing out the cultural norms within the required communications in the group. Both by example, and your explanations, you can show your classmate(s) how to:

- contradict someone politely
- join conversation
- draw attention to common points of view
- come to a conclusion
- depersonalize opinions and arguments

Tips for communicating with non-native speakers of English

- Use uncomplicated language and clear explanations.
- Write clearly and avoid slang and idioms.
- Summarize what each person has written to assure each that you have understood.
- Clarify and confirm that your explanation has helped the participant understand.
- Check for understanding, avoiding "Yes/No" questions.
- Pause longer when waiting for responses; allow time for the other person to reply. Pause time varies in each culture and if we neglect to allow enough pause time it is almost the same as interrupting the other person.
- Allow non-native speakers to finish their sentences by themselves (many cultures are extremely comfortable with silence).
- Remember that language fluency does not equal cultural fluency and neither is it a reflection of intelligence.

- Encourage co-mediation as a positive approach to take advantage of different mediators' styles.

Based on Myers and Filner (1997).

Silences and humor as online interaction issues

Silences

In online intercultural communication, silences can occur either in the texts themselves, where certain topics are avoided, or in the irregular contribution of messages to the discussion board. Depending on the culture, these silences can mean disapproval, approval, neutrality, an admission of guilt, or a sign of incompetence. In Germanic countries, for example, the emphasis is on personal and explicit verbal messages for which the writer assumes responsibility for its clarity. Words serve as a form of social control, while silence tends to be used as a form of tacit consent or a sign of failure. In many Asian countries, on the other hand, meaning is based on an indirect style emphasizing the implicit connotation of words in a given social context (e.g. the high/low status of the writer). The onus is on the reader to decode meaning and not for the writer to send an explicit message that can be understood by all. This ability to read between the lines includes the understanding of the various registers of silence. In this way silence is used as a means of social control.

In some Asian contexts silences can be a sign of respect for the expertise of the other, or of displeasure. While in other cultures, like that of France, silence can be a form of neutral communication to keep a respectful distance from strangers. Even with this generalized information, you must not assume this is true of everyone within a culture. There will always be a range of diversity in a group. For example, in online learning some students gradually become aware of a reduction of traditional cultural barriers. Given this, no one person can fully understand a phenomenon like silence. It would be wiser to check with your classmate and ask. This can be done in the online group environment, or behind the scenes in individual emails.

It is important to allow for silences. Silence could mean the learner is:

- too busy
- not present for the moment, e.g. holiday, illness, pressure of work
- following along just fine

- having difficulties,
- waiting to be called upon
- uncomfortable responding to something, for example, with which the person disagrees
- in a position where the person feels there is nothing appropriate to say
- waiting for a difficult situation to ‘cool down’ before responding, (e.g. conflict, embarrassment)
- taking the time to carefully word what to say
- unable to access the course.

Asking your classmate to reply or to give the reason for their silence should be done regularly, but with tact and explaining why the subject is raised. Some people are often not aware of the impact of their silence on other participants in the group.

Humor

Humor is another difficult area in online intercultural communication. Humor is both culturally specific and personal. Some expressions of humor can be appropriate in one culture and completely inappropriate in a different culture. Also, within any culture some individuals are less comfortable with humor than others. Humor is also language specific, especially humor that relies on plays on words (puns) or slang.

Even with these difficulties, we should not give up humor as it is a way in which we can communicate our humanness online, helping to bridge the distance and lack of physical communication cues. When used appropriately, humor can help provide a “safe” place to learn new online tools and to make mistakes without fear of ridicule.

Consider these points before interjecting humor into your online communications.

- Does the humor rely on language/slang that may not be understood across the group?
- If the humor involves ridicule, however mild, is it self-deprecating and free of implications for others in the group?
- Is the humor used at an appropriate time? Do not make a joke in the middle of a serious dialogue. Save it for a more social time.
- Start slowly and pay attention to the reception. If someone comes back with “hehee” or “lol” (laughing out loud) you will know the comment was read in the spirit intended. If not, then you might

need to check to see if anyone has understood your attempt at humor or has been offended by it. Ask, do not assume.

- Use humor with intent. If working on developing a sense of warmth in a group, a warning ahead of time about one's own style of humor is in line.
- If you used humor and it was misinterpreted or ended up hurting someone's feelings, recognize it, admit your mistake, and apologize.

Tip Use emoticons or parenthetical statements to make sure the readers are clear you are making a joke or using humor.

Cheating on assessments

One of the more pervasive issues that an educator faces is the age-old concerns about students cheating on assessment. In fact, recent studies indicate that academic dishonesty is on the rise. A 1998 survey from *Who's Who Among American High School Students* reported that 80 percent of the students surveyed admitted to cheating on an exam. Furthermore, 50 percent of them did not believe cheating was necessarily wrong. Such statistics clearly reveal the pervasiveness of unethical behavior in schools.

Below is an abbreviated list of the ways in which students cheat in the traditional classroom:

- Looking at another pupil's test paper during a test.
- Dropping ones' paper so that other pupils can get answers off it.
- Developing codes such as tapping the floor three times to indicate that a multiple-choice item should be answered "C."
- Using crib notes or small pieces of paper. Crib notes can be hidden in many ingenious places.
- Writing test information on the desktop and erasing it after the test; a variation is to write information in allowed reference or textbook pages prior to the test and use the information during the exam.
- Changing answers when teachers allow pupils to grade each other's papers.
- Using resources forbidden by the teacher in take-home tests or work.

In considering the issue of ethics and online education, these same concerns take on a new twist. Students are no longer in close proximity. In fact they may be separated by thousands of miles. Distance, however,

does not diminish the possibility of students cheating, with or without an accomplice, on online assessments. Instead of developing codes or dropping papers, students pass private emails, which instructors have no means of intercepting. In some cases, students can also download a test, look up the answers before actually taking it, and share those answers with classmates. Instead of using crib notes or writing answers within the margins of the textbook or on the desktop, students simply use the forbidden resources during the examination.

Certainly, a number of cheating prevention strategies are used online, but ultimately it is up to you and your sense of moral conduct to decide whether cheating is acceptable or not. It is up to you not only to monitor your own behavior but also to report known dishonest behavior by your classmates. Unfortunately, cheaters not only undermine their own education but may also undermine your education as well.

How cheating is curtailed online

Instructors have devised a number of methods to help curtail cheating while at the same time increasing learning.

- 1 Assignments are made that require some degree of cooperation and coordination among students. Tasks such as small group discussions, group papers, and group projects make it difficult for a student to find consistent help throughout a project of some duration and complexity.
- 2 A high level of instructor–student interaction is required in the course, through frequent email contact and occasional synchronous chats that are substantive in nature. Regular student–instructor contact will have two advantages: first, a student will have difficulty finding someone else to respond to frequent instructor emails. Second, through ongoing dialogue, the instructor will get a better “feel” for a student’s ability.
- 3 All assessments become open-book instead of trying to limit allowed resources, and are also more substantive nature.
- 4 Writing assignments are submitted electronically so that the instructor can archive them for future reference, and run them through a plagiarism search service that identifies all the places on the Internet where words were copied exactly.
- 5 Many of the packaged courseware products, such as Blackboard and WebCT, have the ability to set availability dates and times for all assessments. Time limits and the number of permissible accesses

can also be set by the instructor, forcing students to work through online tests quickly, demonstrating their knowledge without having time to look up answers.

- 6 Many managed learning systems also have the capability of creating large question pools for randomized testing. Randomized question pools ensure that no two students will take exactly the same examination.

Finally, course systems, such as WebCT, can track the time, duration, and number of times that a student opens any sections of an online course. This is particularly true with assessments. Multiple accesses for short durations are definitely suspect.

Plagiarism

Plagiarism is using the ideas and writings of others and representing them as your own. Even if you do not copy another source word-for-word, but rather rephrase the source without attributing it to the original author by including a footnote, citation, or reference, you are guilty of plagiarism. Plagiarism is a serious violation of academic standards and, in most universities, is punishable with a failing grade and possible expulsion from the institution.

Using online sources ethically

One of the most important ethical issues which online learning raises is that of giving due credit or acknowledgement to the work of others. Online students sometimes have the misconception that copying things from online sources is acceptable. *That is not true!* Online communications, just like all other sources are automatically copyrighted at the moment they are created. The fact that you can access them easily or don't have to pay to use them does not mean it is acceptable for you to copy them without attributing citations to the author. This includes all online communications (e.g. emails, listservs, chat room transcripts, discussion board postings, etc.), as well as online content such as Web pages, images, music, videos, and flash animations. Whenever you are copying any content, even if it is to rephrase or summarize someone else's online writings or comments, you must properly cite the writer in your papers. If you do not cite the sources upon which your research is based, you will be guilty of plagiarism.

Remember Everything on the Internet is copyrighted at the moment of its creation. Even if it doesn't carry a copyright symbol or statement, it is still the property of the creator and needs to be properly cited.

Dynamic nature of online documents

The Internet is a rich repository of knowledge as well as a large source of teaching and learning materials. However, its dynamic state accounts for some of the confusion about the nature of online content, particularly when compared to the permanent status of paper-based resources. The Web presents the advantage of ease in updating and altering documents. Unfortunately, this flexibility also makes it simple to illegally copy documents.

These features could create an ethical dilemma for a student who in good faith may have cited materials from a URL listed in his or her research paper without realizing that the material may have been pirated. Similarly, the impermanence of Web-based resources, for example Web sites and documents being taken offline without notice of how to further gain access to such materials, makes it difficult for students to use them. If a student has quoted one such source in his or her work and it is no longer there when the instructor checks the site for accuracy and relevance, it may seem that the student has cheated or quoted a source incorrectly. Such a scenario, may call to question the moral integrity of the student.

Tip Use correct electronic citation techniques, as described in Chapter 7, to indicate the location online. Including the actual date you accessed the online material will also help verify your intent in making a proper citation.

As covered in Chapter 7, proper citations for online sources such as Web pages, FTP sites, listservs, discussion boards, and email correspondence include much of the same information as a print source. However, you must also add information about format, availability, and the date you viewed the site.

Minimum citation requirements

- author (if available)
- title
- publishing information (if available): city, publisher, year of publication

- format (online, CD-ROM, etc.)
- availability (address for site such as URL or telnet address)
- date of access (online sources only).

Example of an online article in APA format:

McVay, M. (1998, December). Facilitating knowledge construction and communication on the Internet. *The Technology Source*. Accessed Online August 15, 2003 at <http://ts.mivu.org/default.asp?show=article&id=60>

Remember Be sure to check with your instructors as to the exact requirements for citing online sources and the citation style you should use.

As you find resources on the Internet you will need to keep track of them so that you can record them in your assignments. Software programs such as EndNotes™ can help you with this if you have a lot to record. EndNotes provides a mechanism for accurately generating both internal references and bibliographies for a number of the most popular writing styles (e.g. APA, MLA, Chicago). The citation style you choose may depend on the style your instructor prefers or the discipline in which you are doing research. Though style is important to learn, what is more important is that you are consistent throughout your paper. There are many style manuals available that provide detailed explanations of how to format your citation. These style manuals have been published by professional organizations, such as the American Psychological Association (APA), or by an individual who is well regarded in academia. In addition to providing guidelines for how to cite sources, these manuals give background information on other elements of style such as page layout, punctuation, basic grammar, etc.

Additionally, there are a number of Websites that describe how to cite electronic resources. The Bedford St. Martins site mentioned in Chapter 7 is an excellent online resource for providing quick citation examples and sources. <http://www.bedfordstmartins.com/online/citex.html>.

File sharing with music and videos

Music and video file sharing has become a major problem at universities around the globe. Students downloading MP3 files, or running their own networks on university servers, have been using up bandwidth and in some instances not only slowing down but disabling the schools computer services. Furthermore, entertainment companies have been

aggressively contacting university legal offices and serving subpoenas on computer records of student Internet access in order to catch those who are illegally downloading these files.

Many students mistakenly consider free downloads of music files from the Internet, whether unauthorized by the artist or not, an inalienable right. In a recent survey, American college students were asked if it was acceptable to arrest someone who stuck a dozen CDs under his jacket and tried to walk out of a record store, 96 percent of students indicated the arrest was deserved. However, when asked if downloading unlicensed MP3s or music files from KaZaA was also thievery, 72 percent said it was not and that no arrest would be warranted.

KaZaA and other peer networks make sharing files – particularly music and videos – seem painless. This type of sharing is in direct violation of copyright laws. It's easy to say something like, "The big rich music company won't miss my measly \$15 to buy an album." Or "It's OK to download just a couple of songs because I don't want to buy the whole album." However, millions of people have been following this same logic and music and video companies have lost tens of millions of dollars in sales. Now entertainment companies are aggressively pursuing people who use these file-sharing networks, having them arrested, and filing expensive law suits to recoup their losses.

A recent article at CNN's news site describes the plight of a bright 17-year-old Princeton University student who downloaded music and videos and has now been arrested, convicted of theft, and is working to repay a fine of \$15,000. <http://www.cnn.com/2003/TECH/internet/06/27/music.sharing.column/> In Europe software companies joined with the film and music industry to launch an integrated anti-piracy hotline called FAST (The Federation Against Software Theft). The hotline was the first of its kind. It provides a single point of contact for members of the public, law enforcement agencies, the Internet and creative industries to get advice and information about film, music and software copyright issues, and to report piracy.

Remember It is illegal to make a copy of a music or film recording without the permission of the copyright owner, even for personal use. Court decisions worldwide consider economic and moral impacts of a breach. Industry is now aggressively pursuing thousands of violators around the world and serving notices. If caught, both you and the university may have to repay thousands of dollars. The way to your protect yourself is simply not to engage in this type of activity.

Software use and abuse

An overwhelming majority of students feel that software piracy and similar forms of unethical behavior are acceptable. The most commonly pirated software is the Windows™ operating system, followed by typical programs such as word processors, spreadsheets, image manipulation tools, and then special software required for a class. Not only do many students feel that it is okay for them to pirate software (particularly for use in their education) but they feel that piracy is normal behavior.

When you purchase a piece of software, you do not own that software. You have purchased the *right* to use the software. This right is usually limited to one machine (i.e., your personal computer). You cannot share it with a friend, copy it to another computer, or send it in the mail for someone else in your family to use.

What's the harm in making a few extra copies?

When extra software copies are used on university-owned computers, the harm could be great. Software publishers take piracy very seriously and have held many universities and the students involved liable for large monetary damages. Also, even for continued minor infringements, the university could lose its eligibility for educational discount pricing on software.

In the larger picture, copying cheats the publisher, the software authors, and everyone who uses the software. It makes software more costly and denies the publisher the sales it needs (and earned) to improve its product and finance new ones.

Should I report other people who share software?

Students usually know who is pirating software and who is not, but they don't want to be seen as a traitor. Most universities have posted standards of ethical conduct regarding computer usage on the Internet and in their school catalogs. As a student you agree to follow this ethical conduct. By staying silent, you'd violate those standards and could face disciplinary action yourself.

The ethical conduct policy will protect you from anyone else who might be upset by your honesty. Most schools endeavor to shield the identity of individuals providing information concerning possible violations, including fraud, as much as allowed within legal limits.

Misuse of computer resources – identification and authentication fraud

As students become more technologically savvy, some take advantage of their knowledge and use college and university systems for unethical purposes. One way you can help to stop this problem is to safeguard your personal computer identifications and passwords. Many students have unwittingly given their username and password to a “trusted” friend, only to find out their account was then the center of illegal activities. *Do not* let anyone know your username and password, even a friend.

Examples of computer misuse:

- Using a computer account that you are not authorized to operate.
- Giving someone else access to your computer account.
- Obtaining a password for a computer account without the consent of the account owner.
- Using the campus network to gain unauthorized access to other computer systems.
- Knowingly performing an act that will interfere with the normal operation of computers, terminals, peripherals, or networks.
- Knowingly running or installing on any computer system or network, or giving to another user, a program intended to damage or place excessive load on a computer system or network. This includes but is not limited to programs known as computer viruses, Trojan horses, and worms.
- Attempting to circumvent data protection schemes or uncover security loopholes.
- Violating terms of applicable software licensing agreements or copyright laws.
- Deliberately wasting computing resources.
- Using electronic mail to harass others.
- Masking the identity of an account or machine.
- Posting materials on electronic bulletin boards that violate existing laws or the university’s codes of conduct.
- Attempting to monitor or tamper with another user’s electronic communications, or reading, copying, changing, or deleting another user’s files or software without the explicit agreement of the owner.

At the beginning of this chapter, ethics was defined as character. When you act in an ethical manner your good character is on display. If

you engage in any of the unethical behaviors discussed in this chapter you may not get caught or get arrested, but your character will be on display to your instructors and your peers. Your behavior broadcasts your ethics; what they are is up to you.

The future of learning technology

We should all be concerned about the future because we will have to spend the rest of our lives there.

(Charles Franklin Kettering, 1876–1958, *Seed for Thought*, 1949)

Approximately two decades ago, the common rule for keeping up to speed with changing technology in any career was to recommend investing one day a month on personal growth in your field. Today it is estimated that the half-life of technical knowledge in the computer field is about 18 months. General knowledge is 3 to 4 years. In order for companies to remain competitive, they require employees to be constantly learning and changing. Though you may not be a computer “wiz,” your career is definitely linked to computers; and your company’s success is linked to technology. You need to be in a continuous learning and change mode to be successful today.

So how do you establish an environment that helps you to continue your learning – to accurately assess what knowledge you will need before it is required? How do you know what courses to select, or in which certificate or degree programs to enroll? The first step is to set some career goals and then list what you need to know to get there. For example, you may be an auto mechanic who wants to become the shop foreman. In addition to keeping up to date on changes in technology with automobiles, you would benefit from taking courses in business principles, interpersonal management skills, and perhaps purchasing or budgeting. If you have a ten-year-old degree in business, it may be time for you to pursue an MBA in order to move up in your organization. Or maybe you just need to update your computer skills and can do so through a four-course certificate program offered at your local school or online. If you are unsure as to the next steps, make an

appointment with a career counselor and get professional advice on expectations in the business world today.

Here are some tips for evaluating curriculum as you select the next steps in your continuous learning plan.

Tips

- Look for specific new technology and operational training opportunities that relate directly to your job. Training courses vary in length from one or two hours to several months and are generally technology specific.
- Evaluate the educational and experience credentials of your instructors. In the corporate marketplace, educational credentials may be sparse but experience is often greater. In academia, educational credentials are always present, but you need to evaluate whether the experience of the instructor fits your needs.
- Assess how your performance in the course will be evaluated. It's important to have a knowledgeable instructor who ensures you are mastering the concepts and skills. What are the course goals/objectives? Do they match what you want to learn?
- In the case of degrees, check the college or university accreditation. It offers some assurance as to the quality of education you will be receiving.

Learning technology in the near future

The future of technology in online education is toward diversification, increasing functionality and overlapping modes of learning. The benefit of participating in an online learning program is having the opportunity to access and use cutting-edge communication technology in your studies. Providers are offering more integrated options, such as text and video on the same channel, synchronous or asynchronous modalities, and one-on-one access to faculty (email and videoconferencing). For the undergraduate market, the fundamental need is to serve as wide as possible a community of users. This student group will grow even more rapidly as job options move from one nation to another and more developing countries have their network infrastructures in place. Online undergraduate education, as well as specific vocational skills training, will become the norm in the not too distant future.

As new technologies such as computer conferencing, virtual reality, artificial intelligence, and other media become more available, researchers in online education will be examining their use and effectiveness within instructional settings. This research will focus on

learner characteristics, effective instructional strategies, and cost/benefit issues. Which media attributes are effective for certain learning tasks when learning online? Which learners are more likely to succeed in online education programs? How much structure and interaction is enough or too much for successful programs? What is the nature and meaning of interaction for the learners and teacher? What makes learners feel socially present in online environments? These are some of the questions that will be of central focus for future studies in the field of online education and will then impact the delivery of online education throughout the world.

Multiple-campus schools and independent instructors will become the norm

The competition for students, as well as the desire to serve a larger diversity of student learning needs, has already created an interesting trend toward partnerships among universities and community colleges, or outright merger and acquisition of smaller institutions in order to quickly gain expertise and faculty in particular subjects. Affiliations between institutions both nationally and internationally have proven to be especially valuable, providing a match of special subject matter expertise with multi-media instructional support and marketing experience spread across institutions. Additionally, technology alliances with corporations are already becoming the norm for many colleges looking to just-in-time learning opportunities for their employees.

The use of adjunct (part-time or independently contracted) instructors will become the norm rather than the exception, allowing schools to hire online professors from anywhere in the world without worrying about office space, location, or maintaining a permanent affiliation with the university. It is possible that some future instructors will choose to market their international reputation, well-known teaching skills, and special expertise without having to partner with only one university – netting themselves several teaching contracts at a variety of universities. This use of faculty has the potential to benefit both the university and the student. The university would have the advantage of a large potential pool of instructors for popular courses requiring more sections to be opened, as well as the capability to offer specialized courses beyond the capacity of its current staff. The student may have the opportunity to interact with professors who are well-known in the field, but don't necessarily reside at the home university. The diversity of experience and perspective will only enhance the teaching/learning mix.

The growing challenge of online education in the future is globalization. It is already conceivable that students will cross national borders as they select educational opportunities to pursue. Canadians, for example, are enrolling in US online programs in large numbers. Adding to the international flavor are residents of the Caribbean and Mexico. US citizens, on the other hand, may choose to enroll in online education courses offered in Canada, Europe, Asia or Australia. Education accreditation, transfer, and qualification will become a global concern, instead of just a regional or national one.

The Open University of the UK has already tackled many of the issues of global partnership. With its current student base of over 200,000 it already makes its courses available throughout Europe. In addition, it manages other institutional partnerships in over 30 non-EU countries. Today, about 26,000 students participate in Open University courses outside the UK.

Bandwidth possibilities

In the future, bandwidth will be almost unlimited. Bandwidth is the amount of information that can be quickly delivered from all servers to a computer. Today that standard falls around 48,000 to 52,000 bits per second. This equates to roughly a page of text, a medium-sized image, or a few video frames. Unfortunately, most dial-up connections are even slower than this. Bandwidth limitations preclude the use of innovative software programs that allow for more interaction, as well as multimedia and videoconferencing.

We are already seeing a change in the availability of bandwidth. In many Canadian and American cities cable television services are offering high speed access. Telephone companies are responding with better data compression technologies and special "clean" lines that don't compete with voice traffic. At the end of the 1990s, several governments partnered with private corporations have launched a network of low-earth-orbit satellites allowing for high-speed connections to be made available to improve communications and information exchanges in the fields of public health, medicine and the environment. Today, wireless technologies are appearing in airports and even in town squares. With many governments around the world investing heavily in high-speed data infrastructures, it points even more surely that greater bandwidth will become ubiquitous and inexpensive in the not too distant future.

Internet2

Internet2 is a consortium of universities, corporations, and affiliated organizations working together with various government funding packages around the world to develop and deploy advanced network applications and technologies. Begun in 1996, Internet2 developers were tasked with accelerating the creation of the next-generation Internet. Within only four years, Internet2 had already changed the way many do business in terms of research and distance education. The bandwidth available through participation in Internet2 provides universities, corporations, museums, libraries, hospitals, and others almost unlimited resources to move vast quantities of data internationally. Current applications focus primarily on research among universities and select institutions outside of the university setting. However, distance education is likely to be an even more widespread application in the long run. And for schools interested in attracting top notch faculty, Internet2 is rapidly becoming a benchmark for successful recruitment in many disciplines.

The Internet2 backbone only carries traffic related to university education and research. No commercial or personal traffic is allowed thereby ensuring sufficient capacity for high-bandwidth applications. The minimum connection to an Internet2 point of presence (PoP), is a 155 megabit per second OC-3 connection. Today and in the near future bandwidth is described in terms of optical carrier circuits (OC). Already OC48 connections (2.488 Gbps, 1,000 times faster) are common with large companies and national Internet service providers.

Internet2 is working to enable applications, such as telemedicine, digital libraries and virtual laboratories that are not possible with the technology underlying today's Internet. The following four categories exemplify some of the areas that are undergoing the most rapid development and will enhance teaching and learning.

Managed learning environments

Very little high quality instructional software is available to serve as the content basis for distributed instruction. Most educational software has been designed for stand-alone use, especially that which incorporates sound, image or video. Much of this is dependent on a single operating system. Internet2 provides an opportunity to work on a high-bandwidth architecture that will push the boundaries of interactive learning in multimedia and online distribution.

Digital libraries

The services and capabilities envisioned for Internet2 offer important opportunities to move the digital libraries program into new areas. Very high bandwidth and bandwidth reservation will allow continuous digital video and audio to move from research use (such as in the Carnegie-Mellon University Digital Library Project) to much broader application. Still images, audio and video can, at least from a delivery point of view, move into the mainstream currently occupied almost exclusively by textual resources. This will also facilitate more extensive research in the difficult problems of organizing, indexing, and providing intellectual access to these classes of materials.

Tele-immersion

Tele-immersion has the potential to significantly change educational, scientific and manufacturing paradigms. A tele-immersion system would allow individuals at different locations to share a single virtual environment. For example, participants would interact with a virtual group at a conference table approximating what would be possible in a physical room. The individuals could share and manipulate data, simulations and models of molecular, physical or economic constructs, and jointly participate in the simulation, design review or evaluation process.

Virtual laboratories

A virtual laboratory is a heterogeneous, distributed problem solving environment that enables a group of researchers located around the world to work together on a common set of projects. As with any other laboratory, the tools and techniques are specific to the domain of the research, but the basic infrastructure requirements are shared across disciplines. Although related to some of the applications of tele-immersion, the virtual laboratory does not assume the need for a shared immersive environment.

Electronic books

Many people have now seen, or at least heard about, the new consumer electronics appliances popularly called “e-books” or “electronic books” or (more accurately) “electronic book readers,” though few have actually

been sold. The traditional print book publishing houses, online booksellers such as Amazon.com and distributors such as Barnes & Noble are announcing a series of commercial ventures and alliances to produce material for electronic distribution.

New technologies – both in hardware appliances and in software for general purpose computers – will facilitate the use of e-books. With strong innovative companies, such as Adobe and Microsoft, championing the evolution of e-books, these new technologies should make digital books more convenient and more readable.

Functionality is the key driver of e-book acceptance. There are many benefits to using digital books. You can search 500 pages in a few seconds and you can carry a thousand books in a lightweight laptop. E-books are typically less expensive than printed books, and you can buy an e-book any time of the day or night and download it immediately to your reader.

Currently, the downloading process needs to be simplified and the reading platforms have to be stable and more lightweight. However, as more publishers come onboard and more consumers become used to reading online instead of holding a printed book, it is likely e-books will become more popular.

The cyborg millennium and interaction in the farther future

Revolutions in information technology and genetics continue to change and shape our lives. As these two fields become more entwined, the impact on diverse cultures becomes more evident. Change is occurring more quickly than most can comprehend – change in relationships, work, privacy, and personal responsibility. From workplace surveillance to mail retrieval, from pre-natal genetic screening to cloning, from human consciousness to artificial intelligence, there lurks both dangers and opportunities, as well as ethical ambiguities inherent in new technologies.

When most people think of cyborgs (part machine and part human), it is usually about the Borg in *Star Trek* or the Terminator in *Robocop*. But the metaphor of the cyborg already exists in our lives today. It is no longer simply the realm of science fiction. George Landow, at Brown University, estimates that at least one in every ten Americans are “fully endowed” cyborgs – people living with machines such as pacemakers, artificial joints, drug implant systems, implanted corneal lenses – the list increases daily. We live in an age of artificial hearts, cochlear implants

and soon-to-be retinal implants (which utilize electronic-to-neural connections). We have artificial hips, legs, feet and even skin. Severely disabled people are using neurotrophic electrodes to move mouse cursors with their brain. And chips are being placed into humans while neurons grow and connect to them. We are beginning to physically bridge the physical gap between ourselves and our technologies.

In addition to the obvious physical adaptation to technology, many people also use machines for specific social, psychological, occupational, or behavioral purposes. For example, biofeedback machines are frequently used to manage stress or illness. Surgeons use lasers, airplane mechanics use augmented reality, pilots use flight simulators, and don't forget the millions of people around the world who go into a machine – their computer and access the Internet – to experience reality in cyberspace. The cyborg metaphor addresses the essence of high-technology life, defining complexity without excessive oversimplification, establishing a pattern that explains the human relationship to machines. It assumes that humans will strive to master their environment, both inside and outside their bodies, through the use of technology.

And this is just the embryonic stage of a much larger trend: our future will be inexorably tied to the cyber realm. Some scientists maintain that the human species will evolve into cyborgs. As engineer and futurist Bart Kosko proclaimed, "Biology is not destiny. It was never more than tendency. It was just nature's first quick and dirty way to compute with meat. Chips are destiny" (Kosko 1999).

Our integration with computers is moving at a quicker pace each day. Steve Mann, pioneer of wearable computing, has long immersed himself in various technologies. In examining his own experiences with the wearable computer, he recognizes both the dangers and possibilities of being constantly connected to cyberspace and makes important observations on such things as technology's existential impact, the difference between privacy and solitude and the threat of corporate and government surveillance. If one "wears" a computer at all times, how does that change learning and performance in the future? Would you be constantly learning?

Children in developed countries are growing up with technology surrounding them. The typical teenager in America can be found using Instant Messenger on the computer, while listening to a CD with a headset, simultaneously doing homework with a word processor while monitoring an online interactive game. All of this occurring with his or her cell phone at the ready. It is already hard for many to imagine what life was like before the microchip. Educators are already looking

to take advantage of these technologies by delivering educational opportunities to cell phones, PDAs (personal digital assistants like Palm Pilots™) and, yes, to wearable computers.

Delivering education in the cyborg millennium

If computers become lightweight, wearable, and integrated into all parts of daily life it is likely that the expectations for education delivery will be that it is also completely integrated by being easy to access and available at any time. Students will also demand that they be allowed to customize learning by selecting how much or how little of any topic they need. Instead of registering for an entire class, a student would register for a topic or list of topics, or for an objective or goal to meet. The model of a group of people starting at the same time, studying the same materials at the same pace, and ending at the same time will be rare. Education in the future will be topic-based, and learning will not be paced by the teacher but by the student's own capacity to master the material. For example, rather than electing to take an entire course on statistics a student may elect only to take the topic on analysis of variance, because that is the only statistical analysis required to meet his or her immediate career goal. Any given student may at any time be taking any given topic, and progressing at a pace through that material appropriate to his or her learning ability.

Topics will be selected based on student interest, aptitude, educational level, and societal need. The menu of available topics will be determined by the individual's demonstrated prior learning. Selecting a topic will be as easy as selecting a channel on television is today. The daily menus will be varied to build on each day's achievement.

Artificial intelligence software will continually monitor the student's actions. In the process, it will identify optimal learning conditions in order to generate similar study conditions in the future and avoid strategies that prove ineffective. It will note areas of weak achievement or knowledge, then customize the program to include remedial material and/or to adjust the nature and speed of the delivery of instruction. The software's analysis of learning patterns and assessment data will also take into account the students' style preferences, problem-solving techniques, and stimulus requirements. It will adjust for these variations and thus, with newly developed learner-specific teaching materials, improve the individual performance of each user.

Imagine that most learning will be based on realistic simulations in three-dimensional environments. Stephen Downes, a Canadian researcher on the future of online learning environments, suggests that students will engage in knowledge quests – games and simulations presented at a variety of levels, based on their new understanding of concepts and skills. As students select a quest, they are joined by fellow-travelers attempting the same mission. Each role in the simulation serves different levels of the various players by presenting theories, models, and problems appropriate to them. Students will also be awarded points for leadership and demonstrating mastery knowledge by mentoring lower-level players. Some quests may be short – just a few minutes – while others may require a sustained commitment over several days.

The opportunities for education will definitely change. Before the microchip not a single science fiction writer had foreseen its invention. It is likely that technology and the delivery of education will go in a direction none of us can imagine. The question is will you fight this change or embrace it? Will you be ready to take advantage of it?

Remember You are responsible for your own learning. Grab for the gold ring of education wherever you find it!

Appendix

Academic Search Elite

Provides full text for over 1,500 journals covering the social sciences, humanities, general science, multicultural studies, education, and current affairs.

Access UN

Internet access to UN Documents and Publications since 1991. Bibliographic database and links to full-text of selected UN documents. Full text of Resolutions and Preliminary Verbatim reports.

America History and Life

Citations to articles on the history and culture of the United States and Canada from prehistory to the present. Citations drawn from over 2,000 journals in history, related humanities, and the social sciences. Includes citations to book reviews (appearing in 100 major history journals) and dissertations.

Anthropological Literature

Describes articles and essays on anthropology and archaeology, including art history, demography, economics, psychology, and religious studies. Updated quarterly, it indexes articles two or more pages long in works published in English and other European languages from the late 19th century to the present

Annual Reviews

In-depth literature and research reviews on topics of importance in the disciplines.

Biomedical science

Biochemistry, biomedical engineering, biophysics and biomolecular structure, cell and developmental biology, ecology and systematics, entomology, genetics, genomics and human genetics, immunology, medicine, microbiology, neuroscience, nutrition, pharmacology and toxicology, physiology, phytopathology, plant physiology and plant molecular biology, psychology, public health.

Physical science

Astronomy and astrophysics, biomedical engineering, biophysics and biomolecular structure, earth and planetary sciences, energy and the environment, fluid mechanics, materials science, nuclear and particle science, physical chemistry.

Social science

Anthropology, energy and the environment, political science, psychology, public health, sociology

Art Full Text

Provides indexing and abstracting of art periodicals published throughout the world. Full-text coverage for selected periodicals is also included. In addition to articles, it catalogs reproductions of works of art that appear in indexed periodicals

Avery Index to Architectural Periodicals

Indexes more than 1,000 periodicals published worldwide on archeology, city planning, interior design, and historic preservation, as well as architecture. Coverage reaches from the 1930s (with selective coverage dating back to the 1860s) to the present. With more than 229,000 records, it is updated daily.

CINAHL

The CINAHL (Nursing and Allied Health) database provides comprehensive coverage of the English language journal literature related to nursing and the allied health disciplines.

Dissertations Abstracts International

Includes citations for materials ranging from the first US dissertation, acknowledged in 1861, to those accepted as recently as last semester; those published from 1980 forward also include 350-word abstracts, written by the author. Citations for masters theses from 1988 forward include 150-word abstracts ... The database represents the work of authors from over 1,000 North American graduate schools and European universities.

EBSCO Host Web

Provides citations and full text articles, and in some databases reference materials from books and pamphlets. Databases include: Academic Search Elite, MasterFILE Premier, Health Source Plus, Business Source Elite and Newspaper Source.

Education Abstracts Full Text

Covers 423 core periodicals, monographs, and yearbooks in the field of education. Topics include a wide range of contemporary education issues, including government funding, instructional media, multicultural education, religious education, student counseling, competency-based, and information technology.

EI CompIndex Web

Supplies coverage of the world's engineering literature. It corresponds to the printed publication *Engineering Index*, plus additional conference records from the *Engineering Meeting* file.

Essay & General Literature Index

Citations to essays and articles contained in collections of theses and miscellaneous works published in the United States, Great Britain, and Canada. It focuses on the humanities and social sciences, with subject

coverage ranging from economics, political science, and history to criticism of literary works, drama, and film.

Geobase

Provides citations to journals, books, monographs, conference proceedings, and reports. Subject coverage includes: cartography, climatology, energy, environment, geochemistry, geophysics, geomorphology, hydrology, meteorology, paleontology, petrology, photogrammetry, sedimentology, volcanology.

Global Access (Disclosure Inc.)

Database provides access to financial and management data for US and international companies. Data include 10-year financial histories, company profiles, and stock market performance.

Grangers World of Poetry

Provides citations to poems published in poetry anthologies. Also includes approximately 13,000 poems in full text as well as added reference material – biographies, bibliographies, commentaries and a glossary.

Grove Music

Includes full text of dictionary articles supplemented with sound clips, images and links to relevant Web materials.

Health Source Plus

Citations and some full text for medical journals, consumer health magazines, health newsletters, reference books, referral information, topical overviews, pamphlets and newspaper articles.

Historical Abstracts

Citations and abstracts for articles from 2,000 journals published worldwide in history, the social sciences, and related humanities. Includes citations to new books reviewed in key English-language history and review journals and to relevant dissertations.

Humanities Index

Citations to ± 500 English-language periodicals in the areas of archaeology, classical studies, art, performing arts, philosophy, history, music, linguistics, literature, and religion. Provides article citations to the major journals in these disciplines.

Inter-Play

Indexes plays in collections, anthologies, and periodicals. It presently contains more than 17,500 citations to plays in many languages.

Lexis-Nexus

Provides a variety of full text sources including: regional, national, and international newspapers; magazines; wire services; business publications (trade journals, corporate annual reports, tax sources); legal resources (law reviews, court cases, briefs, federal and state codes); government documents; medical information (medical journals); and reference sources (directories, biographical information).

MathSciNet

Covers research literature from all areas of mathematics, both theoretical and applied, and also covers related areas such as computer science, engineering, physics and statistics. This database corresponds to the printed indexes, *Mathematical Reviews* and *Current Mathematical Publications*. Abstracts and indexing.

MedLine

Covers the international literature on biomedicine, including the allied health fields and the biological and physical sciences, humanities, and information science as they relate to medicine and health care.

Music Index

Citations and indexing drawn from 640 international music periodicals.

Oxford Reference Online

Multidisciplinary database of approximately 100 dictionaries, handbooks and other reference books published by Oxford University Press.

PAIS

Database contains abstracts of journal articles, books, statistical year-books, directories, conference proceedings, research reports and government documents covering topics in public and social policy, business, economics, finance, law, international relations, public administration, government, political science, and other social sciences – with emphasis on issues that are or might become the subjects of legislation.

Political Science Abstracts

Citations, indexing and abstracts for journal articles in political science and its complementary fields, including international relations, law, and public administration/policy. The database, published since 1967, covers over 1000 journals drawn from the international serials literature.

PsychINFO

Covers the professional and academic literature in psychology and related disciplines including medicine, psychiatry, nursing, sociology, education, pharmacology, physiology, and linguistics.

Zoological Record

Coverage of the world's zoological and animal science literature, covering all research from biochemistry to veterinary medicine. The database provides an easily searched collection of references from over 4,500 international serial publications, plus books, meetings, reviews and other non serial literature from over 100 countries.

Glossary

Adapted from *Glossary of Internet Terms*, Copyright © 1994–2003 by Matisse Enzer. Used by permission under the Creative Commons and Open Content Licenses. The URL of the complete document is: <http://www.matisse.net/files/glossary.html> which is where you can look for the latest, most complete version. SMALL CAPITALS indicate a corresponding entry elsewhere in the glossary.

- applet** A small JAVA program that can be embedded in an HTML page. Applets differ from fully-fledged Java applications in that they are not allowed to access certain resources on the local computer, such as files and serial devices (modems, printers, etc.), and are prohibited from communicating with most other computers across a network. The common rule is that an applet can only make an Internet connection to the computer from which the applet was sent.
- backbone** A high-speed line or series of connections that forms a major pathway within a network. The term is relative as a backbone in a small NETWORK will likely be much smaller than many non-backbone lines in a large network.
- bandwidth** How much stuff you can send through a connection. Usually measured in bits-per-second. A full page of English text is about 16,000 bits. A fast modem can move about 57,000 bits in one second. Full-motion full-screen video would require roughly 10,000,000 bits-per-second (BPS), depending on compression.
- blog** – (web log) A blog is basically a journal that is available on the WEB. The activity of updating a blog is “blogging” and someone who keeps a blog is a “blogger.” Blogs are typically updated daily using software that allows people with little or no technical background to update and maintain the blog.

Postings on a blog are almost always arranged in chronological order with the most recent additions featured most prominently.

bps – (bits-per-second) A measurement of how fast data is moved from one place to another. A 56K MODEM can move about 57,000 bits-per-second.

browser A CLIENT program (software) that is used to look at various kinds of Internet resources.

CGI – (common gateway interface) A set of rules that describe how a Web SERVER communicates with another piece of software on the same machine, and how the other piece of software (the CGI program) talks to the Web server. Any piece of software can be a CGI program if it handles input and output according to the CGI standard.

client A software program that is used to contact and obtain data from a SERVER software program on another computer, often across a great distance. Each client program is designed to work with one or more specific kinds of server programs, and each server requires a specific kind of client. A Web BROWSER is a specific kind of client.

cookie The most common meaning of “Cookie” on the Internet refers to a piece of information sent by a Web SERVER to a Web BROWSER that the browser software is expected to save and to send back to the server whenever the browser makes additional requests from the server.

Depending on the type of cookie used, and the browser’s settings, the browser may accept or not accept the cookie, and may save the cookie for either a short time or a long time.

Cookies might contain information such as login or registration information, online “shopping cart” information, user preferences, etc.

When a server receives a request from a browser that includes a cookie, the server is able to use the information stored in the cookie. For example, the server might customize what is sent back to the user, or keep a log of particular users’ requests.

Cookies are usually set to expire after a predetermined amount of time and are usually saved in memory until the browser software is closed down, at which time they may be saved to disk if their “expire time” has not been reached.

Cookies do not read your hard drive and send your life story to the CIA, but they can be used to gather more information about a user than would be possible without them.

cyberspace Term originated by author William Gibson in his novel *Neuromancer* the word cyberspace is currently used to describe the whole range of information resources available through computer networks.

DNS – (domain name system) The domain name system is the system that translates Internet DOMAIN NAMES into IP numbers. A “DNS server” is a SERVER that performs this kind of translation.

domain name The unique name that identifies an Internet site (i.e. www.pdx.edu). Domain names always have two or more parts, separated by dots. The part on the left is the most specific – naming a location, whereas the part on the right is the most general – referring to the type of entity using the name (e.g. “edu” for education or “com” for commercial).

download Transferring data (usually a file) from a another computer to the computer you are using. The opposite of UPLOAD.

DSL – (digital subscriber line) A method for moving data over regular phone lines. A DSL circuit is much faster than a regular phone connection, and the wires coming into the subscriber’s premises are the same (copper) wires used for regular phone service. A common configuration of DSL allows downloads at speeds of up to 1.544 megabits (not megabytes) per second, and uploads at speeds of 128 kilobits-per-second. Another common configuration is symmetrical: 384 kilobits-per-second in both directions.

email – (electronic mail) Messages, usually text, sent from one person to another via computer. Email can also be sent automatically to a large number of addresses.

FAQ – (frequently asked questions) Documents that list and answer the most common questions on a particular subject. There are hundreds of FAQs on subjects as diverse as pet grooming and cryptography. FAQs are usually written by people who have tired of answering the same question over and over.

fire wall A combination of hardware and software that separates a NETWORK into two or more parts for security purposes.

flame Originally, “flame” meant to carry forth in a passionate manner in the spirit of honorable debate. Flames most often involved the use of flowery language and flaming well was an art form. More recently flame has come to refer to any kind of derogatory comment no matter how witless or crude.

flame war When an online discussion degenerates into a series of personal attacks against the debators, rather than discussion of their positions. A heated exchange.

FTP – (file transfer protocol) A very common method of moving files between two Internet sites. FTP is a way to LOGIN to another Internet site for the purposes of retrieving and/or sending files. There are many Internet sites that have established publicly accessible repositories of material that can be obtained using FTP, by logging in using the account name “anonymous”, thus these sites are called “anonymous ftp servers.”

GIF – (graphic interchange format) A common format for image files, especially suitable for images containing large areas of the same color. GIF format files of simple images are often smaller than the same file would be if stored in JPEG format, but GIF format does not store photographic images as well as JPEG.

gigabyte 1000 or 1024 MEGABYTES, depending on who is measuring.

home page – (or homepage) Several meanings. Originally, the WEB page that your BROWSER is set to use when it starts up. The more common meaning refers to the main Web page for a business, organization, person or simply the main page out of a collection of web pages, e.g. “Check out so-and-so’s new home page.”

host Any computer on a NETWORK that is a repository for services available to other computers on the network. It is quite common to have one host machine provide several services, such as SMTP (email) and HTTP (web).

HTML – (hypertext markup language) The coding language used to create HYPERTEXT documents for use on the World Wide Web (www). HTML looks a lot like old-fashioned typesetting code, where you surround a block of text with codes that indicate how it should appear.

The “hyper” in hypertext comes from the fact that in HTML you can specify that a block of text, or an image, is linked to another file on the Internet. HTML files are meant to be viewed using a “Web browser”.

HTTP – (hypertext transfer protocol) The protocol for moving HYPERTEXT files across the Internet. Requires a HTTP CLIENT program on one end, and an HTTP SERVER program on the other end. HTTP is the most important protocol used in the World Wide Web (www).

hypertext Generally, any text that contains links to other documents – words or phrases in the document that can be chosen by a reader and which cause another document to be retrieved and displayed.

IRC – (internet relay chat) Basically a huge multi-user live chat facility. There are a number of major IRC SERVERS around the world which

are linked to each other. Anyone can create a channel and anything that anyone types in a given channel is seen by all others in the channel. Private channels can (and are) created for multi-person conference calls.

ISDN – (integrated services digital network) Basically a way to move more data over existing regular phone lines. ISDN is available to much of the USA and in most markets it is priced very comparably to standard analog phone circuits. It can provide speeds of roughly 128,000 BITS-PER-SECOND over regular phone lines. In practice, most people will be limited to 56,000 or 64,000 bits-per-second.

ISP – (internet service provider) An institution that provides access to the Internet in some form, usually for money. Your university may also be considered an ISP if it allows students to access the Internet from off campus by using the university SERVER.

Java Java is a NETWORK-friendly programming language invented by Sun Microsystems. Java is often used to build large, complex systems that involve several different computers interacting across networks, for example transaction processing systems. Java is also becoming popular for creating programs that run in small electronic devices, such as mobile telephones.

A very common use of Java is to create programs that can be safely downloaded to your computer through the Internet and immediately run without fear of viruses or other harm to your computer or files. Using small Java programs (called “APPLETS”), Web pages can include functions such as animations, calculators, and other fancy tricks.

JPEG – (joint photographic experts group) JPEG is most commonly mentioned as a format for image files. JPEG format is preferred to the GIF format for photographic images as opposed to line art or simple logo art.

kilobyte A thousand bytes. Actually, usually 1024 (2^{10}) bytes.

LAN – (local area network) A computer NETWORK limited to the immediate area, usually the same building or floor of a building.

Listserv ® The most common kind of maillist, “Listserv” is a registered trademark of L-Soft International, Inc. Listservs originated on BITNET but they are now common on the Internet.

login Noun or a verb.

- Noun: The account name used to gain access to a computer system. Not a secret (contrast with PASSWORD).
- Verb: the act of connecting to a computer system by giving your credentials (usually your “username” and “password”).

megabyte A million bytes. Actually, technically, 1024 KILOBYTES.

meta tag A specific kind of HTML tag that contains information not normally displayed to the user. Meta tags contain information about the page itself, hence the name (“meta” means “about this subject”).

Typical uses of meta tags are to include information for SEARCH ENGINES to help them better categorize a page. You can see the meta tags in a page if you view the pages’ source code.

modem – (modulator, demodulator) A device that connects a computer to a phone line. A telephone for a computer. A modem allows a computer to talk to other computers through the phone system. Basically, modems do for computers what a telephone does for humans.

MOO – (MUD, Object Oriented) One of several kinds of multi-user role-playing environments.

MUD (multi-user dungeon or dimension) A (usually text-based) multi-user simulation environment. Some are purely for fun and flirting, others are used for serious software development, or education purposes and all that lies in between. A significant feature of most MUDs is that users can create things that stay after they leave and which other users can interact within their absence, thus allowing a world to be built gradually and collectively.

netiquette The etiquette on the Internet.

netizen Derived from the term citizen, referring to a citizen of the Internet, or someone who uses networked resources. The term connotes civic responsibility and participation.

network Any time you connect two or more computers together so that they can share resources, you have a computer network. Connect two or more networks together and you have an internet.

newsgroup The name for discussion groups on USENET.

password A code used to gain access (LOGIN) to a locked system. Good passwords contain letters and non-letters and are not simple combinations such as *virtue7*.

plug-in A (usually small) piece of software that adds features to a larger piece of software. Common examples are plug-ins for the Netscape® BROWSER and Web SERVER. Adobe Photoshop® also uses plug-ins.

PNG – (portable network graphics) PNG is a graphics format specifically designed for use on the World Wide Web (www). PNG enable compression of images without any loss of quality, including high-resolution images. Another important feature of PNG is that anyone may create software that works with PNG images without paying any fees – the PNG standard is free of any licensing costs.

POP – (point of presence, also post office protocol) A point of presence usually means a city or location where a NETWORK can be connected to, often with dial-up phone lines. So if an Internet company says they will soon have a POP in Belgrade, it means that they will soon have a local phone number in Belgrade and/or a place where leased lines can connect to their network.

A second meaning, post office protocol refers to a way that email CLIENT software such as Eudora gets mail from a mail SERVER. When you obtain an account from an INTERNET SERVICE PROVIDER (ISP) you almost always get a POP account with it, and it is this POP account that you tell your email software to use to get your mail. Another protocol called IMAP is replacing POP for email.

port This term has three meanings.

- First and most generally, a place where information goes into or out of a computer, or both, e.g. the serial port on a personal computer is where a MODEM would be connected.
- On the Internet port often refers to a number that is part of a URL, appearing after a colon (:) right after the DOMAIN NAME. Every service on an Internet server listens on a particular port number on that SERVER. Most services have standard port numbers, e.g. Web servers normally listen on port 80. Services can also listen on non-standard ports, in which case the port number must be specified in a URL when accessing the server, so you might see a URL of the form: webct.pdx.edu:8900. This shows a WebCT server running on a non-standard port (the standard Internet port is 80).
- Finally, port also refers to translating a piece of software to bring it from one type of computer system to another, e.g. to translate a Windows program so that it will run on a Macintosh.

portal Usually used as a marketing term to describe a Website that is or is intended to be the first place people see when using the Web. Typically a “portal site” has a catalog of Websites, a SEARCH ENGINE, or both. A portal site may also offer email and other service to entice people to use that site as their main “point of entry” (hence “portal”) to the Web.

posting A single message entered into a NETWORK communications system.

proxy server A proxy server sits between a CLIENT and the “real” SERVER that a client is trying to use. This often happens with online library services. The client makes all of its requests to the proxy server, which then makes requests to the “real” server and passes

the result back to the client. In a library system this is important to protect access to expensive resources like online journal databases.

search engine A system for searching the information available on the Web. Some search engines work by automatically searching the contents of other systems and creating a database of the results. Other search engines contains only material manually approved for inclusion in a database, and some combine the two approaches.

server A computer, or a software package, that provides a specific kind of service to *client* software running on other computers. The term can refer to a particular piece of software, such as a *www* server, or to the machine on which the software is running, e.g. "Our mail server is down today, that's why email isn't working." A single server machine can (and often does) have several different server software packages running on it, thus providing many different servers to clients on the *NETWORK*. Sometimes server software is designed so that additional capabilities can be added to the main program by adding small programs known as *servlets*.

spam – (or spamming) An inappropriate attempt to use a mailing list or other networked communications facility as if it was a broadcast medium (which it is not) by sending the same message to a large number of people who did not ask for it. The term probably comes from a famous Monty Python skit which featured the word *spam* repeated over and over. The term may also have come from someone's low opinion of the food product with the same name. (Spam® is a registered trademark of Hormel Corporation, for its processed meat product.)

T-1 A leased-line connection capable of carrying data at 1,544,000 bits-per-second (BPS). At maximum theoretical capacity, a T-1 line could move a MEGABYTE in less than 10 seconds. That is still not fast enough for full-screen, full-motion video, for which you need at least 10,000,000 bps. T-1 lines are commonly used to connect large LANS to the Internet.

T-3 A leased-line connection capable of carrying data at 44,736,000 BPS. This is more than enough to do full-screen, full-motion video.

TCP/IP – (transmission control protocol/internet protocol) This is the suite of protocols that defines the Internet. Originally designed for the UNIX operating system, TCP/IP software is now included with every major kind of computer operating system. To be truly on the Internet, your computer must have TCP/IP software.

Trojan horse A computer program that is either hidden inside another program or that masquerades as something it is not in

order to trick potential users into running it. For example, a program that appears to be a game or image file but in reality performs some other function. A Trojan horse computer program may spread itself by sending copies of itself from the host computer to other computers, but unlike a VIRUS it will (usually) not infect other programs.

upload Transferring data (usually a file) from the computer you are using to another computer. The opposite of DOWNLOAD.

URL – (uniform resource locator) The term URL is most often used to describe an Internet address (i.e. <http://www.pdx.edu>), file, or other resource on the Web. The URL contains the protocol of the resource (e.g. <http://> or <ftp://>), the domain name for the resource (e.g. www.pdx.edu), and the hierarchical name for the file (e.g. [index.html](http://www.pdx.edu/index.html)).

virus A chunk of computer programming code that makes copies of itself without any conscious human intervention. Some viruses do more than simply replicate themselves, they might display messages, install other software or files, delete software or files, etc.

A virus requires the presence of some other program to replicate itself. Typically, viruses spread by attaching themselves to programs and in some cases files, for example the file formats for Microsoft word processor and spreadsheet programs allow the inclusion of programs called “macros” which can in some cases be a breeding ground for viruses.

Web Short for “World Wide Web.” See www.

Web page A document designed for viewing in a WEB BROWSER. Typically written in HTML.

worm A worm is a VIRUS that does not infect other programs. It makes copies of itself, and infects additional computers (typically by making use of NETWORK connections) but does not attach itself to additional programs; however a worm might alter, install, or destroy files and programs.

WWW – (World Wide Web) World Wide Web (or simply Web for short) is a term frequently used (incorrectly) when referring to “The Internet”, WWW has two major meanings:

- First, loosely used: the whole constellation of resources that can be accessed using Gopher, FTP, HTTP, telnet, USENET, WAIS and some other tools.
- Second, the universe of HYPERTEXT SERVERS (HTTP servers), more commonly called “web servers”, which are the servers that serve web pages to web browsers.

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