

Retaining Your Online Students

Beryl C. McEwen, Ph.D.
Professor and Chairperson
Department of Business Education
School of Business and Economics
North Carolina A&T State University
Greensboro, NC 27411
Phone: 336-334-7657, ext. 4000
Fax: 336-334-7093
mcewenb@ncat.edu

and

Lisa E. Gueldenzoph, Ph.D.
Assistant Professor
Department of Business Education
School of Business and Economics
North Carolina A&T State University
Greensboro, NC 27411
Phone: 336-334-7657, ext. 4004
Fax: 336-334-7093
lguelden@ncat.edu

Retaining Your Online Students

The World Wide Web offers higher education the opportunity to expand the borders of our classrooms to include distance learners. And, as higher education continues to embrace the Internet as an instructional delivery tool, one of the issues that must be addressed is the high drop-out rate associated with online courses. It is no longer enough to attract students to our programs, because as Shepherd (2002) asserts, e-learning is achieving inconsistent results. While some e-learners thrive on the increased flexibility that the medium provides, others languish in isolation and struggle to get started.

Carr (2000) reported that anecdotal evidence and empirical research both suggest that course completion and program retention rates are generally lower in distance education courses than in their face-to-face counterparts. Diaz (2002) also noted that drop rates for online classes have been consistently higher than those of traditional classes and that dropping a course is associated with academic non-success. It is not surprising, therefore, that while colleges continue to attract new online students, administrators are also trying to find ways to keep them enrolled.

Researchers such as Diaz (2000) and Parker (1999) have studied the problem of high attrition among online learners. They found that understanding the characteristics of online learners is an important precursor to providing interactions and services that meet their needs, therefore enhancing retention. Who are the typical e-learners, and what can be done to retain them in our courses and programs? To answer these questions we are challenged to accurately profile e-learners and find realistic strategies to keep them enrolled in the courses that they self-select.

Purpose of the Study

The purpose of this study was to identify the characteristics of online learners, also referred to as e-learners, and to suggest strategies that might be used to reduce attrition, especially in information systems and related courses. As such, the research problem is: What is the profile of online learners and what strategies can be used to enhance their retention in the information systems courses in which they enroll?

Review of Literature

In 1975, Vincent Tinto published what became one of the most widely recognized theories in student retention research. His investigations formed the basis for much of the retention/attrition research conducted in the late 20th century. Tinto's Student Retention Theory is based on establishing a sense of community on campuses to enhance students' sense of belonging (Spann, 1990). His model (shown in Figure 1) focuses on two factors of students' motivation: their commitment to their academic goals and their commitment to the institution in which they are pursuing their academic goals. Many variables have a direct bearing on these factors; some are internal to the student (prior qualifications, individual attributes, etc.), and others are specific to the institution (teaching, learning support, facilities, etc.). Combining these variables gives students a sense of both academic and social integration; when one or both are compromised, students are more likely to drop out. (Tinto, 1975)

Astin’s Student Involvement Theory is similar to Tinto’s theory but focuses more specifically on the role of students’ motivation and behavior (Astin, 1984). Astin’s theory states that retention is improved when students are actively “involved in both the academic and social aspects of the collegiate experience” (Hutley, 2002, p. 1). By engaging in academic and social interactions, students build a sense of community and become more involved in their learning process.

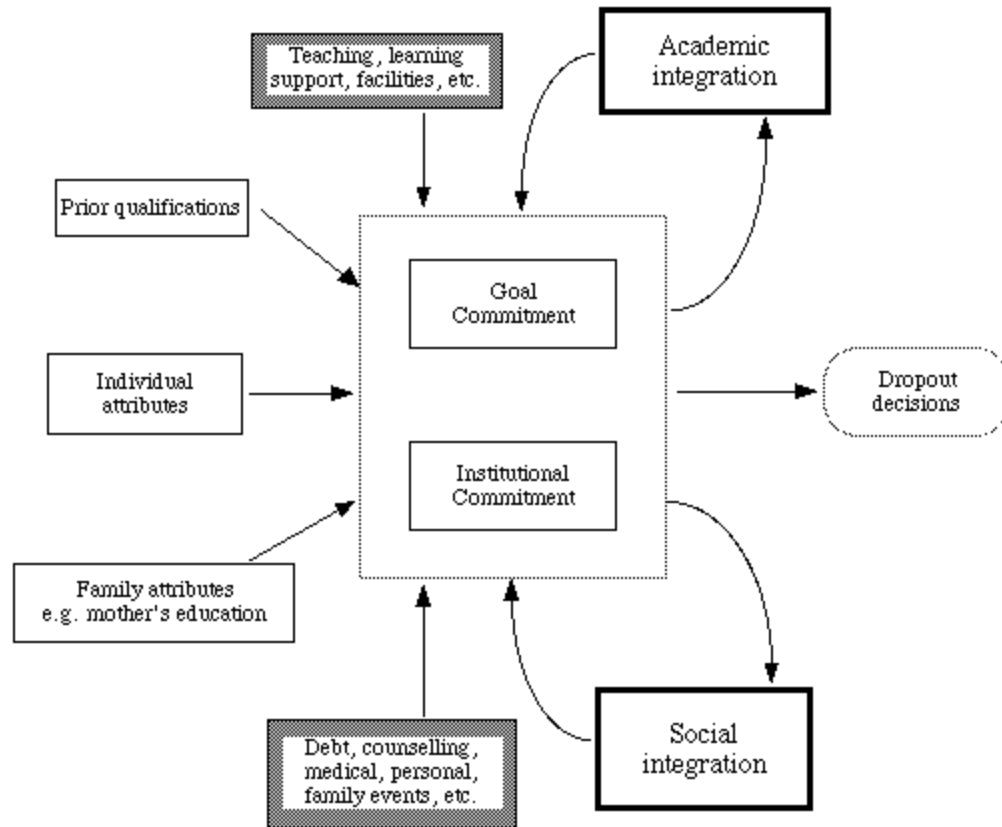


Figure 1. Tinto’s Model of Student Retention

Based on both theories, institutions that want to increase student retention should focus their programmatic strategies on student involvement and socialization with the university community and classroom experience. “There are several practical applications ... the most important to teaching is that instructors are encouraged to take the focus off the course content and their own technique and put it on their students” (Hutley, 2002, p. 1). Many institutions that have implemented student retention initiatives reported increases in student retention (Lang, 2002). Those institutions that have been exceptionally successful are often recognized by Noel-Levitz (Brotherton, 2001).

A long-standing consulting firm in higher education administration (specifically, student development and student affairs), Noel-Levitz also recognizes the importance of retention efforts in online learning environments. The firm is currently piloting a new survey that addresses students’ satisfaction levels with their online learning experiences (Noel-Levitz, 2002). In the meantime, researchers such as Parker (1999) and Diaz (2000) have studied the problem of

attrition among online learners and found that though institutional variables affect attrition in online courses and programs; generally, the drop-out rate among e-learners far exceeds that of classes taught in traditional formats.

Researchers such as Diaz (2000) and Parker (1999) have also articulated the need to profile online learners so that advisers, technical support people, administrators, and faculty can better understand their unique characteristics and needs and provide better interventions, including more interaction, thus enhancing retention. For example, Frankola (2002) noted that the wish list for many e-learners included active correspondence with an online facilitator (preferably the professor), frequent virtual office hours, 24/7 technical support, and the ability to start a course anytime. Some of the major reasons for dropping online courses included technology problems, lack of support, poorly designed courses, and inexperienced or incompetent instructors (Frankola, 2002). Frankola underscored the importance of the instructor, noting that students will drop even the best courses if the instructor is not working with them—high interactivity between instructor and students is a key component of successful online courses.

Methodology

Research Questions

The study focused on four main questions:

1. What are the primary characteristics of online learners in terms of demographics and educational background?
2. What is the level of technology literacy/competence of online learners?
3. What does the literature reveal about strategies or best practices for enhancing retention in online courses?
4. Are there instructional strategies that might be uniquely relevant to e-learners enrolled in information systems and computer-related courses?

Research Design

The study used the descriptive research design, which is ideal for studies that seek to report information that already exists, thus bringing clarity and understanding to a problem. Descriptive research aims to gather data without any manipulation of the research context. Participants included a convenience sample of the 420 students who self-selected to enroll in online courses during the Spring 2001 semester at a state-supported comprehensive university in the Southeast.

The first part of the study used a pre-course survey, administered by the university's Center for Distance Learning, to provide data for profiling e-learners. This part of the study provided data in response to research questions one and two. Further, the available literature was thoroughly reviewed to provide answers to research questions three and four regarding strategies or best practices for enhancing retention in the e-learning environment, particularly in information systems and computer-related courses.

Descriptive statistics were used to analyze the survey data, which are presented in tables and graphs. Microsoft Excel was used to do the analyses as well as to create charts and tables. The

data drawn from the literature are discussed in themes in relation to the relevant research questions.

Findings

A total of 420 students responded to the survey, however, not all responded to each question, resulting in the need to report missing data. The “valid percent” shown in each table is the result of the frequency divided by the number of responses to the questions from which the data are drawn.

Demographic Characteristics

Table 1 displays the characteristics of students who enrolled in online courses during Spring 2001 semester. They were 47 percent males (valid percent = 52.8) and 42 percent females (valid percent = 47.2). Eleven percent did not indicate gender. Over 65 percent (valid percent = 73.4) were of the majority race represented by the school (African Americans), with about 20 percent Caucasians (valid percent = 21.8) and 2 percent were Asian Americans. Students in the 18 to 24 age range formed the largest percentage of online learners (41.4% or 46.2 valid percent). Students 18 to 34 years old accounted for 69.3 (77.2 valid percent) of online learners.

Table 1 also shows that 30.2 percent (33.2 valid percent) of online learners have already completed some college-level courses and 41 percent (45.0 valid percent) have already completed a bachelor’s degree. Ten percent have only a high school education and about six percent already have a master’s degree.

Table 1
Demographic Characteristics of Online Learners

Characteristic	Frequency	Percent	Valid Percent	Cumulative Percent
<i>Gender</i>				
Male	197	46.9	52.8	52.8
Female	176	41.9	47.2	100.0
Missing Data	47	11.2		
<i>Age Range</i>				
17 years and younger	1	0.2	0.3	0.3
18 – 24 years	174	41.4	46.2	46.5
25 – 34 years	117	27.8	31.0	77.5
35 – 44 years	57	13.6	15.1	92.6
45 – 54 years	24	5.7	6.4	99.0
55 years and older	4	1.0	1.0	100.0
Missing Data	43	10.2		

Table 1 Continued
Demographic Characteristics of Online Learners

Characteristic	Frequency	Percent	Valid Percent	Cumulative Percent
<i>Race/Ethnicity</i>				
African Americans (majority)	276	65.7	73.4	73.4
Caucasians	82	19.5	21.8	95.2
Asian/Pacific Islander	9	2.1	2.4	97.6
Hispanic	1	0.2	0.3	97.9
American Indian	0	0.0	0.0	97.9
Other	8	1.9	2.1	100.0
Missing Data	44	10.5		
<i>Highest Level of Education Completed</i>				
High School	39	9.3	10.2	10.2
Some College	127	30.2	33.2	43.4
Associate Degree	18	4.3	4.7	48.1
Bachelor's Degree	172	41.0	45.0	93.2
Master's Degree	24	5.7	6.3	99.5
Doctoral Degree	2	0.5	0.5	100.0
Missing Data	38	9.0	9.0	

Technological Literacy of Online Learners

The data presented in Table 2 presents the students' self-reported competence. For example, 73 percent (79 valid percent) know what type of microprocessor they have.

Table 2
Online Students' Technological Understanding

Previous Knowledge	Frequency	Percent	Valid Percent
Type of Microprocessor they have	306	73	79
Speed of their microprocessor	240	57	63
Speed of modem or type of Internet connection they have	312	74	85
Whether their computer has sound card and speakers	360	86	95

The pie chart in Figure 2 shows students' perceptions of their levels of computer skills. Most students classify themselves as intermediate with only 5.8 percent classifying themselves as experts.

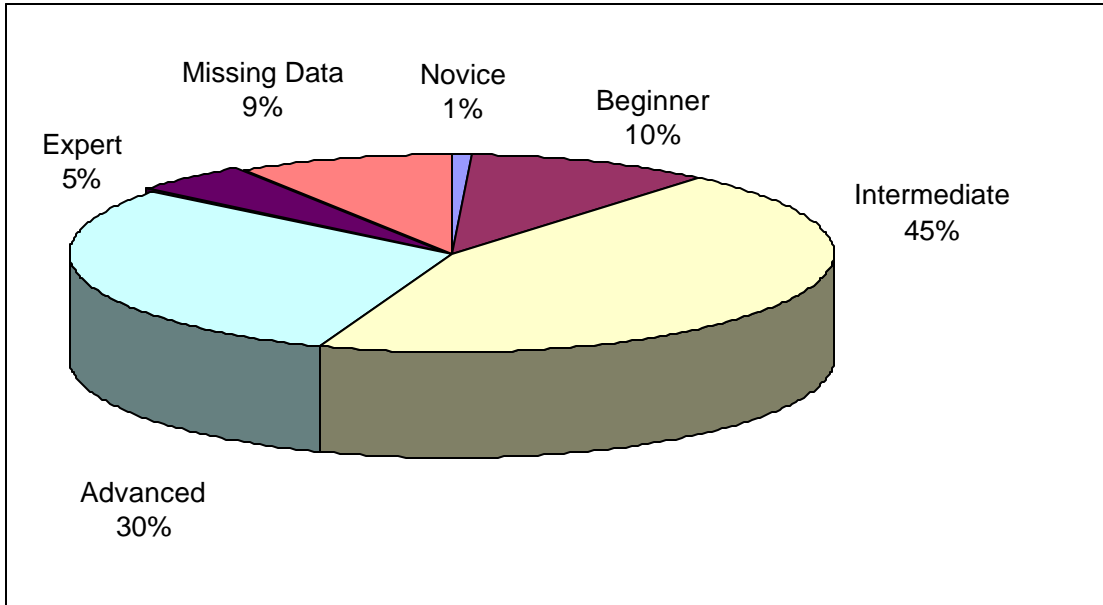


Figure 2. Computer Competence of Online Learners

Figure 3 shows that the majority of students had not taken a course online before. However, six students indicated that they had previously taken more than five online courses.

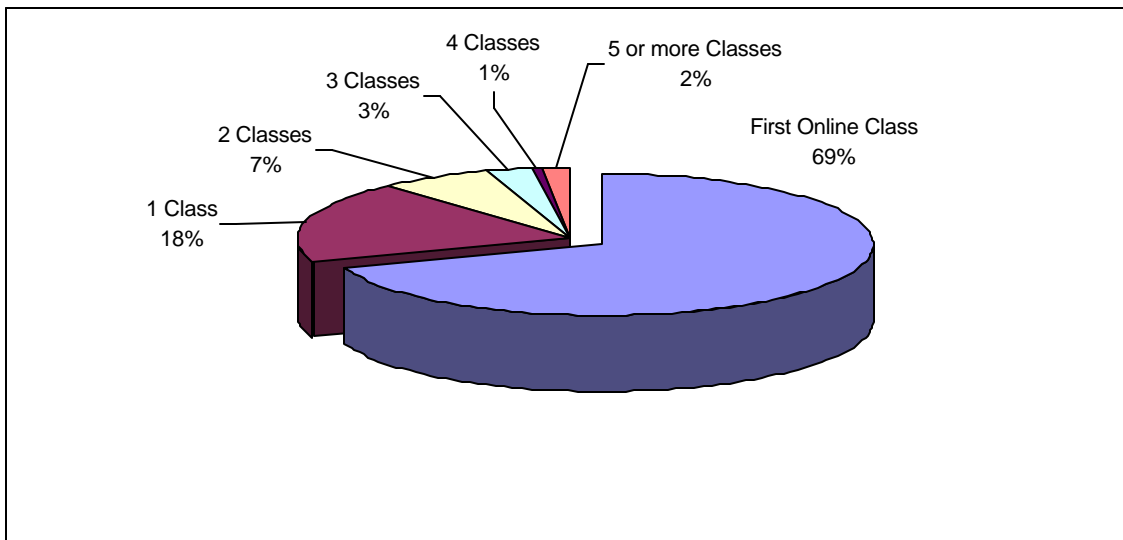


Figure 3. Computer Competence of Online Learners

Best Practices for Online Course Retention

Online learning is successful when faculty realize that “students and teachers are partners in the learning process” and that “the main reason for dropout is that the student feels no one cares” (Arsham, 2000, p. 1). Much of the research conducted on distance learning indicates that students are significantly more likely to withdraw from “click” classes than “brick” classes (Lewis et al., 1999; Hiltz, 1997). At the root of the problem is communication—communication

between instructor and student as well as among the students themselves. Strategies for enhancing student retention in online courses include:

Focused Communication. It is essential for online faculty to provide specific and frequent communication about course goals and objectives, assignments, and expectations. Buchanan (2000) suggests that a comprehensive orientation to the course in general and the online educational environment specifically are more important in online classes than they are in traditional classrooms. For example, Dyrud (2000) emphasized the following suggestions for teaching online computer courses: (a) provide very specific examples of the application features, (b) carefully articulate assignment instructions and expectations, and (c) post (via individual e-mail, announcements, or discussion boards) periodic reminders to keep students on track. This focused communication from the instructor supports students' learning and encourages student interaction.

Student Interaction. Online instructional software, such as Blackboard, eCollege, and WebCT, allows for interaction between students and their peers as well as their instructors. This interaction is a significant aspect of computer-based learning, assuming the key to successful online education is based on effective student-with-student and student-with-instructor communication. Edwards and Clear (2001) suggest that four conditions must be present to foster an effective learning community: (a) group dialog, (b) organized meetings, (c) shared knowledge, and (d) problem solving. In the online environment, the instructor may set up virtual teams in which students work together via e-mail, discussion board, or virtual meeting rooms to complete projects and chat rooms where students may interact online in real time. The goal is to keep the communication open and flowing comfortably.

Faculty Interaction. Engelkemeyer and Brown (1998) stated that learning requires frequent feedback if it is to be sustained. Although discussion boards are important vehicles for mass communication with the online course participants, e-mail is a critically important tool for individual interaction. E-mail is very useful for attaching drafts of assignments that the instructor can review and reply with feedback. Electronic files produced in most common software products can be easily edited and returned to students with all faculty revisions clearly noted. Most e-mail software allows for the creation of a separate folder for each student who sends files, thus allowing for easy file management.

Faculty interaction also includes online office hours, which should be posted and strictly observed. However, to avoid potential problems with online students who often expect immediate responses when they e-mail their instructors, faculty should also indicate when they will never be available, for example between 11 pm and 8 am. Since online education is often billed as "any time, any where," students may assume faculty are online "any time." If this is not the case, make it known. In addition, Buchanan (2000) suggests posting a reading day or "no posting" day each week to provide a day off for both faculty and students that "guards against burn-out in Web-based course work" (p. 47). Word documents with "typical" responses to student queries can help to speed-up e-mail responses. However, caution is advised as individual student messages should be given individual responses. Acknowledging the receipt of students' submissions can also minimize potential arguments about whether work was turned in on time. If

we assume that students are taking our classes to learn and not just to earn credits, we must be available to assist and support them.

Mass Communication. Group or mass e-mail messages are effective for general announcements and reminders. Detailed explanations of assignments, weekly updates and reminders, handouts to supplement the course material, and clarification of procedures or policies for the course can also be posted to the online course announcements page or discussion forum. By sending mass e-mails, the instructor may send information to each student's e-mail inbox, a tool that most students use for more than just the online class. Feedback from distance learning students (Knowlton, Knowlton, & Davis, 2000) indicates that students appreciate reminders and detailed explanations. They often feel that they need extra encouragement in online environments. These reminders mirror the announcements made in traditional classrooms. The more the instructor communicates with the students, the more the students feel comfortable communicating with the instructor, thus creating an online community with a high level of interactivity.

Support Services. Diaz (2002) emphasizes the need for instructors to give more attention to students' readiness prior to online courses. For example, computer skills surveys and other types of readiness surveys might help instructors better understand reasons for student performance in online courses. The information gathered will also help to determine student risk and, by initiating early interventions, prevent more students from dropping online courses. Interventions might include online orientation courses, help desks, and Web-based tutorials might help students succeed and therefore enhance retention in online courses.

Improved Instructional Design and Delivery. The role of the teacher in online learning is extremely critical as it includes both instructional design and delivery. In designing and delivering online courses, faculty must shift perspective from the "provider of knowledge" to the "facilitator of knowledge" (Siemens, 2002). Learning experiences in the online environment must help students change their expectation of being told what to think and do to challenging them to create and communicate. Siemens (2002) suggests the following: (a) provide less content and more interaction; (b) include some passive learning such as slides with or without audio, video presentations, and Flash demonstrations; (c) encourage reflection, e.g., reflective journals; (d) keep the environment simple, e.g. one place for memos, one place to post assignments, one place to view weekly units of instruction so students don't spend too much time and effort learning tool at the expense of interaction; (e) give students a place to complain and take time early in the course to ask about their concerns and frustrations; and (f) include variety in content presentation and student activities.

Instructional Strategies for Online Computer Courses

Online learning environments allow for a variety of interactive teaching/learning methodologies. Instructors are challenged to experiment with several strategies and to be willing to become facilitators of learning, releasing the control of learning to the students. The following strategies might be effective in teaching information systems and technology courses.

Computer-mediated Collaboration. Used synchronously or asynchronously, computer-mediated collaboration provides opportunities for group discussion, student-centered interactions, problem

solving, and product development and revision (McAteer et al., 1997; Wilson & Whitlock, 1997). Documents can be shared and reviewed quickly and easily, and discussions can be captured and stored for future reference as students work together. Virtual discussion rooms that limit access to the instructor and members of the group offer privacy as students complete assignments.

Multimedia Presentations. Used to present new content or skill sets, multimedia presentations can add pizzazz and interactivity to online lectures, thus maintaining students' attention and enhancing learning. Color, sound, animation, and branching techniques help the instructor to appeal to various senses and allow the learner to move at a comfortable pace. Multimedia presentations for various modules of instruction can be burned onto a single CD ROM and mailed to students, eliminating the time-consuming process of downloading files. They can be an excellent supplement to traditional online lecture notes with embedded Web sites.

Case Method. Cases support problem solving and project-based learning and are ideally suited for the online learner who is typically more goal-oriented and conscientious. Video cases will add interest, and cases that require group work will encourage student interactions and enhance student-centered learning. The instructor will need to be available for consultation and feedback. Student roles in cases may be that of commentator-observer, reacting to someone else's problem, or students may be assigned roles in the case and be required to take on a particular perspective that requires them to defend specific actions or argue a particular point of view (Christensen, 1987). Electronic discussion boards, such as those available in Blackboard, eCollege, and WebCT, can be used to facilitate the discussion of cases, or students may develop formal papers that can be shared electronically with the instructor and other members of the class.

Research. Learning is an active search for meaning that requires the construction of knowledge rather than passively receiving it (Engelkemeyer & Brown, 1998). Research allows the learner to explore and discover, to question and verify information, and in the process develop new experiences. Collaborative research is particularly helpful as students will learn from the experiences, backgrounds, and values of their group members.

Simulations. Learning is enhanced if it occurs in a context that balances challenge and opportunity (Engelkemeyer & Brown, 1998). Simulations require learners to conceptualize, contemplate, reflect upon prior learning and experiences, and solve problems or produce meaningful products. Simulations provide excellent opportunities for meaningful student practice and for faculty nurturing through frequent and sustained feedback.

Group Discussions. Discussions encourage learners to develop critical thinking skills as they explore their experiences, analyze issues, and solve problems. The discussion board feature in course management systems is excellent for large group discussions. Both faculty and students may post topics for discussion. However, the instructor should establish clear ground rules for discussion. For example, guidelines should be established regarding how class participants should respond to the discussion thread and whether they should respond only to the original thread or also to the comments of their colleagues. It may also be necessary to impose time limits such as, "your first response must be posted by midnight on Friday and your second by midnight

on Tuesday.” However, limits are only necessary if the discussion is an assignment for which minimum standards of participation have been set.

Small group discussions can also be facilitated through electronic meeting rooms that can be set up to limit access to only members of a group and the instructor. Listservs and chat rooms are also good tools for online discussions, although chat rooms are better suited to smaller groups.

Class Bulletin Board. Considerable learning can occur informally and incidentally — beyond explicit teaching—by encouraging casual contacts with fellow students and with the instructor. An electronic bulletin board, maintained on the World Wide Web, can offer students an environment in which they can bump into each other informally, exchange ideas, and learn in an unplanned yet fertile environment.

Conclusions

The findings of the study lead to the following conclusions:

1. The profile that emerges from this study indicates that online learners are very similar in demographic characteristics to learners in the general population. The online student population is gender balanced and tends to range in age from 18 to 24 years. They are usually from the African American or Caucasian ethnic groups and are working toward a bachelor’s degree or a master’s degree. This profile is consistent with that of Sikora and Carroll (2002), who found approximately equal participation by males and females and an average age of about 24 years. However, Diaz (2000) found that students who enrolled in online courses were older and more academically experienced.
2. Students who enroll in online courses are fairly competent technologically. For example, between 60 and 75 percent know what type of microprocessor they have and the speed of the microprocessor. Over 80 percent know the speed of their modem or the type of Internet connection that they have, and 95 percent know whether they have a sound card and speakers. Seventy-five percent described their overall computer competence as being at the intermediate or advanced levels. However, nearly 70 percent of participants in the study were enrolled in their first online course. This finding suggests that although they perceive themselves to be computer literate, online students are still new to e-learning and may need considerable help navigating the electronic classroom, using the tools that are available to them, and functioning as independent learners.
3. Communication seems to be the common denominator among strategies and practices aimed at retaining online learners. To enhance retention of online learners, who typically drop courses at a higher rate than traditional students, best practices include: focused communication, student interaction, faculty interaction, and mass communication. Other strategies should include proper support services, such as readiness surveys, help desks, and orientation courses, and improving instructional design and delivery quality.
4. Instructional strategies that will facilitate learning of computer and information systems courses online will be those that: (a) appeal to several senses, such as multimedia

presentations; (b) challenge student to think and solve problems, such as case studies and simulations; (c) allow for collaboration, such computer-mediated collaboration; (d) require the exploration and discovery of knowledge, such as research; and (e) provide ample opportunities for interaction with peers and faculty, such as group discussions and bulletin boards. All instructional strategies should be appropriate for the content, stimulate and challenge the learners and encourage interaction and collaboration in the learning community.

Recommendations

The literature relating to student retention emphasizes incorporating a sense of both academic and social integration in educational environments. This sense of community in an online environment can be established by maintaining active communication among students (peers) and between each individual student and the instructor. To achieve a high level of interactivity that might lead to higher retention levels in online courses, the following recommendations are presented:

- ✍ Take time to understand your students. Profiling data will be helpful, but even better are specific readiness and risk data gathered on your own online learners. Make sure data gathered will also give you an understanding of their technological background.
- ✍ During course design and development, plan for student interaction by requiring discussion forums, online chats, virtual office hours, etc. that engage students in active communication with each other and the instructor. Motivate students to participate in these communication channels by assigning points to their posts. Articulate specific criteria for both the quality and the quantity of their contributions.
- ✍ Provide training and technological support that will help online instructors become competent in instructional design and online delivery.
- ✍ Provide opportunities for both synchronous and asynchronous communication; post and observe online office hours.
- ✍ Respond to students' individual e-mail in a timely fashion. Keep in mind the important role of feedback in encouraging and sustaining learning. Make sure students receive individualized attention rather than endless mass mailings. Use mass mailings when appropriate to remind students of assignment deadlines, schedule changes, and routine announcements. Post these reminders to the online course site as well as to students' e-mail boxes.
- ✍ Experiment with a variety of teaching strategies and note their effectiveness with online learners. Make adjustments, focusing on the characteristics and needs of the learners as well as the nature of the course. Try to develop a pool of teaching strategies that are effective for teaching information systems courses online.

- ✍ Additional research might again profile online learners to see how their characteristics are changing and to learn their preferences for teaching/learning strategies—which strategies do they prefer and which ones have they found to be most effective.

References

- Arsham, H. (2002). *Interactive Education: Impact of the Internet on learning and teaching*. Retrieved January 10, 2003, from the University of Baltimore: <http://ubmail.ubalt.edu/~harsham/interactive.htm>
- Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel*, 25, 297-308.
- Brotherton, P. (2001). It takes a campus to graduate a student: A look at seven academic retention programs and what makes them effective. *Black Issues in Higher Education*, 18(18), 34-39.
- Buchanan, E. A. (2000, May). Going the extra mile: Serving distance education students with resources and services. *Syllabus*, 13(9), 44-47.
- Carr, S. (2000). As distance education comes of age, the challenge is keeping the students. *Chronicle of Higher Education, Information Technology Section*. Retrieved on October 10, 2002, from <http://chronicle.com/free/v46/i23/23a00101.htm>
- Christensen, C. R. (1987). *Teaching and the case method*. Boston: Harvard Business School.
- Diaz, D. P. (2002). Online drop rates revisited. *Commentary of May/June 2002*. Retrieved on October 9, 2002, from <http://ts.mivu.org/default.asp?show=article&id=981>
- Diaz, D. P. (2000). *Comparison of student characteristics, and evaluation of student success, in an online health education course*. Unpublished doctoral dissertation, Nova Southeastern University, Fort Lauderdale, Florida. Retrieved on October 10, 2002 from http://www.ltseries.com/LTS/pdf_docs/dissertn.pdf
- Dyrud, M. A. (2000). The third wave: A position paper. *Business Communication Quarterly*, 63(3), 81-93.
- Edwards, M. A. & Clear, F. (2001). Supporting the collaborative learning of practical skills with computer-mediated communication technology. *Educational Technology & Society*, 4(1), 80-92.
- Engelkemeyer, S. W. & Brown, S. C. (1998). Powerful partnerships: A shared responsibility for learning. *AAHE Bulletin*, 51(2), 10-12.

- Frankola, K. (2002). *Why online learners drop out*. Crain Communications, Inc. Retrieved on October 9, 2002, from <http://www.workforce.com/archive/feature/22/26/22/223517.php>
- Hiltz, S. R. (1997). Impacts of college-level courses via asynchronous learning networks: Some preliminary results. *Journal of Asynchronous Learning Networks*, Retrieved January 10, 2003, from http://www.aln.org/alnweb/journal/jaln_Vol1issue2.htm
- Hutley, K. (2002). *Alexander Astin's Theory of Involvement: A Summary*. Retrieved October 9, 2002, from <http://www.cat.ilstue.edu/conf/handouts/astin.shtml>
- Knowlton, D. S., Knowlton, H. M., & Davis, C. (2000, June). The whys and hows of online discussion. *Syllabus*, 13(10), 54-58.
- Lang, M. (2002). Student retention in higher education: Some conceptual and programmatic perspectives. *Journal of College Student Retention*, 3(3), 217-229.
- Lewis, L., Snow, L., Farris, E., Levin, D. & Green, B. (1999, December). *Distance education at postsecondary education institutions: 1997-1998*. U. S. Department of Education: Office of Educational Research and Development.
- McAteer, E., Tolmie, A., Duffy, C. & Corbett, J. (1997). Computer-mediated communication as a learning resources. *Journal of Computer-Assisted Learning*, 13, 219-227.
- Noel-Levitz, (2002). *How satisfied are your online learners? Priorities survey for online learners*. Retrieved October 9, 2002, from <http://www.noellevitz.com/solutions/retention/satisfaction/psol/index.asp>
- Parker, A. (1999). A study of variables that predict dropout from distance education. *International Journal of Educational Technology*, 1(2). Retrieved on October 10, 2002, from <http://www.outreachuiuc.edu/ijet/v1n2/parker/index.html>
- Shepherd, C. (2002). In search of the perfect e-learner. *Fastrak Consulting Ltd*. Retrieved on October 8, 2002, from <http://www.fastrak-consulting.co.uk/tactix/Features/elearner.htm>
- Siemens, G. (2002). Lessons learned teaching online. *Elearning Resources and News*. Retrieved on January 14, 2003, from <http://www.elearningspace.org/Articles/lessonslearnedteaching.htm>
- Sikora, A. C. & Carroll, C. D. (2002). *A profile of participation in distance education: 1999-2000*. National Center for Education Statistics 2003-154. Washington, DC: U.S. Department of Education.
- Spann, N. G. (1990). Student retention: An interview with Vincent Tinto. *Journal of Developmental Education*, 14(1), 18-20.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*, 89-125.

Wilson, T. & Whitelock, D. (1997). Monitoring a CMC environment created for distance learning. *Journal of Computer-Assisted Learning, 13*, 253-260.