AN EVALUATION OF CYBER ORIENTATION: A WEB-BASED ACADEMIC ORIENTATION PROGRAM FOR TRANSFER STUDENTS

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Submitted to the Graduate Faculty of the

School of Education in partial fulfillment

of the requirements for the degree of

Doctor of Education

University of Pittsburgh

2006

UNIVERSITY OF PITTSBURGH

SCHOOL OF EDUCATION

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University of Pittsburgh, 2006

According to the Pew Internet and American Life Project (2002), *The Internet Goes to College*, all college students began using a computer between the ages of 16-18 and 85% of those college students owned their own computer and had gone online. The Internet had become "a staple of college students' educational experience…a functional tool" (p. 2).

In the Arts and Sciences Undergraduate Studies at the University of Pittsburgh, Cyber Orientation was implemented to provide transfer students the option of participating in an academic orientation using a web-based program rather than attending an on-campus program. Transfer students were chosen for the pilot because they already had experienced college and possessed a cognitive structure to assimilate the information. Most transfer students admitted to Arts and Sciences have already completed 48 credits or two years of college experience. The assumption was made that transfer students either own computers or have access to computers at their current institutions. The participants of Cyber Orientation were self-selected.

The primary purpose of this study was to evaluate Cyber Orientation, the website and process, to determine whether the students and academic advisors have been satisfied with this option and to make recommendations for improvement. The study used responses from a mandatory survey completed by student participants and information gathered from advisors in an informal discussion. The significance of this study was to determine whether a web-based

academic orientation program could be implemented successfully to better serve the students and the institution.

As the Arts and Sciences Advising Center prides itself in the service it provides to all students, and especially in the human contact, which is at the core of its mission, successful implementation of this web-based program is an innovative approach to a traditional process. Information regarding web-based academic orientation also contributes to the body of literature in the field of academic advising and exemplifies the integration of technology while upholding traditional processes and maintaining the student at the center of the focus.

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1.0 INTRODUCTION

"The technologies of the digital economy have become agents of change and tools of innovation" (Jacobson, 2000, p. 7). As Nasseh (2000) points out, the saturation of technology in every aspect of society is a reality. Innovations in technology have created new communication delivery systems to generate, distribute and apply knowledge. Knowledgeable workers are becoming a more valuable resource to organizations than capital, and higher education must do what it can to provide opportunities for all members of society to gain knowledge.

Technology has also transformed the way people do business, how they process information, provide service, and interact with each other (Kramer & Childs, 2000). Technological enhancements have provided consumers with more choices in a global market and heightened consumer expectations (Berge, 2000). E-business has empowered the customer, affected the way customers make decisions, and many times has changed the outcomes of those decisions (Jacobson, 2000).

At the same time the "e" factor has fueled a major revolution in education (Kramer & Childs, 2000), society is demanding greater accountability from institutions of higher education and is examining the cost-benefit ratio of an investment in higher learning (Pascarella & Terenzini, 1998). College students are coming into higher education with the same consumer expectations they have for any other commercial business they conduct (Schackner, 1997), demanding more attention, immediate service and more control of their environment (Grant &

Anderson, 2002). Colleges and universities are being forced into greater competition for students, faculty, financial support, and prestige as a result of ever-changing global telecommunication systems, economic and market factors and increasing competition from alternative providers of education (Geiger, 2002; Berge, 2000).

Berge (2000) says that change is inevitable if institutions in higher education want to survive, but change does not come easily in a culture embedded in over hundreds of years of traditional values, norms, and behavior. Technology has been assumed to promote characteristics of teaching and learning that are opposed to the values of traditional liberal arts institutions (Balestri, 2000). As Berge points out, success in the corporate world is partially determined by its organizational and management structure and culture. Higher education has a historically traditional culture of customs, values and norms, and it strives to pursue the established mission of teaching, learning, research and scholarship. As higher education is being forced to address the demands of society and their students and consider their customers' expectations, institutions are adopting business models and practices to reengineer the way they do business. The implementation of technology and business models has forced institutions to look beyond the traditional paradigm, break customary behavior and thought patterns, and adopt new ways of thinking. Those institutions are now analyzing market narratives (Slaughter, 2002) and implementing change in order to provide the quality experience their customers expect and remain competitive with other institutions.

Using information technology, prospective college students have become more knowledgeable about the higher education environment and know what questions to ask. They are accessing websites like www.acinet.org and www.bls.gov/oso/home.htm to find out about different careers, the education and skills necessary to pursue a particular career, the pay scale

and the market forecast (Zlatos & Newhouse, 2003). They are shopping around and taking virtual tours, visiting the websites of thousands of colleges, universities, and other institutions in the higher education business. Websites, like the one created by The Princeton Review (2004), present survey results on student satisfaction in just about every aspect of the college experience at different institutions. Prospective college students have the information they need to make knowledgeable decisions about their education, much like the decisions they make concerning other products they purchase. In response to the need of those potential customers to access information over the Internet, institutions have designed elaborate homepages on the web about their institutions, campus life, their programs, services, and other relevant resources in order to lure customers from all parts of the world.

Many institutions are also responding to consumer expectations by adopting a student-centered philosophy that focuses on the student as a consumer (Slaughter, 2000; Lonabocker, 1996; Lauffer, 1996). A few years ago, the Pew Internet and American Life Project (2002) reported that today's college students have grown up with computers and have integrated the use of the Internet into their daily lives. The Internet has become a functional tool for them and has changed the way they interact with people and information. Higher education executives have acknowledged the importance of information technology in the lives of their customers and in the recruitment and retention of students, and students have become the primary driving force for information technology in higher education (P. Hart, 2003). Most of what institutions are spending on information technology is driven by the perceived needs of students (Calhoun, 2003). Information technology items like connectivity on and off campus, mobility, distant learning, course-management systems and help desks are driven by the demand and competition for students (Calhoun, 2003).

Implementing a student-centered philosophy requires that institutions consider the different groups of prospective students who are their customers. According to the Digest of Education Statistics (2000), during the 1990's, institutions saw a higher percentage of enrollment of students twenty-five years or older. The prediction is that between 1999-2010, institutions can expect another slight increase in the percentage of adult students. Obviously, different groups of learners have different characteristics and reasons for seeking to further their education and institutions should accommodate the needs of all of their students. Nasseh (2000) sees the emergence of two generations of learners: traditional students and adult learners. Klenk, Burnett, and Ramos (2000) identify the two groups as the media and graying generations.

Traditional students or the media generation come directly into an institution from high school, are considered to be the Internet generation and see computers and network technology as "edutainment"—part education and part entertainment (Nasseh, 2000). Nasseh claims that they demand empowerment and are socialized in the digital world. Teachers are partners to them. They do the most socializing using the Internet, but they are also the most isolated in the physical world. They operate in a different culture with a different philosophy, style and ideology. They expect an undergraduate education that will offer them an attractive career with a lucrative economic future.

The adult learners who constitute the graying generation are usually coming into an institution to learn higher-level skills, to improve their skills or to learn new skills to make a career change. Adult learners have clear objectives, responsibilities and commitments. They come into an institution with knowledge and competence derived from work and life experiences (Scholossberg, Lynch & Chickering, 1989). They prefer self-paced and self-directed learning processes and may be somewhat unfamiliar with the digital world (Nasseh, 2000).

Institutions also are seeing an increasing number of transfer students who are moving from institution to institution for various reasons (Steele & McDonald, 2000). Illinois State University (http://www.admissions.ilstu.edu/transfer/) indicates that 34 % of their students are transfer students. A Ball State study revealed that about one fourth of their transfer students indicated they had attended more than one institution before transferring to Ball State (Woosley, 2005). Six out of ten transfer students in the Ball State study indicated they transferred because of specific courses, program options, and the reputation of Ball State. Others claim that undergraduate students transfer to different institutions as a result of a poor institutional fit, educational opportunities or the social environment (Steele & McDonald, 2000). Still other traditional undergraduate students are forced to attend local community and junior colleges because of tuition costs and selective admissions policies at four-year institutions (Pascarella & Terenzini, 1998) and some expect to transfer into four-year institutions to complete their bachelor degrees. Economic factors have forced some traditional students to take full-time employment and even leave the higher education environment for a brief period of time to position themselves better financially. The Ball State study indicated that approximately 70% of new transfer students had planned to be employed while attending the university (Woosley, 2005).

All of these groups of students come into higher education with consumer expectations. "Today's student expects a technology-supported experience from application to registration to donation" (Pittinsky, 2003, p. 7). Upon recognizing the extent of the integration of technology in the daily lives of students, institutions have taken some giant steps in implementing more computer technology into the college experience. As student services is assumed to reflect the importance an institution places on its learners (Klenk, Burnett, & Ramos, 2000), more

institutions are providing their students with access to many student services over the web, including admission applications, access to financial aid and account information, course schedules and registration, degree-audit and grade reports. Forms of artificial intelligence have been used to replace some of the most basic services, such as academic advising and career counseling, which have traditionally been provided solely through human interaction. Portal technology allows students to customize their personal view of the campus and provides community tools, such as chats, forums, and bulletin boards to build campus relationships (uPortal, 2004).

Lightfoot and Ihrig (2002) see the web as "the universal lens" through which an institution can offer information resources and services to its customers. Using portals, colleges and universities have begun personalizing their interactions with students. Personalization targets the individual customer, manages the customer relationship, and meets consumer expectations (Jacobson, 2000). Jacobson describes how services on the web have been reorganized by customer and context. Common services have been grouped together by the event or process to present a one-stop-shop. Engagement is used to attract and retain the customer. Time is an important cost factor for both the customer and the institution, and technology provides the vehicle for delivering services and programs to meet the needs and expectations of customers in a timely and cost-effective manner.

The employment forecast for jobs in 2006 indicates that 39% of those jobs will require short-term training, 38% a two-year degree and 23% a bachelor of arts degree or higher (Zlatos & Newhouse, 2004). The forecast predicts that the workers who are knowledgeable and have skills will be valued most in today's society (Nasseh, 2000). In addition to the demand for better quality and service for their investment, students and parents are also pressuring higher education

to teach job skills and offer customized education, just-in-time learning and convenient access because they are discovering learning alternatives which do offer competency-based and outcome-oriented educational training (Berge, 2000) that fits their fast-paced, mobile and nocturnal lifestyles (Lauffer, 1996).

The emergence of global education delivered through e-systems presents opportunities for learners all around the world to access educational programs on demand without limitation of time, resources, or physical contact (Nasseh, 2000) and has increased global competition in the delivery of education (Berge, 2000). Learning technologies have transformed the way knowledge is packaged, delivered, accessed, and measured which has resulted in the alteration of production and delivery processes (Ryan, Scott, Freeman, & Patel, 2001). Venture capitalists have invested over $100 million every quarter in Internet educational companies (Collis, 2002) offering academic degrees, certificates and just-in-time programs to fill in-demand skills and positions. Between 1995-2001, on-line education organizations earned more than $2 billion (Green, 2003). These profit-motivated corporate universities are delivering job-skills and academic programs using high-tech delivery methods (Berge, 2000) and offering consumers an alternative to the legacy of the liberal arts institution; its traditional academic character and culture dedicated to the act of teaching for hundreds of years is being challenged and seriously threatened (Lang, 2000). In a speech made in 2000, a former Merrill Lynch analyst, warned that, because "the Internet is all about disproportionate gain to leaders", eventually only about 100 or so leading universities will thrive in the higher education market while the other 3,400 will have "to make themselves relevant to the new economy" (Pittinsky, 2003, p. 2).

Obviously, in satisfying the needs and concerns of their customers, institutions of higher education have had to consider alternative practices to deal with the expectations of their

students. For traditional institutions to survive, they must regularly analyze their services, and where appropriate, reengineer and make changes that meet the needs of the learners in society (Berge, 2000). Institutions must consider information technology as a strategic resource and position information technologies as "agents of institutional excellence" (Balestri, 2000). According to Balestri, incorporating technology into every aspect of institutional organization and planning is a critical mission for institutions.

This study focused on the implementation of an alternative practice of academic orientation using web technology to accommodate the needs and expectations of the increasing number of transfer students serviced by the Arts and Sciences Advising Center at the University of Pittsburgh. Orientation at any institution has traditionally been the first impression of the academic physical facilities and the people who devote their efforts assisting students in becoming graduates (Beatty & Standing, 1995). New students usually are mandated to participate in an orientation program at which time the students begin to understand the mission and purpose of the institution and what is expected of them. They receive information about policies, procedures, requirements, majors, programs, opportunities, services and resources. Most colleges and universities take the time and money to provide both academic and social orientation programs for their traditional freshman population. Orientation programs for non-traditional and transfer students are usually not as elaborate, but then older students are less likely to report needing, using or being satisfied with orientation programs (Creamer, Polson, & Ryan, 1995). They are adults and they expect to be treated as adults. They are financially responsible for their own education and expect to be serviced as consumers.

Cyber Orientation was designed to accommodate the needs of transfer students, who already have some knowledge about the college experience and bring with them consumer

expectations. They need information to help them adapt to their new environment and make progress in accomplishing their goals. Cyber Orientation is the first step in acquainting them to their continued college experience. This study is a formative evaluation of the University of Pittsburgh Arts and Sciences' web-based academic orientation program called Cyber Orientation.

1.1 PURPOSE OF STUDY

As economic factors, competition and technology in the 1990's forced institutions of higher education to change the way they conducted business, adoption of certain business practices required a change in the higher education culture, and changing a traditional culture of human interaction and homogeneous approaches rooted in hundreds of years of beliefs, values and behaviors was a hard implementation as Berge (2000) has indicated. According to Rogers (1995), the rate of adoption of an innovation depends upon the relative advantage, its compatibility, complexity, trialability, and observability. The greater the relative advantage, compatibility, trailability and observability and the less complexity, the sooner the innovation is adopted. As diffusion is a social process and most people rely heavily on the subjective opinions of others, the adoption of practices from business models into higher education has to be communicated effectively. As Richie (1994, p. 14) points out, "Nothing will change in a system until there is profound personal transformation in someone who has the power to change things."

At the University of Pittsburgh, the senior administration decided to adopt practices from the business model and move into a culture of continuous improvement. The charge came from the top senior administration and was implemented into both the academic and business sectors

of the University. Management in the School of Arts and Sciences (SAS) at the University of Pittsburgh adopted this commitment and responded by initiating efforts to improve the quality of student services. To reach that goal, facilitated by the staff of Organization Development in the Office of Human Resources, SAS formed teams of individuals associated with particular student services or business processes to take a systems view of these processes and eventually make recommendations to address improvements.

Process mapping was used to do a needs assessment. As Seels and Glasgow (1990) point out that the purpose of a needs assessment is to clarify the scope and determine the goals of the problem-solving effort. The components of a needs assessment include gathering information, identifying discrepancies, analyzing performance, identifying constraints, resources and learner characteristics and then setting goals and priorities and writing a problem statement. A process map "depicts a flow of activities" or the "current state of affairs" (Rummler and Brache, 1991). Through process mapping, once the steps or events of a particular process or event are identified, the team identifies discrepancies, the hindrances or problems that obstruct the smooth flow of the process. These problems and obstacles, otherwise known as disconnects, are analyzed to identify cause and are then categorized by performance and the performance owner, process or policy. For example, the problem could be instructional and categorized as the lack of knowledge of the student, the skills of the staff or the attitude of administration. The problem could also be non-instructional and associated with communication, the system or process, or accountability. The disconnects are further analyzed to determine the impact and effort required to address them. Solutions are brainstormed and the team develops a strategy and time-line for the implementation of the solutions.

As the transfer population in Arts and Sciences (A&S) is serviced primarily by the A&S Advising Center, a team of academic advisors in the A&S Advising Center decided to work on improving the quality of service provided to transfer students. The team took it upon themselves to map the process associated with the transfer student experience from the point when they show interest in attending the University, through admissions, orientation and enrollment. As a result of the mapping process, the team developed solutions to address the disconnects and implemented procedures to improve service to transfer students.

One of the areas that needed to be addressed was the academic orientation of this non-traditional group. As orientation is mandatory in the Arts and Sciences at the University of Pittsburgh, transfer students have been required to attend an orientation program that traditionally has been delivered on the campus at specific times and dates. These orientations include placement testing if necessary, although many transfer students are now exempted from taking the placement exams as a result of previous coursework. Familiar protests were heard from transfer and non-traditional students who said that it was inconvenient for them to attend an orientation program on campus due to travel costs and/or time constraints. Transfer students would also say they did not think they needed an orientation because they already know how a university system works, which is consistent with the analysis of Creamer, Polson and Ryan (1995). The transfer team began to address the perceived competencies, needs, and characteristics of the transfer student by considering the development of a web-based orientation program.

Cyber Orientation became a pilot project in the Arts and Sciences (A&S) Advising Center at the University of Pittsburgh near the end of the Fall Term 2001. This alternative orientation program for transfer students is presented over the world-wide web and can be

accessed at a time and place convenient for the student. Through a single location, transfer students can access the information they need to take care of business in the format they are accustomed to. Cyber Orientation was an adaptation of the powerpoint presentation used by academic advisors during the on-campus orientation program. Developed by an academic advisor in A&S, links are imbedded into the presentation to provide more detail about the information presented in the web program.

Transfer students who participate in the Cyber Orientation are required to complete a survey, which is faxed, emailed or mailed to the A&S Advising Center. Once the survey is received, the transfer student can schedule an appointment with an academic advisor for individualized academic advising and course scheduling. As the A&S Advising Center places high value on personal interaction with each student, only under extraordinary circumstances are advising/registration appointments conducted over the phone or using email. Individual appointments with academic advisors provide the personal attention and human touch missing from the web-based orientation program. During the advising/registration appointments, the academic advisors provide the student with feedback on the survey and review the information presented in the web-based orientation program, especially in regard to the student's understanding of the rules and requirements and his/her status towards graduation. They also assist the student in planning his/her academic experience.

This study was an evaluation of the Cyber Orientation project implemented by the A&S Advising Center. The evaluation was based on the data collected through a mandatory survey completed by the transfer students who were admitted for the Spring Term 2006 and chose to participate in Cyber Orientation and from a group of the academic advisors who advise and register those students. The purpose of this study was:

1. To formally evaluate the design of a web-based academic orientation program.
2. To determine the overall satisfaction of the students and advisors with the Cyber Orientation program and process.
3. To determine whether Cyber Orientation is an effective advance organizer.
4. To determine whether Cyber Orientation is meeting the informational needs of the students.
5. To develop recommendations for improving the process and/or the web application.

1.2 SIGNIFICANCE OF STUDY

Manuel "Buddy" Ramos (2000), the past president of the National Academic Advising Association (NACADA), states that the "e" factor in higher education "promises" to change the way advisors work with students and that advisors have to be more "proactive" in finding ways to implement technologies. He sees the web as providing "a more efficient and effective way to serve the ever increasing demands of our students" (p. 2).

Cyber Orientation was developed by a group of academic advisors who saw the web application as an efficient and practical way of servicing the demands of transfer students. With customer satisfaction as the focus, Cyber Orientation offers transfer students the ability to attend to orientation at a time, place and pace most convenient for them. The results of this study will indicate if the students have been satisfied with having the opportunity to utilize this alternative orientation program and if indeed, they recognized any benefits in choosing this option. This study will also indicate whether the advisors are satisfied with this process.

While the idea of a web-based orientation program is still an innovation, more and more community colleges and universities are adopting web-based orientation programs. However, no

studies have been conducted on its practicality, student/advisor satisfaction, efficiency or cost. Advisors have been interested in learning more about the efficiency and effectiveness of on-campus orientation programs. A great deal of information is presented in a short period of time in on-campus programs and advisors question how much of the information students really retain. As students participating in Cyber Orientation program do it at their own time, place and pace, possibly this alternative orientation program may present transfer students with a better learning experience. This study does provide information to determine whether to support the continued use of web-based academic orientation programs.

Because the Cyber Orientation website was not designed to track student use, a mandatory survey was created which must be completed and submitted to the Advising Center before a student can meet with an academic advisor for an individual appointment to schedule classes. The survey demands that they should not only have to attend to the information but they must also apply it to their particular situation. This study presents results that indicate that indeed these students were able to learn from the information attended to in Cyber Orientation. Whether or not advisors recognized any differences in servicing the Cyber Orientation participants would be a favorable result for the web-based program. A group interview with advisors who have assisted both the students who attended to Cyber Orientation and the students who attended the on-campus orientation program has provided some insight into any notable differences that may occur during individual appointments when servicing these different groups of students.

This study also adds to the body of literature describing another way in which higher education and academic advisors are using web technology to provide their students with the choices they expect.

1.3 LIMITATION OF STUDY

Cyber Orientation has been limited to transfer students who already have experienced college life. The transfer students who have opted to attend to the web-based academic orientation program were self-selected. The Cyber Orientation web presentation is based upon assumptions made about transfer students.

1.4 OPERATIONAL DEFINITIONS

The following terms have been defined in order to better understand the concepts:

Academic Advising – Expert assistance provided to students to maximize the quality of their experience by personalizing education and integrating students' goals with their interests and aptitudes. (NACADA, 1995)

Advance Organizer - An advance organizer bridges the gap between what the learner already knows and what he needs to know before he can meaningfully learn the task at hand (Ausubel, Novak & Hanesian, 1968).

Customer - The full community of individuals who have a relationship with an institution (Lightfoot & Ihrig, 2002). In higher education this includes students, parents, faculty, staff, administration, fans, alumni, the pubic, etc. Brache and Rummler (1988) see the customer as anyone, internally or externally who receives products or services from an organization.

Cyber Orientation – A web-based academic orientation program designed and developed for new transfer students admitted into the Arts and Sciences Undergraduate Studies at the University of Pittsburgh. Cyber Orientation can be accessed at www.advising.pitt.edu/transfer.

Degree-Audit System – An automated system that matches completed coursework with the set of degree-program requirements tracking students' progress to completion of a degree (McCauley, 2000).

Disconnects – A missing, redundant or illogical factor that affects the critical business issue, e.g. a slow-down in the process, failure to execute effectively or efficiently (Rummler and Brache, 1991).

E-business or the e-factor – The "e" is the abbreviated form of the word electronic. E-business refers to business conducted over electronic communication technology. E- factor refers to the involvement of electronic communication technology.

Pitt Pathway – The Pitt Pathway is a four-step program to help guide undergraduate students through their college experience. The steps of the Pitt Pathway are discover, explore, experience and succeed. "Each step is designed to offer ideas and/or activities that will assist you in determining the choices that best fit your values, interests, beliefs, lifestyle preferences and goals" (http://www.careers.pitt.edu/pittpathway/). With each step, there is a series of questions, related to the academic, personal and professional development of the student and students are encouraged to seek out resources in order to succeed.

Portal – u-Portal (2004) describes the portal as a customized version of an institution's web presence that allows customization and community to its web presence. Customization allows each user to define a personal view of the campus web.

Process Mapping – The task of analyzing the workflow or sequence of activities that take place during the delivery of a specific service.

Transfer Students – At Illinois State University, a transfer student is a person who has enrolled at any college or university, after graduating from high school whether or not any work was

completed (http://www.admissions.ilstu.edu/transfer/). At the University of Pittsburgh in the Arts and Sciences, there are three different types of transfer students. External transfer students are those students who have previously attended another college or university. Internal transfer students are those students who have previously attended another school or college on the University of Pittsburgh's Pittsburgh campus, i.e. School of Engineering, College of Business Administration, or College of General Studies. Regional relocated students are those students who have previously attended the University of Pittsburgh on one of the other campuses, i.e. Bradford, Greensburg, Johnstown or Titusville.

2.0 REVIEW OF LITERATURE

Web-based academic orientation programs at colleges and universities were implemented in the mid to late 1990's, but no literature exists on the subject nor has any school contacted using a web-based academic orientation program compiled any data on the use or implementation of the web-based program. Because no published information exists on this specific subject, the review of literature will provide an understanding of the importance of a continued effort to implement technologies into the practices and processes of higher education, the transformation that has taken place in higher education to offer a better quality of student-center services, and the ways technology and the instructional design process have been used by academic advisors to address the needs of students. The review of literature will conclude by summarizing the factors and features to consider when addressing the needs of students with technological solutions and creating a web-based academic orientation program.

2.1 A SHIFT IN PARADIGM

Berge (2000) claims that the rapid growth in technology, the increase in access to information, a more critically aware population and a shift from an economy focused on the production of goods to a service economy are affecting change in higher education. He realizes how hard it is for that change to take place, from a traditional culture with fundamental principles, values,

customs and human interaction to a business culture focusing on the delivery of a product, the customers and their satisfaction. He points out how businesses are driven by the returns on their investments in contrast to traditional institutions of higher education that have always been driven by their mission to generate new knowledge and to teach. He adds that success in business is determined by the ability for institutions to adapt and respond to a changing environment and the organizations that are most successful are those that respond. As social and demographic changes are pressuring traditional institutions to change the way they do business, Berge feels that traditional universities are in jeopardy and must commit to reengineering the way they do business in order to survive.

According to Garland (1995), the major factors that must be considered when adopting a new approach are people issues, like cultural traditions, risk aversion, lack of knowledge, user acceptance, and cost issues in the development, delivery, and non adoption of that new approach. As Garland points out, the culture developed within an institution can act as a barrier to change, because with change comes uncertainty and people are normally reluctant to risk changing things that have been working well. Berquist (1999) explains that a culture holds people together and gives them a sense of continuity and purpose as individuals and collectively. A culture is established around the production of something valued by its members and it exists to provide context. In the higher education environment, its ceremonies, symbols, assumptions, and the modes of leadership have always been derived from its culture and directed toward the institution's mission. As higher education is undertaking a transformation, institutions are facing the challenge of how to appropriately implement change while maintaining the respect for tradition.

Berquist (1999), using the Watson and Johnson's Structure, Process and Attitude Model, claims that change is usually required in at least one of three domains: the structure, the process or the attitude. In the structure domain, changes occur in the organizational chart, the reward system, or policies and procedures. Implementation of structural changes is inexpensive and easy, although the outcomes of the new structure can be very costly in higher salaries. In the process domain, changes occur in communication patterns, decision-making modes, conflict management, and management styles. Changes in process empower people by emphasizing individuals take responsibility for learning new skills and acquiring new knowledge. And, in the attitude domain, modifications occur in the organizational culture with personal growth and development. Berquist points out that many believe that change cannot take place without modifying people's attitudes.

Berquist (1999) also mentions the emergence of organizational development (OD) in higher education and how it has been thought to be "a valuable behavioral science tool" used to deal with change and the stress it causes. The OD consultants who promote change help the people in the organization do more or less of what they do or do what they do better. The changes could include more supervisor-subordinate communication, more collaboration and group-decision making, and less disruptive interpersonal conflict. Berquist claims the major hindrances in adopting the OD culture stem from the traditional collegial culture—rationality, autonomy, and financial resources. The fact is that change does not come easy at the traditional higher education institution, and Hammer and Champy (as cited in Berge, 2000, p. 211) point out how the traditional institution, with its conventional norms and guidelines for behavior, is generally "characterized by fragmentation of processes, stifled innovation, inflexibility, unresponsiveness, and is focused on activity rather than results."

Because today's technology promotes characteristics, such as remote relationships, automated transactions, and rapid quantitative analysis, that are directly opposite to the values in the traditional culture of higher education that include face-to-face discussion and personalized transactions, qualitative reflection and "the patient construction of knowledge," Balestri (2000) feels that higher education should turn that conflict of values into opportunities for excellence and use technology to improve methods and processes. As tools, technology can be used to communicate more effectively, manage student and financial information and provide resources to empower students to do independent learning and research and to enrich their experience. Balestri points out how initially administrators in higher education believed technology would eliminate labor costs but for every job eliminated another one was created that required a different set of skills. She says that institutions need to consider information technology as a strategic resource and reorganize to implement and support it.

Information technology is not the only force driving change in higher education. As knowledge now doubles every seven years and ten thousand scientific articles are published every day (Forman, as cited in Tomlinson-Keasey, 2002), universities are also coping with ways of absorbing and packaging this new information for dissemination and consumption. Knowledge increasing at that pace demands a workforce that is continually seeking to acquire new skills and learning new information that is disseminated through vehicles of higher education. Jones (2002) states that 5% of the U.S. population or 14,500,000 students were enrolled in colleges and universities. Tomlinson-Keasey (2002) claims that higher education would be servicing 250,000 more students per year in order to accommodate the needs of a knowledge workforce. She also points out that the world population growth is outpacing the capacity of society to provide a university education to even traditional college-age students.

Delivery of educational programs via the Internet and the world-wide-web is one solution to providing opportunities for students to obtain an education without regard to time or location (Levi, 2003; Chapplow, 2000). As Nasseh (2000) points out, the challenges created for those institutions include access, learning environments and programs for all members of society, the generation of new knowledge and the improvement of the content of knowledge, as well as innovative ways to apply knowledge to achieve social and economic improvements.

Of course, the rapid growth in technology and the increase of access to information has obviously also created a more "critically aware population" (Berge, 2000). Pascarella and Terenzini (1998) point out that after decades of public and private support, society is now holding institutions accountable for producing expected outcomes and providing lifelong learning opportunities. The costs and benefits of a post-secondary education is being questioned. As Slaughter (2002) points out students and their parents see college as a "costly expenditure" and as consumers of educational products, they are looking for institutions that will increase their job market possibilities and be a productive "human capital investment". Society, in general, feels that it had invested a lot into the growth and development of institutions of higher education in the 20th century, and now in the 21st century, society is demanding that those same institutions meet the requirements of a knowledge society (Nasseh, 2000).

Information technologies have delivered new levels of customer service, provided greater satisfaction, and have changed the way customers make decisions (Jacobson, 2000). Today's consumers have many more choices and heightened expectations as a result of technological enhancements and a competitive global market (Berge, 2000). They are more selective as consumers and expect higher levels of customer services after all they have grown up in the electronic age where everything is instantaneous, a computer is a necessity, and they have greater

ability to make choices (Chapplow, 2000). They are more knowledgeable about their options and learning alternatives (Berge, 2000).

Traditionally, an institution's reputation has always been based on its age, exclusivity of access, resources, smaller classes and human interaction (Daniel, 1999), elements of the traditional collegial culture. Today's college students are looking for something more in their college experience than traditional characteristics and reputation. They have rising expectations as they look ahead towards the results of their investment. They are also looking for a great overall college experience. They expect education to be available anywhere at any time and to be more affordable with easy access for every member of society; they expect life-long learning opportunities and an adaptive, self-paced learning experience (Nasseh, 2000). They expect digital libraries, professional certifications, just-in-time learning, distance education, and practical competencies (Berge, 2000). Nasseh (2000) stresses that higher education institutions must respond to the educational needs of society and create life-long learning centers and adaptive environments and programs to provide opportunities for all citizens to be learners.

Prospective students accessing websites like "The Princeton Review" (2004) are looking to see what college students have to say about their institutions in regards to academics, diversity, the quality of life, social activities and parties, demographics, politics, and extra-curricular activities. These expectations are forcing institutions to engage into a greater competition with each other to attract students and provide them with a more appealing college experience. Some are doing so by catering to their consumer interests with things like physical fitness centers, coffee bars, and comfortable living spaces (Winter, 2003). Bauer (2005) points out how even more recently, rock stars and reality shows are being used by institutions. The University of Nebraska-Lincoln permitted Tommy Lee, the drummer of the rock band Motley

Crue, to film his reality show on campus despite protest from some faculty and local domestic violence and family groups. The University of Nebraska-Lincoln reported that more students were attracted to their school as a result of this marketing effort.

In addition to meeting consumer demands to provide a satisfying college experience, today's economy with its changing demographics and the need for new cognitive skills is also driving institutions to evaluate their curricula. Goetz (2004), who has been the president and dean of Concord Law School, the nation's first totally online law school and a division of Kaplan, Inc., sees the paradigm shift in higher education to be from an instruction paradigm to a learning paradigm. Colleges within the instruction paradigm are those institutions that exist to provide instruction. Their faculty and administrators talk about program offerings and the quality of entering students. They view faculty as primarily lecturers. In the learning paradigm, the college mission is to produce learning by creating powerful learning environments. Focus is on the quality of exiting students and the faculty are designers of learning methods and environments. Alternative providers of higher education are offering customers a new learning paradigm at lower costs and convenience using computer technology without the cost of faculty and research and they are becoming very successful.

Cross (1998) feels that students and their learning should be the focus in higher education. Berquist (1992) points out how institutions with a collegial culture have always found meaning in faculty disciplines. They have valued faculty research and scholarship, the generation, interpretation, and dissemination of knowledge and the development of specific values and qualities of character among the young men and women who are seen as the future leaders of society. In more recent times, higher education administration has been forced to place more emphasis on addressing the demands of the market and the consumers of knowledge

instead of yielding curricular decisions to the traditional creators of knowledge, the faculty (Daniel, 1999; Berge, 2000). Traditionally, Slaughter (2002) explains, the empirical investigations of faculty and their theories have always been the basis of the curricula in higher education, but now those scholar-experts are being forced to package the curricula to meet student interest. An education from an elite liberal arts college is a costly expenditure and today's students are shopping around to choose a curriculum that will increase their human capital and repay their investment.

Slaughter (2002) also recognizes how economic circumstances have led faculty at traditional institutions to participate in areas of research that are of interest to external source providers, and much of the funding from those external source providers has been in areas of health care and military contracting industries, structures of power and opportunity who rely heavily on the judgment of researchers at prestigious institutions. Faculty scholars at traditional research universities who have been the developers of curricula tend to have "vested interests in theories and methods that bring them prestige, position, and resources" (p. 263) Those capital investments and this type of faculty research have lead to the creation of new knowledge and the development of new curricula, but as Slaughter points out, those corporate and government source providers could also challenge conventional views of science and scholarship and be seen as co-authors of the curriculum. As traditional institutions are engaging in new ways of thinking about the process of teaching and learning, they must continually address "organizational appraisal" to strengthen their missions and define the business, the product and the customer in order to adapt to the changes taking place in society (Foster, 2001).

Information technology has also contributed to the increase in competition for students from alternative providers of higher education opportunities (Collis, 2002) and has created global

competition (Berge, 2000). According to Crossman (1995), the conception of the Internet began in 1969 by connecting four computers at four different institutions as a way of facilitating research efforts funded by the Department of Defense. ARPANET (Advanced Research Projects Agency Network) connected computers at the University of Utah, University of California at Santa Barbara and Los Angeles, and Stanford Research Institute. Ironically, although higher education can claim a number of critical information technology breakthroughs, it has generally fell behind the business sector in implementing technologies (Pittinsky, 2003).

In the late 1990's, venture capitalists began making sizeable investments into "educational content companies" and increasing opportunities for learning utilizing technological platforms to offer courses at lower costs and at a convenient time and place for the consumer (Collis, 2002). The "perks" are that students with computers can access courses anywhere and at any time and learn at their own pace, there is the absence of geographic boundaries and students are satisfied with their personal experience of learning and communicating using technology (H. Hart, 2000). Entering the competition for students in the higher education market are firms forming new institutions, such as the University of Phoenix, Kaplan University, Capella University, Strayer University and Walden University), Knowledge Universe and AchieveGlobal--subsidiaries of Thompson Learning and Pearson Knowledge (http://encarta.msn.com/encnet/Departments/elearning; Collis, 2002).

Pittinsky (2003) points out headlines in various magazines at the turn of the century that reflect the impact venture capitalists and technology have had on higher education. An article in the New York Times Magazine, "Online U—How Entrepreneurs and Academic Radicals Are Breaking Down the Walls of the University", gave the impression that the Internet was undermining traditional institutions and replacing them with virtual universities in cyberspace.

Another article in Mother Jones magazine had a feature article with the headline, "A Campus of One…Who Needs Professors When the Online University Is Only a Click Away?"

Some of the companies entering the higher education market were at first primarily targeting the corporate customer, others began providing individual learning opportunities for a specific skill or knowledge, and now still others are providing degree-seeking programs (Collis, 2002). Curricula may consist of short programs with specified information, and technology is delivering the product that can provide just-in-time training at a reduced cost to many more customers. Individual students are attracted to this cost-saving educational opportunity because it provides them with the knowledge they need to assume desired positions in the workforce and to seek the income they want at their convenience. They are able to increase their human capital, as Slaughter (2002) would call it, by attending one of these higher education opportunities sooner than by seeking a four-year liberal arts degree.

The quality of the products coming from these companies has been questionable in the past, especially when compared to the product of a liberal arts college or research institution. Collis (2002) points out that some companies have contracted with universities in order to have access to that institution's courses and add the credibility of the university's brand name to the company's product. Some of these companies have also eliminated their relationship with traditional higher education institutions and contracted directly with individual faculty or experts in the field to add credibility to their product. Results from a study administered by the Society for Human Resource Management (Online University Consortium, 2003) to Human Resource (HR) professionals indicate that 50% of HR professionals said they would select a candidate with a degree from a traditional school, such as University of Southern California over a candidate from a non-traditional institution. Twenty-two per cent of HR professionals indicated that they

would select a candidate graduating from a non-traditional institution, such as the University of Phoenix with a business education. And, almost 14% of the HR professionals had split opinions or indicated it would make no difference to them to hire candidates from either type of institution.

Collis (2002) provides as a case study of Knowledge Universe's Cardean University. A financier and the CEO of Oracle founded Cardean in the 1980's. A Chicago law professor and an entrepreneur ran the institution and a former dean of the University of Chicago Business School presided. Carden employs over three hundred people and offers courses developed by faculties from higher education institutions like Columbia, Stanford, and Carnegie Mellon. In June of 2000, Cardean began offering an accredited MBA degree and was planning to offer other degrees in engineering and international relations. Cardean was moving from just offering a lecture-based course on line to a new pedagogy featuring problem-based learning. The tuition cost was 80 percent of what was charged by traditional higher education institutions.

Collis (2002) concludes that even though these corporate market institutions are not a direct competitive threat right now, institutions should prepare to face stiffer competition from this market in the future. He claims that this market will eventually strategize to compete more directly as students or consumers are attracted more to the cost, convenience and results of this type of education. Reports from traditional institutions disagree. Greg Eisenbarth, the executive director of the Online University Consortium, whose members include Penn State, the University of Oregon, the University of South California and Ohio University, claims that the surge in popularity of the for-profit providers was partly due to convenience, but the market is shifting as some of the most respected universities in the country are now offering quality on-line programs with greater flexibility and choice (Syllabus News Update, April 27, 2004).

"Regardless of the reasons individuals have for learning, institutions of higher education should provide needed environments, programs and resources for learning throughout life for citizens without limitation of time, place and social status" (Nasseh 2000, p. 222). Institutions in higher education have to change traditional practice of focusing on the student body as a whole to considering the student as an individual, and address issues like individual learning styles, abilities, limitations, needs, and socio-economic status. Nasseh summarizes the changes that are occurring in institutions of higher education by comparing traditional practices and the new evolving practices.

Traditional Practices	Evolving Practices
• From being teacher-centered	• To being student-centered
• From being process-oriented	• To being outcome-oriented
• From a geographical monopoly	• To a global education
• From a limited audience	• To a global audience
• From a focus on teaching	• To focus on learning
• From standard programs	• To adaptive programs
• From local orientation	• To a global orientation
• From scheduled programs	• To learning on demand
• From traditional learning	• To lifelong learning
• From traditional processes	• To business processes

According to Collis (2002, p. 193), "A university campus today is one of the most wired places on earth." Quoting statistics from different resources, Collis (2002) points out that survey results released in 1998 indicated that 90% of students use the web daily and 50% have access from their dorm rooms; 62% of institutions surveyed used some form of distance education and 78% of those were Internet based; and in 2000 there were 500 virtual universities and 6,000 accredited courses offered on line.

Calhoun (2003) cites the conclusion made from a survey conducted by Jose-Marie Griffiths from Information Sciences at the University of Pittsburgh. The study, which surveyed over 400 executives, e.g. chancellors, presidents, etc., indicated that top executives in higher education believe that financial support for information technology is critical for the growth and reputation of the institution and important in achieving institutional strategic goals.

2.2 STUDENT-CENTERED SERVICES

The Society for College and University Planning (2002) points out that student services have become a strategic issue in improving retention and remaining competitive in higher education. The challenge before colleges and universities is "to know their students' expectations and design a student services model that's attuned to students needs as well as the institution's culture and values."

In a customer-oriented service organization, as previously stated, it is important to know your customers. Kramer (1996) acknowledges that today's college student population is the most diverse student body yet. They like things neatly packaged. They are media saavy and image conscious. They are "super-consumers" and they are the first generation to grow up with computers. Their educational system has been focused on their behavior rather than learning. Technology has given students more choices and more control over their education. They transfer among institutions, they change their majors several times, and they are working more.

Haberle (1996, p. 116) points out that, "the most critical issue that technology planners must address is the potential impact of new technologies on their campus culture." As institutions implement quality service management strategies (Carter, 2000) and utilize

technology as a solution in responding to their commitment of meeting customer demands, they are looking for ways of improving the quality of student services by being a more "customer-oriented service organization" (Lonabocker, 1996).

Klenk, Burnett, and Ramos (2000), who claim that student services reflect the importance an institution places on its learners, trace the "e-volution" of student services through six phases. In phase one, the traditional campus model had students moving from building to building to be serviced by staff, who were trained specifically to do a specific task or deal with a particular process. Services were scattered around campus. Students waited in long lines to receive in-person assistance.

In phase two, in the 1980's, when institutions began acknowledging the competitiveness in higher education, the changing student market, and the cost of supporting the numerous student service facilities, the one-stop shop appeared. The one-stop shop gathered similar services together under one roof, reduced the number of student-service facilities and created one new student-service facility, where students waited in shorter lines and the time spent running around campus was reduced. The one-stop shop concept was taken from best practices of the service industry.

In phase three, in the early 1990's, cross-functional service teams appeared. Each team member was trained to deal with a variety of similar services, e.g. admissions, financial aid, registration, etc., so that students could take care of all of their business through a visit to one of these team members. Service processes were reengineered. Some processes were automated or eliminated and service teams were implemented. The result was faster service, shorter lines and happier customers.

In phase four, web-based self-help tools became available in the 1990's to met the student's customer demands for service choices. Students could choose to either attend to service in person or transact business themselves on-line through computers, phone or kiosks. The customer-service model was implemented. As students became empowered, gatekeepers and bureaucracy disappeared. Information was available to students for the first time from anywhere at any time, although the design of those web services was often confusing and students started to feel disconnected.

In phase five, e-business really started to change the way business was being conducted in the late 1990's. Knowledge was created from data and information provided by smart systems. Behaviors and trends were forecasted, and institutions had the decision-support tools needed for strategic planning. Smart systems and decision-making tools provided institutions with a competitive advantage.

In the final phase in the new millennium, institutions began focusing more on personalized online learning communities that allow students to collaborate and have interpersonal dialogues with other students and faculty, i.e. Blackboard. Individual student portals customized a student's access to the web and students can personalize their web access by including only the things that are most important to them.

Klenk, Burnett, and Ramos (2000) also provide a strategic framework of six critical planning phases, a Continuous Planning Cycle, to keep institutions focused in a continuous improvement mode. The process includes: 1) understanding market directions and forces by analyzing trends, demographics, needs, advances and competitor's strategies; 2) aligning the vision to the market; 3) researching best practice services through visits to other institutions and information from consultants rather than "reinventing the wheel"; 4) redesigning for the market

by leaving comfort zones and redesigning processes and performances; 5) creating a blueprint to map course of action; and 6) making it happen.

Jacobson (2000) points out that the most successful web retailers are using technology to deliver more than a new level of customer convenience and finding ways to provide new customer opportunities. While early web efforts focused on self-service and business improvements, student service providers are now looking at ways to better develop customer relationships using decision-support components to assist students from admissions to graduation and beyond. Jacobson (2000) identifies four primary e-business methods used to deliver student services: customer decision support, personalization, engagement, and community. A customer-decision support system empowers the student. Not only can students transact business online but they also have access to a system that provides them with all of the information they need to guide them in making decisions. Customer decision support can be used in the admission, financial aid planning, career planning, and course registration processes.

As previously mentioned Jacobson (2000) says as services on the web have been reorganized by the customer and context, tasks and processes have also been grouped together by the event or process and present a one-stop-shop on the web to a specific audience. For example, services may be grouped by undergraduate or graduate and ultimately by Johnny or Mary. The one-stop-shop becomes a “market of one” as many institutions implement enterprise information portals to personalize the transaction between the student and the institution through information technology. Personalization through the portal allows students to get personalized schedules or account information and keep informed about things that are important to them, perhaps the weather or campus sporting events.

As Jacobson (2000) points out, commercial websites are designed to attract and retain customers and focus has moved from creating websites that entertain or inform to websites that require engagement or interactive participation. Engagement is what actually attracts and retains the customer. Some examples of engagement are self-assessments and what-if calculators where the student actively inputs information and gets a response or feedback. Self-assessments can be used in making major and career choices, planning course schedules and calculating grade point averages.

Jacobson (2000) also draws attention to the community building that is taking place through technology and how community building actually cultivates customer relationships. Tools used in community building include email, event calendars, chat rooms and forums. Blackboard is an example of a tool used to build a community. During a semester, students have access to a site for a specific course where announcements, class notes and assignments are posted, chats between students and faculty and small-group projects take place, and tutorials and study groups can occur.

Sotto (2000) looks at the level of services being transacted through technology in higher education. She categorizes the services into three areas. 1) Basic services are basically the presentation of text information, e.g. policies and procedures, academic standards, frequently asked questions, phone numbers, hours of operation, assessment and practice tests. 2) Midlevel services include on-line forms like applications and requests for information, search capability, and audio or video formats. And, 3) advanced-level services include: web registration, articulation evaluations—what courses/credits will transfer, student records and profiles—grades, tuition bill, schedule of classes, degree audit reports, and grade-point-average calculators which are used to determine the student's academic standing.

Parsons and Hernandez (2003) offer some guidance in creating student-centered web pages, beginning with the feeling of connectedness. They note that first-year students are surfing web pages looking for consistent icons, messages, pictures and other ways to make a personal connection to an institution. To make sure websites are student centered, have the feeling of personal assistance and connectedness, and utilize positive customer service models, Parsons and Hernandez (2003) suggest using pictures of students and people; keeping the website current on dates and announcements; using language to personalize the interaction; and, providing the same and new online programming. Parsons and Hernandez believe that, "Consistent and accurate information throughout all …will provide a student with a sense of comfort, confidence, quality, and ultimately a connectedness with the institution that will lead to satisfaction and retention" (p. 3).

Barratt (2001) also points out that it should never be assumed that students are reading the web pages the way intended to and provides models for evaluating student affairs websites. He says that the basic values for student affairs websites are inclusion, representation, active and current, informative, interactive, convenient, and community building. The websites should be designed to promote developmental goals and using developmental models from Chickering and other student development theorists, promote appropriate learning goals using models like Bloom's taxonomy of learning, have measurable outcomes, provide feedback sections and meet accessibility guidelines. Website structures should ask the questions: what are the goals, who is the audience, does the website reflect how students access information, and is the material within three clicks. He provides a checklist that covers four areas to start evaluating a website. Those areas are 1) navigation and design, i.e. three clicks from homepage and 30 seconds to load; 2) technical details, i.e. search function, feedback section, accessibility standards; 3) aesthetic

appropriateness, i.e. consistent look and feel, attractive pages; and 4) content, i.e. information for all types of site visitors, current and accurate material, contact names listed.

Lonabocker (1996) summarizes what the participants in a forum hosted by IBM's Higher Education Consulting and Solutions Division in 1996 had to say about the future of student services. They envisioned that 90% of student services would be self-help. There would be multiple methods of communication and technology would be used as an enabler. Students would be empowered with information. Student services would be student centered. The critical success factors in redesigning student services for the future begin with strong leadership and a call for action as the vision must be shared.

2.3 USING TECHNOLOGY IN ACADEMIC ADVISING

Students have rated academic advising as the most used campus service (Appleby, 2001) and because academic advising has proven effective in retaining students (Glennen, 1995), academic advising has become a student service that institutions are looking at to support their retention efforts. A 1980 report from The Carnegie Commission (Glennen, 1995) indicated that six out of ten students did not complete their degree. Now, institutions have gone to lengths to "snag" and retain students (Winter, 2003, Bauer, 2005). As public outcry for accountability has institutions increasing evaluation of efforts, outcomes assessment is being demanded and institutions are asking that advising be "evaluated as part of the learning activities students experience from the time they matriculate to the time they graduate" (Vowell, 1995, p. 37).

The 1988 and 1993 ACT National Surveys of Academic Advising (Habley, 1995) asked students to rank their faculty advisors on a series of 36 advisor traits and characteristics, ranking

each item from strongly agree—5 to strongly disagree—1. Survey items on the impressions of faculty advisors included key words like encourages me, my involvement, helps me, defines, knows, provides, respects, refers, anticipates, examine and explore. The overall mean of all 36 items was a 3.66. Habley (1995, p. 17) concluded that, "students believe their needs have been met satisfactorily… (and) have moderately favorable impressions of their faculty advisors."

Ironically, according to Appleby (2001), the faculty who provide a majority of academic advising are uninterested in academic advising because of the expectations to do more with inadequate reward and the lack of information and appreciation. In surveys administered to members in 1980 and 1985, the National Academic Advising Association found the critical issues of high priority to be low quality and availability of advising and poor training (McGillin, 2000).

The purpose and mission of the National Academic Advising Association (NACADA) is to promote quality in academic advising and ensure the educational development of students (White, 1995). The General Standards promoted by the Council for the Advancement of Standards in Higher Education (NACADA, 1995) say that an academic advising program must be purposeful, coherent, and based on theories of human development and learning. Technologies, such as degree audit systems, are reducing the "labor-intensive aspects" of advising (McCauley & Southard, 1996). By eliminating mundane manual work and reducing prescriptive advising, technology is providing academic advisors with tools that allow them to spend more quality time with each student working on the "development of meaningful educational plans that are compatible" with life goals (NACADA, 1995, p. 64).

Kramer (1996) claims that finding new uses for technology add value to the tool. Most critical is finding the "appropriate blend of 'high touch' and 'high tech'." Kramer discusses the

"human-technology nexus" as it relates to academic advising and provides some points to consider in finding the right blend of touch and technology. He stresses the importance of identifying student outcomes in creating a college learning experience in which students actively participate. To do this, a continuous dialogue must exist between faculty, students, staff, administration, and information technologists on campus. Essential academic-information needs should be determined to provide solutions to accessing information and performing transactions. The responsibilities of the students, advisors, the institution, and technology should be defined. Information technology encourages students to be more self reliant, a goal of the institution, while freeing advisors to help students make more responsible decisions, set realistic goals and develop life management skills. Kramer (1996) also stresses the importance of anticipating needs and considering whether the technology and advising experience add value for the students, advisors, and institution. The commitment to providing student services and enhancing the educational process should drive the adoption of technology into the relationship.

As technology takes over some of the mundane tasks of academic advising, e.g. calculating degree progress, it has also changed the nature of academic advising by removing the "prescriptive" tasks, such as computing degree progress. Developmental advising strategies have dominated academic advising for years (Lowenstein, 2005). Developmental advising requires the student to be a more active participant. The student is changed by the process and personal development is enhanced. Hemwall & Trachte (2005) conclude that developmental advising has "as its goal the self-actualization or personal growth of the student." Jordan (2000) says that developmental advising has advisors relating to students in a "holistic way, integrating academic, career, and personal goals" rather than just focusing on academic or career goals.

Appleby (2001) explains the differences between prescriptive advising and developmental advising. He cites the comparison of prescriptive advising to the treatment given by a medical doctor. The academic advisor provides advice and the student is responsible to act upon it. Retention is the only thinking skill involved in prescriptive advising. Developmental advising encourages comprehension—why do I have to take psychology; application—how can I graduate; analysis—how do the requirements fit together; synthesis—what electives would complement my interests; and evaluation—is this an attainable career. He says that developmental advising produces active learning. Both the student and the advisor learn and develop. Responsibility is negotiated and/or shared.

Appleby (2001) also suggests that faculty look at advising as teaching in order to provide the student with a better experience. He draws parallels between effective teachers and effective advisors from the literature. Both master their subject area, plan, organize and prepare materials, engage students actively in the learning process, stimulate student interest, help students learn independently and relate content to students' experiences. Appleby's list includes stimulating cognitive learning and utilizing interactive computer technology to promote active learning.

Academic advising is seeing still another paradigm shift. The shift now is to a more learner-centered advising philosophy (Lowenstein, 2005; Hemwall & Trachte, 2005). Resulting from the theory that advising is teaching, learner-centered advising puts the advisor in the position of the coach or guide, assisting the student in creating meaning out of his/her learning experience which involves curriculum building that is tailored to each student (Lowenstein, 2005). Lowenstein feels that during academic advising, the students should learn about the institution's mission and develop an understanding of the purpose and values of the institution, how it relates to them and how they can achieve the goals of the institution's mission. The

advisor facilitates the student in trying to make sense out of the curriculum, understanding reasons behind requirements and choices, connecting courses from various disciplines so that the student gets more out of the coursework, and relating previously learned knowledge. The student is changed as a result of the advising experience.

At a Mid-Atlantic National Academic Advising Association (NACADA) regional conference, Musser and Lipschultz (2002), academic advisors in the Division of Undergraduate Studies at Penn State University did a presentation on how they were using the instructional systems way to design web-based advising materials. In looking at advising as teaching, Musser and Lipschultz (2002) first identified their primary teaching function which was their academic orientation program called "The First Year Testing, Counseling and Advising Program" or FTCAP. The curriculum of the program was the foundation of knowledge presented to students so that they could learn more about the academic transition from high school to college.

Musser and Lipschultz (2002) used behaviorist, cognitivist, and constructivist learning theories, instructional theories from Gagne, Ausubel and Hannafin, and design theories from Dick and Carey, Wedman and Tessmer, and Gerlach and Ely to organize and shape the flow of the content of their lesson plan. The lesson plan included learning more about placement exams in English, math and chemistry and the interpretation of those exam results. Using this information, students learn more about where they stand in relationship to requirements of the school or program. Students are also provided with an introduction to the academic structure and requirements of programs. They practice using University academic materials and tools of registration. During individual interviews, students discuss their long-term plans and meet with an academic advisor to schedule classes. FTCAP, their current academic orientation program, itself includes an on-line tutorial that serves as an advance organizer.

Before 2001, Penn State freshmen had been mailed hard copies of academic information and asked to complete an enclosed worksheet and bring it with them to the FTCAP. In 2001, Penn State no longer mailed students hard copies of academic information. The correspondence received by the students asked them to read the academic information from the website, complete three worksheets, and bring the worksheets with them to the FTCAP. Musser and Lipschultz (2002) had found that many students encountered problems utilizing the electronic materials. They said it was too difficult to navigate, too time consuming and complex. Some also encountered problems because of their computer hardware or software. Musser and Lipschultz's advising team then decided to simplify the site and eliminate the amount of the materials and work required.

According to Multari (2004), forces that are driving academic administrators to incorporate more technology into academic advisement are the continued reduction of advisement and records staff, the need to manage advisement processes more efficiently, the need for improved information and regulatory compliance, and the increased in capabilities of newer communication technologies. The National Academic Advising Association (NACADA) surveyed members to assess their background and needs concerning the use of technology in advising (NACADA, 2003). About 97% of the member respondents indicated using email in their advising role and 90.96% use a web browser, like Explorer or Netscape, on a regular basis. Word processing software and electronic calendars followed in that order. Most advisors also had access to the university catalog (87.67%), grades (87.18%), course registration (80.95%), transcripts (78.27%), and degree audits (57.88%). Less than 5% of the member respondents indicated that they were not comfortable using technology in their daily activities.

In 1996, the National Academic Advising Association (NACADA) published a monograph entitled, "Transforming Academic Advising Through the Use of Information Technology" (Kramer & Childs, 1996). In Section IV of that monograph, "Technology Innovations in Academic Advising," ten innovative applications of how technology was being used in academic advising by different colleges and universities were presented. In one application, Vowell (1996) talked, in general, about some of the ways academic advisors at several institutions were using the world-wide-web, email and list servs as communication tools to provide information to their students. Vowell included information about web resources for advisors seeking information, handbooks, advising guides, and bibliographies. She also pointed out how some institutions were using web pages to address frequently asked questions, state mission statements, advisor/advisee responsibilities and track academic progress and grades.

In the same monograph, Leonard and Kelly (1996) from Penn State University also described their Comprehensive Academic Advising and information System (CAAIS). CAAIS provided information to students about university publications—an advising handbook and student guide, and access to the information system to see grades, class schedules and update address or telephone record. An expert-advising component provided individual responses to common advising questions. A search component provided a comprehensive index for locating specific information, and an advisor service component provided faculty and academic advisors information about their students.

The University of Colorado's Academic Advising Center in the College of Arts and Sciences has what they call the "Academic Advising Web System." According to Bonnie Templeton (2003), the web system is actually a collection of programs and sites that provide information and tools to advisors and students. The security at login determines which

information becomes available. Advisors have access to advisor rosters, a student contact log, term-by-term and by department academic records, a GPA calculator, administrative reports, appointment schedules and reference materials. The student information site includes public and login sites. The public student site includes general information about advising, advisors, scheduling, majors, requirements, support and other types of information. The special student sites, which require a login, include academic and personal information directly related to the student. Students can take care of some simple academic tasks like verifying or changing their majors or determining their placement as well as personal tasks such as establishing a credential file for admission into professional health programs.

As previously mentioned, web-based academic orientation programs in higher education are quite innovative, although on-line academic orientation itself is not. The website of the National Academic Advising Association (NACADA) lists orientation publications and some of those listings include cyber orientation websites being used by different colleges and universities (http://www.nacada.ksu.edu/Publications/orientation.htm). A few presentations have been done on cyber orientation at NACADA national conferences. At the 2000 national conference, Jackson, Kurz, and Howell from Broward Community College did a presentation, "Cyber Orientation: A Comprehensive Interactive Orientation for New Students at Two-year Colleges via the World-wide Web." They demonstrated their site and discussed their process. The current Broward Community College Cyber Orientation "flight plan" now includes general college information, as well as information about course selection, registration, payment, parking, books, and other topics of interest to new students.

The University of South Florida (USF) implemented "Cyber Advising for Orientation and Beyond", a "high-tech, high-touch website" for advising, orienting and registering new

freshmen at USF (Alderman and Lewis, 2001). New students have the option of participating in the mandatory part of their orientation online instead of on campus. They created Cyber Advising for Orientation and Beyond so that students had more time to attend academic presentations of their choice during the on-campus orientation, to accommodate student requests to receive more individual attention at orientation, and to shorten the time spent at orientation. In their NACADA presentation, Alderman and Lewis talked about doing an audience analysis to find out what kinds of computers students were using so that they could build a better product for next year's students.

The instructional content of the USF website includes general education requirements, policies and procedures, and an example of a typical freshman schedule. The students who choose to attend to the academic presentation on the website take an interactive test on academics prior to coming to campus. Some of the questions include identifying the general education categories, how selection of a math course was made, and how placement in math and English courses was determined. The students then also submit a selection of classes to the advisor for pre-registration. The advisors evaluate the course selection provided by the student and give the students who participate in the web-based program an earlier advising appointment time during the on-campus orientation to actually process the registration.

Lewis and Alderman (2003) also created a website with a "Cyber Recipe" which was a guide to the technology used in building their cyber-advising website. The "Cyber Recipe" began with ingredient #1, which provided information about the software they used, Microsoft FrontPage and why it was preferred to other software packages. Ingredients 2-4 provide information on the software they used for audio—Acid WAV, VBSCript for animation, and

Flash 5.0 as a hypermedia development tool. Their most important point was that technology is just a tool. It is the message that produces the quality product.

The online orientation at Georgia Perimeter College (2004) uses the analogy of a voyage in higher education and during the first part of the journey students are required to attend an orientation either on campus or online. The five sections of the online orientation help students "navigate the academic waters". Students are asked to complete a quiz of at least four questions after each of the five sections and receive immediate feedback on their responses. They also have the ability to go back and review information. The instructional content includes information on requirements, procedures, responsibilities, resources and other information new students should be given in order to fully understand their journey.

The goals of the New Student Orientation Online at the Green River Community College website (2004) are presented at the beginning of their web-based program. The goals are to introduce students to people, programs and services; to assist students in understanding the purpose of higher education and how it relates to their life goals; to create an atmosphere that reduces anxiety and stimulates; and to assist students in understanding policies, rules and regulations. The students are asked to respond to a quiz, which is based on the information presented, and submit it electronically. The design of the website provides a header menu that students can click to go directly to certain pieces of information, i.e. student resources, online services, campus information, getting started and programs and courses.

Cyber Orientation at Syracuse University Continuing Education or University College (2001) includes all of the informational topics covered in an orientation. Students are invited to "walk-through" the services available to them and to consider the orientation as "a step on your journey towards graduation." Students are also told that they will meet some of the "guides"

who will accompany them on their journey. The Cyber orientation ends with a "New Student Orientation Program Evaluation," which asks students to rate the orientation program and indicate which presentation was most useful and what other information they would have liked to receive. The responses are sent electronically.

In addition to the academic information, other institutions have included some non-academic information that is accessible through their web-based programs. The online orientation at Western Nevada Community College (2002) includes expectations, lingo, a directory of student services, a FAQ section, and a section on planning, reaching for success and time management. The University of Virginia (2005) offers a transfer guide that includes UVA lingo, housing, utilities, computing tips, shopping and other conveniences, transportation, employment, sports and recreation as well as local sites and entertainment venues.

2.4 SUMMARY

Information technology has produced outcomes that are changing the traditional culture of higher education. Higher customer expectations and global competition are demanding that traditional institutions in higher education adopt business practices and focus on the customer in order to meet the needs of learners in the 21st century. Many of the processes and practices of the traditional higher education culture from the classroom to student services are being transformed using technology that members of society have integrated into their daily life. Cyber Orientation is an implementation that many thought was contrary to traditional beliefs in higher education, the "human-technology nexus" (Kramer, 1996). Academic orientation has always been a

traditional process that takes place on the campus in face-to-face discussions and personalized transactions.

According to a telephone survey done by a group of students in a graduate seminar class at the University of South Carolina (Policy Center on the First Year College, 1995), 80% of the 200 transfer students surveyed attended the orientation program on campus. Those transfer students who participated in the orientation programs indicated they do so in order to become more acquainted with the campus, to register for classes and to meet other students and because it was required. The other types of information students suggested as being valuable to them in the transition process included: social opportunities, housing information, career counseling, safety precautions, and more transfer student services. The report concluded that orientation was a key opportunity to reach the transfer students. The University of South Carolina (USC) does not have a web-based orientation program. The students who could not attend claimed that they had to work, they had decided too late to transfer, or they did not feel that it would be helpful without individual attention.

All of the responses indicated in the USC survey need to be taken into account when considering the design and adoption of a web-based academic orientation program. These students wanted to visit the campus and meet other students. In order to provide a similar experience in a web-based orientation program, the student should be able to access a campus map and take a virtual tour of the campus. Access to a chat room would also give them the opportunity to talk to other students. Because some did not attend because they felt that they would not receive individual attention means that there should be some type of follow-up face-to-face interaction between the student and the advisor, faculty, administration and other students in order to provide that personal attention. Orientation via the world-wide-web does break that

traditional human interaction, but it also offers a self-paced learning experience at any time and anywhere, the type of service and choices it is assumed that consumers in our society have come to expect. As Kramer (1996) has pointed out today's students are media saavy, super consumers, image conscious, and they grew up using computers. A web-based orientation program would have accommodated those USC students who did not attend the on-campus orientation program.

Klenk, Burnett, and Ramos (2000) traced the evolution of student services from the one-stop-shop, to self-help web-based tools, to smart systems, and now to personalized online communities. Jacobson (2000) and Barratt (2001) also support personalization, engagement and community in delivering student services. Kramer (1996) stresses the importance of identifying student outcomes and having active participation of the student as well as a continuous dialogue between faculty, staff, students and administration to determine academic information needs and to encourage students to be more self-reliant.

Parsons and Hernandez (2003) brought out the point that student-centered web pages must make students feel comfortable and confident and provide the student with the feeling of connectedness by using pictures, keeping information up to date, and personalizing interactions. Many of the web-based orientation programs use an analogy in their web-based programs to give the students the feeling that they are preparing for the next step in their lives. Georgia Perimeter College's online orientation calls it a voyage and talks about navigating the academic waters during the journey. Syracuse's University College invites students to walk through a step on their journey towards graduation and meet some of the guides who will accompany them on their journey. Broward Community College has a flight plan and indicates the destinations that include general college information, course selection registration and payment. Before Cyber

Advising for Orientation and Beyond, the University of South Florida used a jungle as its analogy, "It's a Jungle Out There."

Barratt (2001) provided a checklist of four areas that should be used to evaluate a student affairs website, which included navigation and design, technical details, aesthetics, and content. Lewis and Alderman (2003) even provided a "cyber recipe" which included information about software that can be used in designing a web-based orientation program.

Using learning, instruction, and design theories from various experts to design their freshmen program, Musser and Lipschultz (2002) provide students with an on-line tutorial that serves as an advance organizer to prepare them for their first experience. Students learn more about placement exams and how to interpret them, where they stand in relationship to requirements and are given the opportunity to practice what they learn in the lesson plan by using academic materials and tools of registration. Alderman and Lewis (2001) at the University of South Florida have also planned the design of their web-based orientation program to serve as an advance organizer so that advisors and students can spend more time focusing on the individual needs rather than spending time reciting rules and regulations.

Lowenstein (2005) stresses the importance of students understanding the mission of the institution and how that relates to them so that they can learn how to relate the curriculum to their individual experiences. The new student orientation program on the Green River Community College (2004) website provides information so that students understand the purpose of higher education and how that relates to them. Green River Community College's online program also introduces students to people, programs and services.

Based on the review of literature, other pieces of information that should be included in web-based orientation programs are: general college information as rules, degree requirements,

general education and major requirements, information about placement exams and what courses they have placed into as a result of those exams, academic standards, understanding how to select classes, the registration process, procedures, responsibilities, resources and services, computing information, payment, parking and transportation, books, on-line services, campus information, housing, student activities and clubs, a frequently-asked questions section, study skills and time management information, as well local community information concerning entertainment, restaurants and historical sites.

Several of the web-based orientation programs included surveys and feedback. Georgia Perimeter College has students complete a quiz of at least four questions after each of the five sections of information and they receive immediate feedback on their responses. Syracuse University's University College also has a survey, which is sent electronically, that asks students to rate the program and to identify what information was most helpful and what other information they would have liked to have received. Green River Community College also has a survey that is submitted electronically.

Wynn (2002) says that institutions need to determine the characteristics of transfer students and look at the challenges this group of students face. In order to increase the degree completion of transfer students and provide positive experiences, institutions must conduct in-depth transfer student orientations making sure transfer students are familiar with campus resources and encouraging more interaction between students and advisors. The role of the academic advisor is to help students make more responsible decisions, set realistic goals and develop life management skills (Kramer, 1996). Lowenstein (2005) pointed out that advisors should be teaching students how to relate the curriculum to their own learning experiences. As institutions are adopting student information systems that take care of the prescriptive tasks, such

as checking progress toward a degree, more learner-centered advising is taking place. Academic advising is most used campus service (Appleby, 2001) and has been effective in the retention of students (Glennen, 1995) as it is a part of the learning activities students experience from matriculation to graduation (Vowell, 1995). The first step in the advising process is orientation; it is an advance organizer that helps students begin to feel connected to the institution. Lewis and Alderman (2003) say that technology is just a tool and it is the message that produces the quality product. Cyber orientation is an innovation that can be a powerful tool for students when student development, learning, instructional, and design theories are considered and communication between students, faculty, staff, and administration are used to project expected outcomes.

3.0 METHODOLOGY AND ANALYSIS OF DATA

As Gay (1992, p. 9) states, "Evaluation is a systematic process of collecting and analyzing data in order to make decisions." This study was an evaluative study designed to facilitate decision-making regarding the value of a web-based orientation program for undergraduate transfer students. Flagg (1990) says the first phase of an evaluation plan should clarify the purpose of the study and identify the recipient of the information. She implies that "information on the effects of the electronic learning materials should come from students themselves through decision-oriented and objectives-based studies" (p. 135). According to Flag's description, this evaluation of Cyber Orientation would be considered a decision-oriented study in formative evaluation, as its purpose is to "gather information from target users (both learners and program managers) to improve the design of a curriculum product" (p. 135).

As Lowenstein (2005) points out, the primary objective of the advisor is to coach students in understanding the structure and logic of the curriculum so that they can create logic of their education. The curriculum product in this study was Cyber Orientation, which was designed to provide transfer students with the opportunity to attend an academic orientation program without having to come to the campus. The academic orientation program serves as an advance organizer, or "bridging strategy" (West, Farmer, and Wolff, 1991) for the transfer students who already possess a cognitive structure from their current or previous college experiences. Cyber Orientation provides transfer students with information about rules, policies,

requirements, resources and procedures, basic information they are already familiar with as a result of their previous college experience.

Cyber Orientation became a pilot project in the Fall Term of 2001, but had never been evaluated although data were available directly from a mandatory survey completed by the participants or target users, which provides information to assess the content and the design of the program. The Cyber Orientation participants completed this mandatory survey after navigating through the web-based program and before meeting with an academic advisor. Data was also collected from the academic advisors who serve all transfer students in Arts and Sciences. Academic advisors participated in a group discussion designed to solicit feedback on their observations and interactions with the Cyber Orientation participants.

3.1 THE SAMPLE

Arts and Sciences accepts internal transfer students from other schools within the University of Pittsburgh, i.e. College of Business Administration, School of Engineering, College of General Studies, and Nursing, and regional relocates from other University of Pittsburgh campuses, i.e. Bradford, Greensburg, Johnstown, and Titusville. Arts and Sciences also admits transfer students from other accredited higher-education institutions. Arts and Sciences admits between 500-600 transfer students in the fall semester and 200-300 for the spring semester (S. Crain, personal communication, October 31, 2005).

Based on the theory that learning is an active process by which individuals link past knowledge and experience to learn new ideas and concepts (Bruner, 1966), transfer students seemed to be the ideal group of students to pilot a web-based academic orientation program.

They already possess a content structure to help them assimilate the information presented in the web-based academic orientation. They have experienced the college culture, environment and bureaucracy, and many similarities exist among institutions of higher education from admission to enrollment. It is assumed that they know what to expect and what questions to ask, and they already have access to computers and the web at their current institutions.

The transfer students who participated in Cyber Orientation were self-selected. Information from the Dean's Office instructed students to call the Advising Center to make arrangements for an orientation. The receptionist presented those transfer students with the option of attending an on-campus orientation program or participating in the Cyber Orientation, and the students would make the selection. The survey is a mandatory component of participation in Cyber Orientation; all transfer students have to complete the survey before receiving an appointment with an academic advisor to register for classes. The surveys used for this study were selected randomly from the 131 surveys collected from transfer students who were admitted for Spring Term 2006 between November 22 and December 1, 2005.

The academic advisors who participated in the discussion were also self-selected. The meeting date and time was emailed to the advisors and advisors could choose whether or not to participate.

3.2 METHODS USED IN DATA COLLECTION

The primary objective of Cyber Orientation was to improve student satisfaction and the quality of service delivered to transfer students. Arts and Sciences requires that all new students attend an academic orientation and meet with an academic advisor before registering for classes. In the

past, advisors heard comments from transfer students who felt attending an orientation program was a waste of time, because they already had college experience, knew what was expected of them, and could read the handbook. At the same time, during individual advising appointments, advisors also heard comments from transfer students who appreciated the individual attention advisors provided them. Some students who were transferring from institutions with automated registration systems, virtual advising and degree audit systems indicated that they had never met with an academic advisor at their previous schools. The purpose of this study was to evaluate whether Cyber Orientation as a web-based academic orientation process and whether this program and process could accommodate the needs of the transfer students and meet the expectations of academic advisors and to do a formative evaluation of the web-based program to determine where it could be improved. The purpose was to improve the program and maximize its effectiveness.

Cyber Orientation provides transfer students with the choice of whether to attend an on-campus academic orientation program or participate in a web-based program. The assumption was made by the team doing the needs assessment or process mapping that Cyber Orientation could meet the academic needs of the transfer students and result in greater satisfaction with the individual time transfer students would spend with academic advisors. The academic orientation has always served as an advance organizer to the advising/registration appointment providing students with an introduction to the demands of an Arts and Sciences degree.

Transfer students who attend the on-campus academic orientation program make reservations to attend a particular session and are given advising appointments with academic advisors almost immediately following the session. Attendance is taken at those on-campus programs, so advisors know that those students had just participated in an academic orientation

and should be familiar with basic information about policies and procedures, rules, resources and enhancements. Since attendance could not be tracked in this web-based program, a survey instrument was developed prior to the implementation of Cyber Orientation, which students must complete before the student can be assigned an appointment with an academic advisor. The survey instrument assures academic advisors that the web-based program participants had attended the Cyber Orientation program. The objective of the first part of the survey is that after participating in Cyber Orientation, students will know more about the Arts and Sciences at the University of Pittsburgh and what is expected of them and they will be able to apply the information to their own situation. The survey instrument also provides evaluative information concerning student satisfaction with the Cyber Orientation process and program and where improvements can be made to the program. The Office of Measurement and Evaluation at the University of Pittsburgh reviewed the survey instrument prior to its implementation. The survey instrument can be found in Appendix A.

As the same academic advisors serve both the students who participate in Cyber Orientation and those who participate in the on-campus program, the researcher facilitated a group discussion with these academic advisors. The academic advisor discussion was designed to determine if Cyber Orientation was meeting their expectations in preparing students for their advising/registration appointments and, based on the advisors' experiences, accommodating the needs of the students for information. Feedback from advisors was also to provide additional feedback on the process and program and to hear the issues and recommendations they may have to improve the service.

3.2.1. The Survey Instrument

The Cyber Orientation program was developed from the powerpoint slides which accompany the advisor's presentation at the on-campus academic orientation programs. Consensus among the team of academic advisors was that Cyber Orientation should follow the same sequence of information as delivered in the on-campus program. Of course, modifications to that powerpoint presentation had to be made in order to accommodate delivery in the new media format. Because a voice-over was not provided in Cyber Orientation, information on the slides was linked to other web pages where students could find more in-depth explanations and descriptions and even more links if they wanted to pursue a topic further. User limitations were considered when designing Cyber Orientation. Cyber Orientation is in compliance with the Americans with Disabilities Act regulations.

The Cyber Orientation survey instrument has two parts. Part I—Academic Orientation presents 15 questions that were designed to determine if the student actually attended to the information and could apply that information to his or her situation. The academic advisor is expected to review the answers to the questions in Part I prior to the individual meeting with the transfer student and assesses whether the student has an understanding of the information presented in Cyber Orientation. At the individual meeting with each transfer student, the advisor is expected to provide the student with feedback on the responses and summarize the student's academic status in order to be sure that the student fully understands academic standards and graduation requirements.

Part II of the survey is comprised of 12 questions that were developed to obtain students' perceptions of the Cyber Orientation initiative. The responses to these survey questions are most relevant in the continued effort to improve the web-based orientation program. Using the

evaluation question criteria proposed by Flagg (1990), questions were designed to evaluate practicality and usability in order to make revisions to the program.

The questions in Part I of the survey reflect the academic information presented on slides of the web presentation. This study will only focus on the questions in Part I of the survey that require the student to recite content information. Those questions include 1, 2, 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15.

In the first question students are asked to describe a liberal arts education to find out whether they understand the value of a liberal arts education—the product they are paying for. As consumers, students and their parents are looking at what they get for this costly expenditure to increase their job market possibilities (Slaughter, 2002). A liberal arts education differs from a major in a professional or more specialized school. Students in business, engineering, nursing, health professions or information sciences know what their outcomes will be in regard to skills and careers in those areas. A liberal arts education focuses more on enhancing citizenship, social responsibility, and community service (Lang, 2000), characteristics with less tangible results in the job market but skills more adaptable to any vocation.

In question two, they are asked to list graduation or degree requirements, which are outlined in the orientation presentation. This information is important for them to understand before they can apply the requirements to their own personal circumstances by reviewing information they have already received from the Dean's Office. Among those items is an evaluation of the credits they have already earned at the other institution and how those transferred courses relate to the academic requirements in A&S at the University of Pittsburgh. Several slides of Cyber Orientation explain those evaluation forms before getting into a more detailed description of each requirement. As they are viewing each degree requirement in the

web presentation, the omitted survey questions are asking them to review their credit evaluations in order to understand their own status in regards to the requirements.

Questions 6, 7, 8, 9, 10, 11, 12, and 13 are asked to determine whether the student understands what is meant by academic standards, procedures for changing registration of classes, grade options, academic standards, support services, the steps in the Pitt Pathway, tools of registration, and academic enhancements and opportunities like experiential learning, study abroad, internships and research assistantships. These questions require a short written response and advisors are expected to review the answers to make sure that the student really understands the information presented, has no misconceptions, and is fully aware of the available resources and opportunities.

The final questions in Part I of the survey, 14 and 15 solicit feedback from the students on the information presented and request recommendations on what other information could have been presented.

Part II of the survey focuses more on affective and evaluative measures and the students' personal experience navigating through Cyber Orientation. The first four questions in this section, 16, 17 18, and 19, were designed to determine the practicality of a web-based orientation program. The reasons students participated in the web-based program, whether they would have preferred to attend an on-campus program, and what they see as the advantages or disadvantages in participating in the web-based program will contribute to data needed for decision-making to determine whether Cyber Orientation should continue to be an option for transfer students. Feedback on these questions may also identify some features of the web-based program or orientation process that could affect or improve the process or the program.

Questions 20-22 were designed to evaluate the website program itself with questions about usability and navigation through the website, the presentation, and content. The ratings go from 0 meaning very difficult, 1 not easy, 2 easy, or 3 very smooth. In regard to user friendliness, question 20 asks students to rate accessibility to determine if they were able to find information in the program easily. Question 21 wants to find out how the navigation was and question 22 asks students if the information presented was clear. The responses to these questions and the request for further comments or suggestions for improvement in question 25 will contribute to the formative evaluation of the Cyber Orientation website.

The final question, 27, was directed toward determining students' satisfaction with the opportunity to participate in Cyber Orientation, the website itself, and the process. Students were asked to rate their satisfaction using a scale from a 1 as the lowest score to a 5 as the highest. The results of this question were important in determining student satisfaction, which is an important objective of this study.

3.2.2. The Academic Advisor Discussion

A group discussion facilitated by the researcher was conducted to gather feedback directly from the academic advisors who service both the transfer students who have attended the on-campus orientation program and those who participated in the web-based program. The advisors were asked 1) whether they thought Cyber Orientation was a good option for transfer students; 2) what they see as the advantages or disadvantages of Cyber Orientation; 2) whether there are any steps in the process that they would like to see changed; 3) whether they saw any differences between the ways they service students who attended the on-campus program and the web-based program participants; and finally, 4) whether they had any recommendations to improve the process or

program. Feedback from the academic advisors does affect the decision to continue the web-based program and contribute to the maintenance or improvement of the process or program.

3.3. STRATEGIES USED TO COLLECT AND ANALYZE DATA

When Cyber Orientation came into existence in 2000, most students faxed their surveys to the Advising Center. To email the survey at that point in the pilot would have required some copying and pasting. In 2003, the website was improved and students were then able to email the survey directly to the person in the Advising Center who coordinates the process. When a survey is received, a copy of the survey is placed into the student's academic file to be reviewed by the academic advisor prior to the individual appointment with the student. The advisor provides feedback to the student about his/her responses during the advising appointment. The researcher of this study received copies of the responses and randomly selected the sample used for this study. No information that directly identifies the student, the student's status, or the previous institution, whether it be internal or external transfer, was included in the data for this study.

As, the primary purpose of this study was to evaluate the Cyber Orientation process and program, the questions in Part I of the survey provided information to determine whether the student was able to find and recite information about Arts and Sciences and the University. The responses to the questions in Part I of the survey should be fairly concise if the information was obtained directly from the web-based program. Some of the responses were evaluated on a scale of values from "1-3". If the response was complete and correct then a value of "3" was assigned

to the response. If the response was correct but incomplete, then a value of "2" was assigned to the response. If the response was not correct, then a value of "1" was assigned the response.

The questions in Part II of the survey were directed at providing insight into the students' satisfaction with the opportunity to choose this option, their navigation through the program, and the content and presentation of the information. Because the responses to questions in Part II of the survey were in the form of brief written responses and numerical ratings, qualitative and quantitative methods was used to analyze the survey results.

Quantitative methods were used to evaluate responses to questions such as question number 20 where the student is asked to rate the ease of accessing information about a liberal arts education, advising and registration procedures, degree requirements, academic standards, and resources. The ratings range from "0" very difficult to "3" very smooth. The ratings to each of these categories can be easily tallied according to the values entered from the students. Measures of central tendency were used determine the mean or average score of the group. The data is presented in graphic format so that a distribution of the scores is recognized.

Robinson (1995) points out that from a qualitative perspective, researchers are asking questions like why and with what effect as opposed to traditional questions in the quantitative paradigm which measure how many or how satisfied. Patton (1980) provides a checklist of evaluation situations for qualitative methods that are appropriate and parts of this study do meet several of the evaluative situations for which a qualitative method is appropriate. Those situations include: the need to understand the dynamics of the program—its strengths, weaknesses and overall process; the need for information for a formative evaluation and information about program quality; and, the need to determine if the program has had any unanticipated effects on the clients.

Some of the questions in Part II of the survey are also directed toward determining affective measures of student satisfaction and require a brief response or short answer from the student. A multi-stage inductive analysis (Patton, 1990) was used to identify themes and categories from the responses to these questions. Inductive analysis is a qualitative inquiry. In the first stage of the multistage inductive analysis, key phrases and terms used by the participants are identified. The researcher then constructed typologies after looking for patterns, categories, and themes among the responses to these questions. In the last stage of the analysis, reasons, recommendations, consequences and relationships are constructed.

Retention of the information learned by the students participating in Cyber Orientation is significant but not the primary focus of this study. Information collected from a discussion with academic advisors contributed to the evaluation of the process and the web-based program. A general discussion among the advisors provided information as to whether they were able to determine during the individual appointments with the transfer students that a majority of the Cyber Orientation participants had comprehended the information presented in the web-based orientation program. A qualitative method of inductive analysis was also used to present information collected from the academic advisor group discussion.

4.0 PRESENTATION OF DATA

The web-based academic orientation program for transfer students—Cyber Orientation was evaluated using information collected from a survey transfer students were required to complete prior to being able to schedule an appointment with an academic advisor for advising and registration and from an informal discussion with academic advisors in the Arts and Sciences Advising Center who service transfer students. The presentation of data will begin by presenting the responses on the surveys. Of the 131 surveys completed between November 22 and December 1, 2005, by transfer students who were admitted for the Spring Term 2006, 25 were randomly chosen for this study. More surveys would have been used in the study if the data would have indicated a wider variety of responses. Conclusions from the discussion held with 11 of the 22 academic advisors who service transfer students in Arts and Sciences have also been included in the presentation of data.

4.1 SURVEY RESULTS

The survey had two parts. The survey questions in Part I were directed towards the content of the presentation. The questions from Part I of the survey used in this study are questions 1, 2, 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15. The questions in Part II of the survey were directed toward the

affective features and the design of the process and website. The questions from the second part of the survey used in this study are questions 16, 17, 18, 19, 20, 21, 22, 25, and 27.

4.1.1. Results of Part I of the Cyber Orientation survey.

Question 1 in the survey asked students to list several words or phrases which best describe a liberal arts education. The key words or phrases that were presented in Cyber Orientation included "think critically", "solve problems", "communicate effectively", "work in groups", "develop a global view", "research and organize information", and "make learning a lifelong process". A value of three (3) was given to any answer in which two or more of the points presented in Cyber Orientation were used. A value of two (2) was given to any answer in which at least one point was presented in the orientation. A value of one (1) was given for anyone who gave an answer. All participants responded to question 1. Sixteen (16) or 64% of the respondents received a score of 3 and included at least two of the key words or phrases. Five (5) or 20% received a score of 2 because they had at least one key word or phrase. There were four (4) or 16% who received a score of 1 as they provided an answer that was not in the presentation. The average score was a 2.48. Figure 1 shows the distribution of scores.

Question 2 in the survey asked students to list the A&S degree requirements—what a student must complete in order to graduate with a degree from Arts and Sciences. The graduation requirements are 120 credits, at least a 2.0 QPA, Foundation Skill Requirements, General Education Requirements, a major and a related area that could be a minor or certificate. A value of three (3) was given to the answer that included all the degree requirements. A value of two (2) was given to any answer with at least two of the degree requirements and a value of one (1) was given for anyone who gave an answer. All participants responded to question 2. Only two

students listed all of the degree requirements. Twenty-two students or 88% listed at least two of the degree requirements. One respondent's answer was not directly related to the question. The average score was a 2.04. Figure 2 shows the distribution of scores.

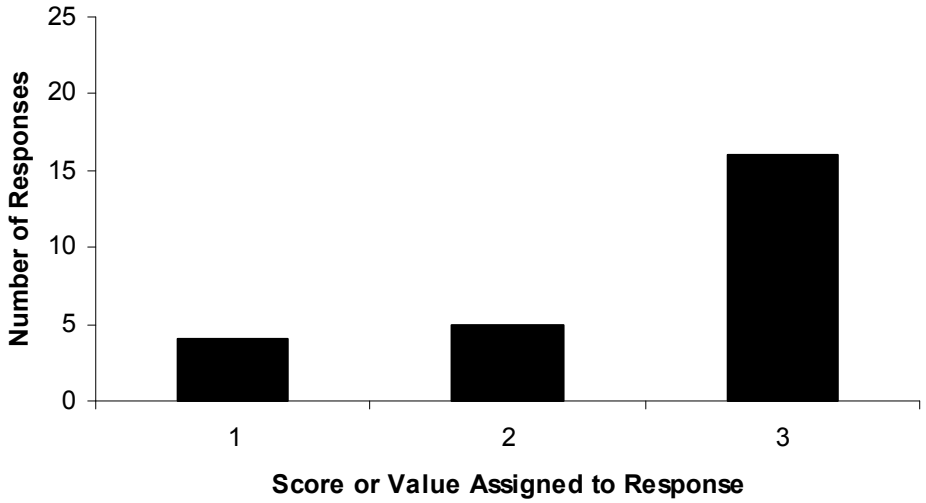


Figure 1. Distribution of Responses to Question 1- Describe a Liberal Arts Education

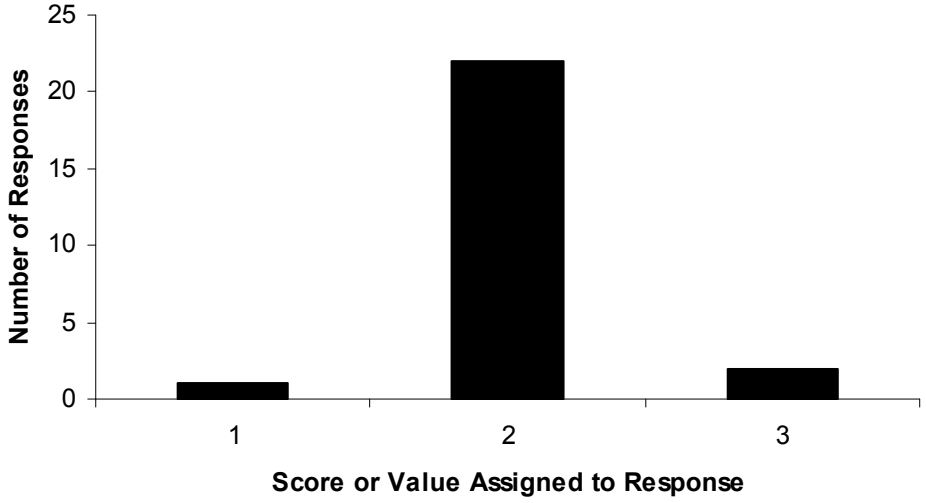


Figure 2. Distribution of Responses to Question 2 - List Degree Requirements

Question 6 asked students to list several academic enhancements and opportunities outside of the classroom from which you can experience and gain knowledge. The enhancements presented in Cyber Orientation were internship, volunteer work, undergraduate teaching, undergraduate research, study abroad and career services. A value of three (3) was given to the answer that included at least three of the enhancements listed in the presentation. A value of two (2) was given to any answer with at least one enhancement from the presentation. A value of one (1) was given for anyone who gave an answer. Sixteen (16) or 64% of the participants listed 3 or more correct responses. Three (3) participants or 12% indicated only one of the answers expected; and 6 or 24% provided an answer that was not in the presentation. Two of those six responses with incorrect answers provided a personal experience rather than information presented. The average score was a 2.4. Figure 3 shows the distribution of scores.

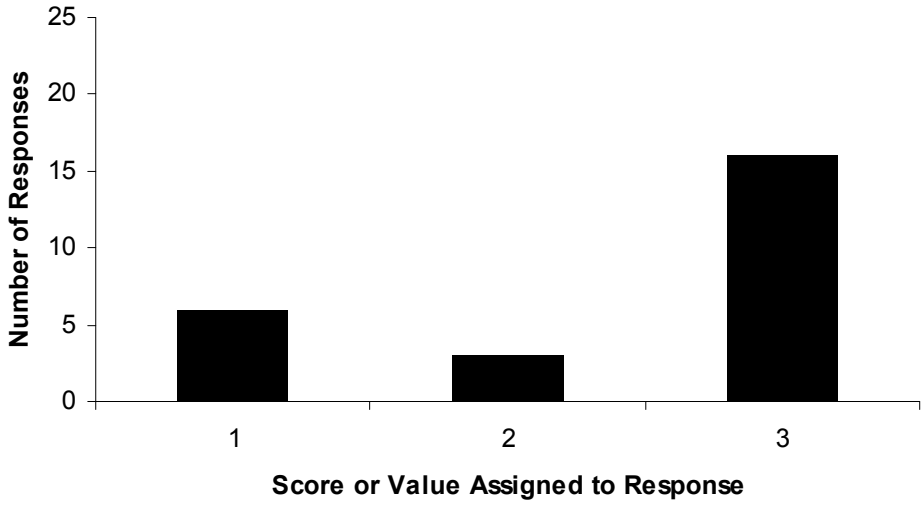


Figure 3. Distribution of Responses to Question 6 - List Academic Enhancements

Question 7 asked how to change your schedule of classes once you are registered. The expected answer was "add/drop". Twenty-one (21) students or 84% of the participants gave the correct answer. Four (4) participants responded with answers that were not acceptable.

Question 8 asked what grade options are available. The grade options in the presentation included "standard—A, B, C, D, F", "satisfactory/audit—S/N", and "G". Seventeen (17) or 68% of the students answered correctly. Five students (5) or 20% included at least two of the grade options. Two (2) students had totally incorrect answers. One participant did not respond.

Question 9 asked students to fill in the blanks in the A&S academic standards statement. The responses to this question should have been a 2.0 for each GPA, suspension and dismissal. All but one participant had completed all of the blanks with the correct information. The one participant with an incorrect response indicated a 1.5 for one of the GPA responses.

Question 10 asks students to list support services and resources. The resources presented in Cyber Orientation were the Academic Resource Center, Communication Lab, Course Instructor, Departmental Help Desks, Disability Resources and Services, the Math Assistance Center, Student Support Services, Supplemental Instruction, and the Writing Center. All but two respondents had listed several of the services and resources presented in the orientation. Both of those respondents had library as an answer.

Question 11 asked students what the steps are in the Pitt Pathway. The key words of the steps in the current Pitt Pathway are "discover", "explore", "experience", and "succeed". Implementing the plan or transition would have also been acceptable as it had previously been what is now the step called "succeed". Only 20 of the 25 respondents answered this question. Five (5) students or 20% gave no response. Seven (7) or 28% of the 25 respondents answered correctly, and eight (8) students or 32% indicated the link was not working. Five students or

20% answered incorrectly, although four of those responses were actually points presented in another slide, “Graduating in a timely fashion”, which instructed students to go to class, study 30 hours per week minimum, consider pros/cons of part-time employment, use academic resources, stay focused, utilize your advisor.

Question 12 asked students to list the publications or tools that are available to them in creating their schedule of classes. The registration tools presented in the program were the Arts and Sciences Course Description and the Schedule of Classes. Eleven (11) or 44% of the students had the correct answers. Eight (8) or 32% had at least one of the tools, and five (5) or 20% had incorrect answers.

In Question 13, students were asked what they should do to prepare for their advising/registration appointment. The answers found in the presentation would include the School of Arts and Sciences Handbook and a trial schedule or at least ten courses that are of interest. All of the students had appropriate answers.

Question 14 asked students what they thought was the most important information presented in the Cyber Orientation Program. Twelve (12) or 48% of the students indicated the most important information to be about requirements: the degree requirements, major requirements, and general education requirements. Five (5) students or 20% indicated that resources were the most important. Four students or 16% indicated that the information about their credit evaluation was most important. Three (3) students or 12% regarded the information about the registration or scheduling process to be most important. Other reasons with fewer responses are listed in Table 1. There was one student who said no information was important and another student said it was all most important.

Table 1. The Most Important Information as Indicated by Students

	No. of students who indicated this response
Requirements: degree, major, and general education	12
Resources	5
Explanation of credit evaluation	4
Information about the registration process	3
Tools of registration	1
Academic policies	1
Who we are and what we do	1
Information about courses to be taken	1
Preparing for your appointment with your advisor	1

Question 15 asked students if there were any other campus resources they would have wanted information about. From the 25 surveys, only 22 students answered this question. Fifteen (15) surveys or 60% of the 25 participants entered a no indicated that they did not want information on any other campus resources, while seven (7) students or 28% did provide a response. Those responses included: more information about what kinds of things are free to students, like the museum, the work-study program, and the Communication Lab. Other responses included housing, career services, and libraries. One student wanted information about how to get into the business school from Arts and Sciences.

4.1.2. Results of Part II of the Cyber Orientation survey.

Question 16 asks student why they choose to participate in Cyber Orientation. Twelve (12) responded with it was required. Seven (7) respondents indicated that it was easier. A few other words used included applicable, quick, accessible, and more efficient. Five (5) students thought that it was convenient. They could do it from home or their former university and would not have

to miss classes at their current school. One student indicated that he/she did not want to wait around for a specific date to attend an on-campus program and this choice would produce results quicker. Two students did comment on the information presented in Cyber Orientation. One thought that it was a good way to get a lot of information in one place and another appreciated having contact information for future questions.

Question 17 asked the students if they would have preferred to come to an on-campus program and why. From the 25 survey respondents, one student did not respond to this question. Sixteen (16) or 64% of the students said no—they would not prefer to attend the on-campus program, and eight (8) or 32% of the respondents said yes—they would have liked to have attended an on-campus program. See the reasons students indicated that they would or would not have attended an on-campus program in Table 2.

Table 2. Reasons Why /Why Not to Attend an On-Campus Program

Reasons Why	No. of Respondents	Reasons Why Not	No. of Respondents
Easier to remember the information	2	Previously a student/already did it; no need	7
Able to ask questions	2	Time	6
Can communicate better in person	2	The trip	3
Learn and understand better in person	1	Busy schedule	2
		On-line version had all the information	2
		Do at own speed	1
		Familiar with surroundings	1
		More efficient way of learning	1

It should be noted that five (5) of the twelve (12) students, who previously in question 16 said they participated in the Cyber Orientation because it was required, indicated that they would have preferred to come to an on-campus program.

Question 18 asked students what were the advantages of participating in Cyber Orientation as compared to an on-campus orientation program. Table 3 lists their responses. The first column of Table 3 cites the reasons students gave that deal with time, money, travel, and convenience. The responses in the second column of Table 3 refer more to the website and its content and links

Table 3. Advantages of Participating in Cyber Orientation

	No. of Respondents		No. of Respondents
Time advantages—no specific time to do it; easier to fit into schedule	7	Can review information	7
Move at own pace	5	All the information I needed was available	1
Could do it from home/room; convenient	4	Good preparation	1
Cuts traveling expenses	3	Learning information online with links to resources	1
Cuts down on traveling	2	Useful websites	1
Did not have to miss classes	1	Clear and understandable	1
		An interactive site which is helpful	1
		See it rather than hear it	1

Question 19 asked students what the disadvantages were. Table 4 shows the disadvantages student indicated. Note that three students did not see any disadvantages.

Question 20 wanted students to rate the ease by which they were able to access information on various topics, using 0 to indicate very difficult, 1 for not easy, 2 for easy and 3 for very smooth. None of the students indicated a 0 for very difficult for any of the topics.

Table 4. Disadvantages of Participating in Cyber Orientation

	No. of Respondents		No. of Respondents
Nothing can compare to a live experience	2	Cannot ask questions or get clarification	6
Can miss getting to know the campus	2	Cannot talk to someone directly/no human contact	4
Easy to procrastinate	1	Lose personable aspect of process	2
None	3	Can easily skip over important information	1

The responses to question 20 were as follows:

- Twelve (12) of the 25 students or 48% rated the ease of finding degree requirements a 3 for very smoothly, while nine (9) students or 36% rated it a 2 for easy and four 4 or 16% rated it a 1 for not easy. The average rating was a 2.32.
- Fifteen (15) students or 60% rated the ease in finding academic standards a 3 for very smoothly, while nine (9) or 36% rated it 2 for easy and one rated it a 1 for not easy. The average rating was a 2.56.
- Fourteen (14) or 56% rated the ease in finding other resources and support services a 3 for very smoothly, while nine (9) or 36% rated it a 2 for easy and two (2) or 8% rated it a 1 for not easy. The average rating was a 2.48.
- Twelve (12) students or 48% rated the ease of access to information on a Liberal Arts Education a 3 for very smooth, while 12 or 48% rated it a 2 for easy and one student rated it a 1 for not easy. The average rating was a 2.44.

- Eleven (11) students or 44% rated access to advising and registration procedures a 3 for very smooth, while ten (10) or 40% rated it a 2 for easy and four (4) or 16% rated it a 1 for not easy. The average rating was a 2.28.

Table 5 shows the distribution of how students rated the ease of accessing information.

Table 5. Rating the Ease of Accessing Different Information

	Not Easy (1)	Easy (2)	Very Smooth (3)	Average Rating
Degree requirements	4	9	12	2.32
Academic standards	1	9	15	2.56
Other resources/support services	2	9	14	2.48
A Liberal Arts Education	1	12	12	2.44
Advising and registration procedures	4	10	11	2.28

Question 21 asked students if they found it easy to navigate through the web pages. Twenty (20) students or 80% indicated a yes answer, while five (5) or 20% indicated a no answer. Question 22 asked if the students found the information on the website clear, and all but one student indicated a yes answer.

Below are the responses made by the students in response to question 25 which asked students to provide comments or suggestions on how the website can be improved.

- Links need to be in pop-up box and not re-direct the page
- None to me, but to students transferring from other universities they are missing out on really getting to know the campus.

- I kept closing the program and having to start over. Also the scroll line never showed on my screen, which made it hard to move down especially in the survey.
- I was unable to view the Pitt Pathway page and tried linking through careers but was still unable.
- It might be a little easier to let students refer back to the orientation after reading it to aide in answering the questions more efficiently.
- My mac wouldn't load certain links, maybe its my comp, maybe it's the pitt server, I don't know.
- I dislike the format of the website. Also there is too much text on each page to sift through.
- I do not think it is necessary to list which degree requirements you need to fill on a cyber orientation. I believe that this is something that should be discussed with an advisor. 2) The slides did not load up quickly. Some of the links in the slides led to nonexistent or broken pages. 3) Some questions are vague and should be more specific.
- The website is very very wordy. I would suggest personal orientations.
- Some websites aren't up and running or the page doesn't exist anymore.
- It is hard to follow all of the links, especially since when you do they send you to a general area of that subject and not to the actual answer.

Question 27 asked students to rate their overall satisfaction in three areas: the opportunity to participate in Cyber Orientation, the Cyber Orientation site, and the Cyber Orientation process. The students were to rate their satisfaction on a scale of 1 for the lowest score and 5 for the highest score. In the first part, the students were asked to rate their overall satisfaction with having the opportunity to participate in Cyber Orientation. Nine (9) students or 36% rated the

opportunity a score of 5; six (6) students or 24% rated it a 4; four (4) students or 16% rated it a 3; four (4) students or 16% rated it a 2 and two (2) students 8% rated it a 1. The average rating was a 3.64. Figure 4 shows the distribution of student scores evaluating the opportunity to participate in Cyber Orientation.

In the second part of question 27, students were asked to rate their satisfaction with the Cyber Orientation site. Seven (7) or 28% rated their satisfaction a score of 5. Eleven (11) or 44% rated their satisfaction a score of 4, and one (1) or 4% rated their satisfaction a score of 3. Four (4) or 16% rated their satisfaction a score of 2, and two (2) or 8% of the students rated their satisfaction a score of 1. The average rating was 3.68. Figure 5 show the distribution of student scores evaluating satisfaction with the Cyber Orientation website.

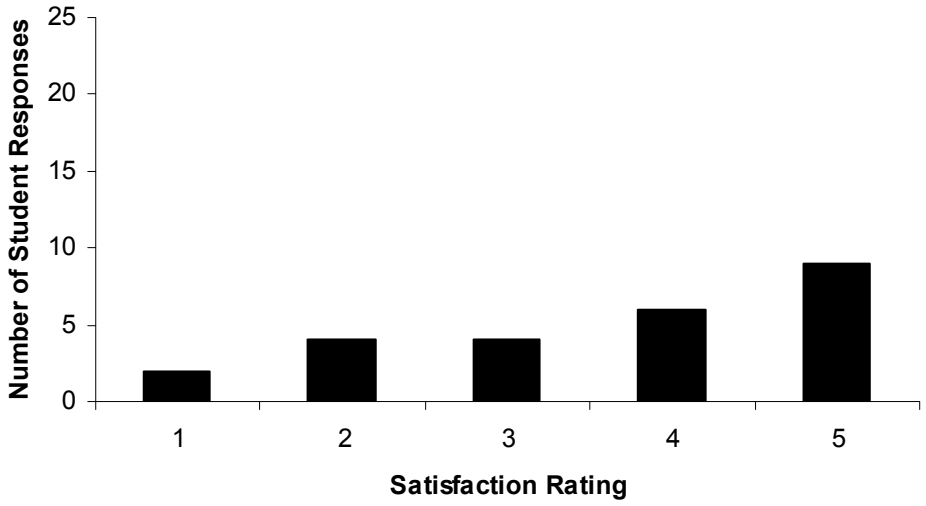


Figure 4. Ratings on Satisfaction with Opportunity to Participate in Cyber Orientation

The last part of question 27 asked students to rate their satisfaction with the Cyber Orientation process. Six (6) students or 24% rated their satisfaction a score of 5. Six (6) or 24% rated their satisfaction a score of 4 and another six (6) or 24% rated their satisfaction a score of 3. Three (3)

students or 12% rated their satisfaction a score of 2 and four (4) or 16% of the students rated their satisfaction a score of 1. The average rating was 3.28. Figure 6 shows the distribution of student ratings of their satisfaction with the Cyber Orientation process.

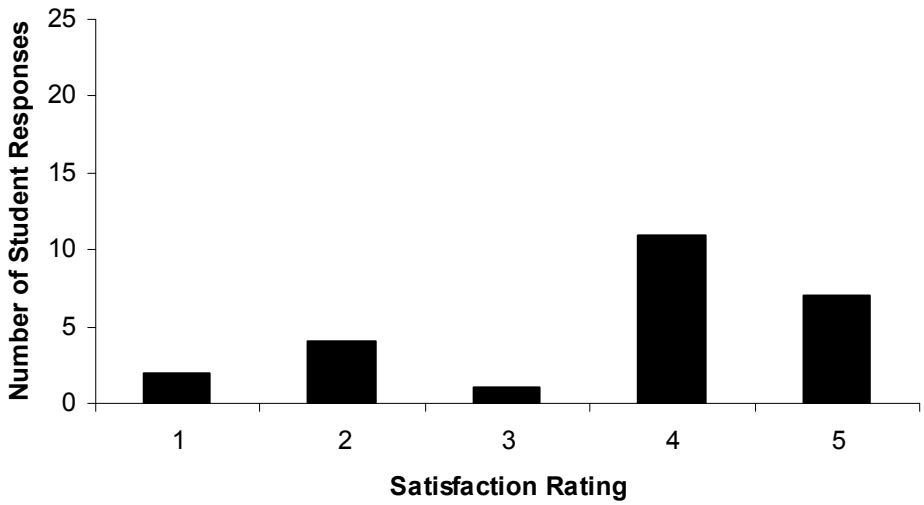


Figure 5. Ratings on Student Satisfaction with Cyber Site

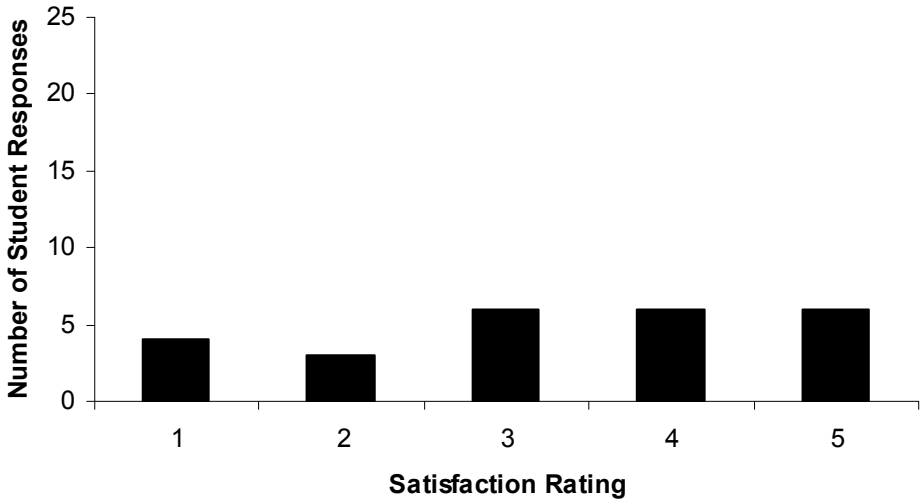


Figure 6. Ratings on Student Satisfaction with Cyber Orientation Process

4.2 RESULTS OF ACADEMIC ADVISOR DISCUSSION

Eleven (11) of the 22 academic advisors in the Arts and Sciences Advising Center attended the discussion about Cyber Orientation. An email was sent to the advisors by the researcher inviting them to attend a discussion to provide feedback on the Cyber Orientation process and the students who participate in Cyber Orientation, whether Cyber Orientation has been a good option, and any other information relevant to evaluating the Cyber Orientation website and process. The purpose of the discussion was to determine whether Cyber Orientation was meeting the expectations of the advisors in preparing students for their advising/registration appointments and accommodating the informational needs of the transfer students. The discussion was also held to provide additional feedback on ways to improve the service.

The consensus among the advisors was that Arts and Sciences should continue using Cyber Orientation. They felt that Cyber Orientation was convenient for students and especially convenient for internal transfers who are already on the campus. They also felt that their own time was better spent as they did not have to hold appointment times that were not being used by on-campus participants or take time out of their schedules to do the on-campus presentations. Note that during the on-campus programs, one or two advisors would do the powerpoint presentation, which would take 30 minutes at the most, and all advisors would be asked to hold two or three one and a half hour appointment times in their schedules on the days of the on-campus programs. Many times these appointment times were left unscheduled due to lack of attendance. Since students now have the option of Cyber Orientation, advisors are asked to include one or two transfer appointments in their schedule each week to accommodate the Cyber Orientation participants. The advisors noted that fewer students are attending the on-campus

programs since Cyber Orientation became an option but they did realize that there are still some students who want to attend the on-campus program.

All of the advisors said they usually browse through the Cyber Orientation survey found in the student's folder, but then they also review the graduation requirements and other pieces of information from the orientation when they interact with each student and talk about his/her status towards a degree during their individual appointments. The advisors did point out that even though students say they want more human interaction during the orientation, not much interaction usually occurs anyway between individual advisors and students other than in their individual appointments. They do believe that students are looking for more of a social orientation when they come to campus.

Other information advisors provided that was relevant to this study follows:

- Most advisors indicated that they did not notice any real differences between servicing the students who attended the on-campus program as opposed to the Cyber Orientation.
- Most of the advisors thought that the Cyber Orientation participants who did take the survey did seem to have a better understanding.
- Three advisors of the 11 advisors participating in the discussion thought that the students who participated in the Cyber Orientation were less prepared, while the others agreed that the preparedness really depends upon the individual student no matter what orientation program attended.
- Six advisors thought the Cyber Orientation students retained less because of the time lapse between when they attended to the information and when they actually came in to be advised and registered.

- The advisors concluded that the advantages of having the Cyber Orientation option were for the convenience of the students, eliminating massive transfer days and having less wasted appointment times.
- The disadvantages were the perceived lack of personal contact and some students not remembering what they learned in the Cyber Orientation.

Advisors also got into further discussion about transfer students, what they hear transfer students saying during their individual appointments, and other issues unrelated to this study.

5.0 ANAYLSIS OF DATA, SUMMARY, AND RECOMMENDATIONS FOR FURTHER STUDY

This study formally evaluated the design of cyber Orientation, a web-based academic orientation that was implemented to offer transfer students the opportunity to choose to attend an on-campus academic orientation program or participate in the web-based program. The study was also attempting to measure the overall satisfaction of students and advisors with the Cyber Orientation process and program. Data from this survey supports the continued use of Cyber Orientation as an option for transfer students in Arts and Sciences. Transfer students and academic advisors both responded positively to this delivery of the web-based academic orientation program.

When looking at the satisfaction ratings of students in question 27, 76% of the survey participants entered ratings between 3-5 indicating that they were satisfied with the opportunity to participate in Cyber Orientation and with the Cyber Orientation site. Seventy-two percent (72%) entered ratings between 3-5 indicating that they were satisfied with the Cyber Orientation Process. The total average rating for responses to all parts of question 27 was a 3.53 on a 5.0 scale. The primary reasons transfer students indicated that they preferred the Cyber Orientation were that they did not think they needed to attend another orientation; time was also an important factor to them as well as not having to make the trip or incur traveling expenses. They indicated that it was convenient, easy and could be done at any time anywhere, at home or in the dorm room, at one's own pace, and no one had to miss class.

The consensus among the academic advisors was that transfer students should continue to have the option to choose either to attend an on-campus program or participate in the web-based program. The academic advisors thought that it was convenient for the students, especially the internal transfer students who have already been students on the Pittsburgh campus and usually have a general understanding of the Arts and Sciences. They also recognized that some transfer students really do want to come to campus. Thirty-two percent of the survey participants in this study indicated that they would have preferred to attend an orientation program on campus. Some of the reasons transfer students have indicated they wanted to attend an on-campus program were that they wanted to see the campus and meet the people whom they would be working with and other transfer students. The advisors saw no significant differences in servicing the students who attend either the on-campus presentation or the web-based program. The advisors also indicated that this option allowed them to better manage their appointment schedule to accommodate transfer student appointments.

5.1 ANALYSIS OF DATA

The results of the data collected in this study have several implications in regard to 1) the issue of whether students are learning from the web-based orientation program and come to their advising/registration appointments prepared, 2) determining whether the current presentation is meeting the informational needs of the transfer student, and 3) what can be done to improve the process and website.

5.1.1. Is Cyber Orientation an Effective Advance Organizer?

"The principal function of the organizer is to bridge the gap between what the learner already knows and what he needs to know before he can meaningfully learn the task at hand" (Ausubel, Novak & Hanesian, 1968, p. 171). A comparative organizer integrates new concepts with basically similar concepts that already exist in the cognitive structure (Ausubel, 1963). Transfer students into the Arts and Sciences at the University of Pittsburgh already have experienced almost two years of college life. They are already familiar with language, concepts, procedures and processes. Since most institutions in higher education conduct business in a similar fashion, the assumption was that transfer students already have the cognitive structure to assimilate the academic orientation information from their new school and Cyber Orientation would bridge the gap between their experiences at their previous institution(s) and their new institution before they met with their academic advisors to build a course of study that takes full advantage of the curriculum and opportunities available to them.

In Part I of the survey, students were required to recite information found in the content of the program. Sixty-four percent (64%) of the students included at least two key words or phrases to describe a liberal arts education and 20% included at least one key word or phrase. The average score was a 2.48 on a 3.0 scale. Sixty-four percent (64%) of the students also listed three or more enhancements presented in the program and 12% had at least one of the correct answers. The average score was a 2.4 on a 3.0 scale. Eighty-eight percent (88%) gave the correct answer for how to change their schedule. Sixty-eight (68%) of the students listed all of the grade options and 20% had at least two of the grade options. All but one student knew the A&S academic standards, and all but two students were able to list several of the resources and support services found in the program. The study tends to reveal that most students were able to

comprehend several important pieces of information presented in this program although there is still opportunity for improvement as the goal would be that 100% of the students would answer the questions correctly.

Several other pieces of information were not as well received. When asked to list degree requirements, only two students listed all of the degree requirements. Eighty-eight percent (88%) were able to list at least two of the degree requirements. That is a 2.04 average score on a 3.0 scale. The requirements to graduate are 120 credits, a 2.0 minimum QPA, Foundation Skills Requirements, General Education Requirements, a major and a related area, minor, or certificate. Sixty eight percent (68%) listed general education requirements and 44% listed foundation skills. Thirty six percent (36%) had the 120 credits and another 36% indicated a major. Only 28% had the 2.0 minimum QPA and only 24% indicated a minor. As knowing the graduation requirements is an important piece of information every student should understand and only two had listed them all, the Cyber Orientation program was reviewed to determine whether students just did not know the requirements or if there was a problem with the way the information was presented in the program. After careful review of the program, it is obvious why the remaining 88% of the students were only listing two of the degree requirements. The problem appears to be with the way the information is presented in the program. As more students indicated knowing the requirements was the most important piece of information, this information needs to appear sooner in the program and presented more clearly.

The other area students seemed to have the most difficulty was with identifying information from survey responses in regards to naming the steps in the Pitt Pathway. Obviously, with 32% of the students indicating the link was not working and another twenty percent (20%) not even responding to the question, there appears to be a problem with either the

link or the Pitt Pathway website. Some changes were taking place in the ownership and meaning of the Pitt Pathway during the time the surveys were received and those changes could have affected the students' ability to access this information. Sixteen percent (16%) of the students actually responded with the points made on the slide about graduating in a timely fashion, which included going to class, studying 30 hours a week minimum, considering pros/cons about part-time work, using academic resources, staying focused, and utilizing your advisor. Ironically, although those concepts are not steps in the Pitt Pathway, they are important principles to follow in traveling the Pitt Pathway.

Is Cyber Orientation an effective advance organizer? From the results of this study, Cyber Orientation can be an effective advance organizer, if the information is accessible and presented correctly. Where the information was not available or understandable as with the Pitt Pathway and the degree requirements, more students were not able to answer the questions correctly. Students have indicated that they appreciated being able to move at their own pace through the program and to review information when they wanted to; both are important steps in the learning process.

5.1.2. Is Cyber Orientation Meeting the Informational Needs of the Students?

Sixty-four percent (64%) of the students indicated they preferred doing the Cyber Orientation for academic and non-academic reasons. Students indicated that the disadvantages of Cyber Orientation were that they could not get answers to questions; they were not able to receive immediate feedback; and the personable aspect of the process was missing. Some students indicated that they would have liked to get to know the campus better. Several students indicated that they learn material better when presented in person. These points need to be

considered although a web-based academic orientation program could not be designed to accommodate all of these expectations. For example, an academic advisor cannot be on-call 24/7 to answer questions, but maybe there could be a section of frequently asked questions where they could find answers to their questions. The FAQ website could also include a general email address that students can use when they cannot find an answer to their question in the FAQ section and information about how to contact the on-call advisor who is available during certain hours of the day. Another idea would be to setup a discussion board where students can post their questions or findings and receive information from either advisors or other students.

As for getting to know the campus better, the Office of Admissions provides daily tours of the campus. This information is currently accessible through the website of the Office of Admissions and Financial Aid but a link could be added into Cyber Orientation to make on-campus tour information more accessible if students want to schedule a tour of the campus when they arrive in Pittsburgh. Cyber Orientation already includes a link to campus maps, a photo tour, live webcams, and various other maps and information about the campus but data was not available to determine if the students had accessed that information.. A link can be added to this slide to make it easier for students to access on-campus tour information.

A way to provide immediate feedback to survey responses would be to change the current survey and the way the responses are electronically submitted. Rather than have students take the survey after completing the program, the orientation program could be broken into sections, and after each section, a set of four or five multiple-choice questions could appear that can easily be clicked resulting in immediate feedback before moving onto the next section. Some institutions, like Georgia Perimeter College, already do this. The results could be recorded to ensure that the student did attend to the information before scheduling an appointment with an

advisor. Students would probably appreciate this change in the way the survey is administered. One respondent in the study did not understand why the survey required students to apply the information to their own circumstances; it made the process more cumbersome. Because academic advisors also indicated that they go over the students' status towards graduation in the individual advising/registration appointment anyway, applying the information to their situation may not have to be included in the survey. Besides, the students who attend the on-campus programs are not required to complete a survey before their appointments with their advisors.

Students were asked to identify what information was most important to them in the program. The number one answer for 48% of the respondents was the requirements. The second answer with 20% of the students was resources, followed by the explanation of the credit evaluation and information about the registration process. Tools of registration, academic policies, identifying who people are, information about courses, and preparing for your appointment with your advisor were also identified by individual students. These responses do point out what types of information are important to transfer students and should continue to be included in the program.

When asked if they would have wanted to have more information about campus resources, 60% of the students answered no. The information the other 24% indicated they would have liked to have, included the Communication Lab, Career Services and transferring into the business school as well as non-academic information, for example what kinds of activities are free to students, housing, and work-study programs. A link to Career Services and the Communication Lab already exists and information about transferring to the business school is not the type of information that would be in an academic orientation. That type of information would be best obtained from an academic advisor. A link to the Housing Department and

Admissions and Financial Aid where the work-study program exists could be included in Cyber Orientation although neither of these services are a part of the academic orientation. A better idea would be to provide a directory of essential services, which would include contact information and a link for each office and a brief explanation of the service or a link to the page in the Student Handbook or the Advising Center website, which already provide a directory of resources.

Several students did recognize that Cyber Orientation itself, which includes the menu bar from the advising website on the first page of the program, is a good resource as it provides links to a lot of information that cannot be readily accessed through the main Pitt website. As previously pointed out, 60% of the students indicated that they did not need any other information. With average scores of above a 2.0 on a 3.0 scales, the study does indicate that Cyber Orientation is, for the most part, meeting the informational needs of transfer students although there is still the opportunity for improvement to achieve the goal of all students scoring a 3.0.

5.1.3 What Can Be Done to Improve the Process and Website?

Some information to answer this question has already been provided in previous sections, but other information exists in the survey responses from students and in the review of literature.

The first area that was evaluated in Part II of the survey was related to user friendliness. Flagg (1990) poses the following questions pertaining to user friendliness: can users easily find the information, do they know where to begin, and are they anxious about where they have been and are going. Students were asked to rate the ease of accessing information on various topics with a 3 for very smoothly, a 2 for easy, a 1 for not easy, and a 0 for very difficult. None of the

students indicated a 0 for very difficult and most students indicated the access was very smooth or easy. The average rating for accessing different pieces of information was a 2.4 on a 3.0 scale. Only one student rated the access to academic standards and a liberal arts education not easy, and two students indicated the access to resources was not easy. Four students or 16% of the participants indicated that access to degree requirements and advising and registration procedures was not easy and that piece of data needs to be considered. Access to degree requirements has previously been discussed. After reviewing the information on the advising and registration procedures in Cyber Orientation, it is recommended that this information also be carefully examined as some materials appear to be outdated as a result of the implementation of newer technologies and changes in practice.

Students were also asked if they found it easy to navigate through the web pages. Eighty percent (80%) indicated yes, while the other 20% indicated no. All but one student also indicated that the information on the website was clear. Students were asked to make suggestions or comments on ways to improve the website. It has already been mentioned that the links to the Pitt Pathway were not working correctly but that did not seem to be the only link not working correctly. Two students did comment that some of the links led to nonexistent pages or broken links. One student who has a MAC indicated that certain links would not even load on his computer and thought it could be his computer. One student indicated that it was hard to follow the links. Another student suggested the links be in a pop-up box and not redirect the page. As a result of the information gathered, it is recommended that all the links in the program need to be checked regularly and corrections needs to be made to the web pages if the information is not accessible any more. The use of pop-up boxes should also be considered so

students can more easily find their way back to the place they left in the program before accessing links.

Parsons and Hernandez (2003) in the Review of Literature suggest that student-centered websites need to give the student a feeling of connectedness by using pictures, keeping information up to date and personalizing interaction while preparing them for their next step. The idea behind the original design of Cyber Orientation was to follow the same powerpoint presentation as the on-campus program. Without a voice over or the human interaction, though, more text and links had to be included in the web-based program and no personalization exists at all. Several students commented on the format of the website. Two students indicated that the websites had too much text and one student even suggested "personal orientations". Information on student-centered websites and design and learning theories need to be considered to determine how much text should appear and how it should be formatted to get the maximum results.

Lowenstein (2005) pointed out how important it is for students to understand the mission of the institution and how that mission relates to them in order for them to learn how to relate the curriculum to their individual experience and understand the purpose of higher education. Green River Community College provides information in their new student orientation program about the purpose of higher education and how it relates to the students. The closest Cyber Orientation now gets to presenting information similar to this would be in the slide about a liberal arts education. That information does give students insight into the skills, not necessarily the knowledge that will be learned from the curriculum, and makes them aware of why various course assignments are used in a particular class.

The telephone survey done at University of South Carolina (Policy Center on the First Year College, 1995) and the results of the discussion with advisors indicated that students

wanted to meet other students. As this is nearly impossible in a web-based academic orientation program itself, one way the need could be met is by creating a chat room, which could be accessed through a link in Cyber Orientation, where transfer students can talk to other transfer students and veteran transfer students.

After reviewing the entire program on line, it is recommended that the website program be redesigned, especially taking into consideration the sequencing of the information. The most important information should come first and according to the students, the most important information to them was all of the degree requirements. Recommendations for presenting degree requirements have already been discussed, but the sequencing of this information is a crucial piece to consider. The most important academic information should come earlier in the presentation as not to lose the student's interest and attention before the most important information is presented. Information, like what to do after the students are registered, should come later in the presentation.

One last comment about the design of Cyber Orientation, although students want information about non-academic items, careful consideration needs to be given to the amount of non-academic information that should be included in Cyber Orientation as this is an academic orientation.

5.2 SUMMARY

The results of this study indicate that both transfer students and academic advisors are satisfied with the Cyber Orientation process. Students indicated that participating in the web-based program was convenient—they could do it any place at any time; it saved them time and

money—not having to travel to Pittsburgh, leave their institutions or miss class; and it allowed them to do it at their own pace and review information. The advantages outweighed the disadvantages. Academic advisors also indicated that their time was better utilized using this type of program and they recognized the benefits for students of having the option of participating in the online orientation.

By the responses of the students, the navigation appears to be easy to follow and the presentation of the information is clear. The students in this study were able to respond to the questions in the survey, which means they were able to access most of the information and recite it. It is hard to know if students who attend the on-campus programs are any more knowledgeable since those students have never been surveyed. A few advisors did say they felt the Cyber Orientation participants sometimes do not remember information from the web-based program as their individual appointments usually occurred at a later time after the orientation, whereas the students who come to the on-campus program are coming straight to see an advisor after the on-campus program is over. Advisors did also say that the students who did complete the survey do seem to come to their appointments more knowledgeable than those students who did not take the survey seriously.

The data from the study did reveal some problems with the website. The problems identified by the students included web links not working correctly, too much text, and missing pieces of information. Recommendations for improvement can be found throughout this chapter but are summarized below.

- Check links regularly.
- Use pop-up box rather than the back button to return to place in program.

- Change the current survey by dividing the information into sections and creating four and five multiple-choice questions after each section that provide immediate feedback. Have results automatically recorded.
- Use results of usability research to redesign slides with less text and personalize interaction.
- Keep information updated.
- Reconsider the sequencing of the slides.
- Consider including a slide on the University mission and how it relates to the student.
- Provide a chat room.
- Provide access to a directory of essential services with links to those homepages.
- Provide a frequently asked questions section with an email address for students to use if they cannot find the answer to their questions and information about the on-call advisor.
- Consider a discussion board.
- Add a link on the "Maps" slide that connects to information about scheduling a campus tour.
- Be careful about including too much non-academic information.

A final recommendation would be that the Cyber Orientation website continue to be evaluated by the users so that the quality of the site is maintained and students are satisfied.

During the years since Cyber Orientation had been implemented, changes have only been made to the program when absolutely necessary. For example, when the name of the school was changed. Times change, information changes and consumer expectations change. In order for

the web-based program to continue to be effective, it must also be maintained with software and programming that is available and accessible to all students and a design that follows instructional, learning and student development theories and continues to meet the informational needs of the students.

5.3 RECOMMENDATIONS FOR FURTHER STUDY

Studies have been done identifying the different ways advisors are using technology in advising. Articles have also been written on how to incorporate different learning and development theories into advising and on different theories or styles of advising. Evaluation and assessment of academic advising also can be found in the literature on advising. Rarely are there any articles or research done from the student's perspective. As restructuring has occurred at institutions and technology has replaced some of the manual tasks advisors always incorporated into their service, the advising profession has tried to validate itself as an essential service to students and the institution, especially in the area of retention. In order to support any assumptions made by advisors in regard to the service they deliver and what they hear from students, more formal research should be done using data collected from students.

One assumption made by academic advisors in the A&S Advising Center is that transfer students appreciated having the human contact when preparing their schedule of classes. This assumption has been made as a result of advisors in the Advising Center reporting that many transfer students coming from institutions, who have phone or web-based registration and where advising is not mandatory, have indicated they are so pleased to have the human contact and actually meet with someone to discuss their goals, majors and course selections. One of the

disadvantages of the web-based program listed by several students in this study was that they preferred the human contact because they could learn and communicate better in person and they just wanted to meet people on campus. The human-technology nexus, as Kramer (1996) called it, needs to be further researched to determine what the right blend of both should be. Students should be surveyed to determine:

- how comfortable they are using technology to access information about courses, registration, advising and resources, even as opposed to accessing other student service information on financial aid, grades, or holds on their accounts;
- what types of transactions they prefer to do online; and
- if they feel that their needs are being met through the information online as opposed to talking to someone in person.

In meeting the needs for information, a further study should be conducted to determine what types of information students would like to have access to online. Advisors always assume what information is most relevant to students, but a formal survey would confirm what pieces of information students feel they need. Students should be asked:

- to identify the types of information they would like to be able to access online; and
- how confident are they in the information they do receive online, as they may feel that some information is better gotten in person.

Another way to measure usability would be to build into the Cyber Orientation program to track what information students access the most.

Further research should also be conducted into how effective both the on-campus and the web-based programs are for students. A lot of information is presented to the student through both the on-campus and web-based academic orientation programs and even though the students

attending the web-based program have to complete the survey and the students attending the on-campus program meet with an advisor directly after their orientation, how much of the information is retained from either of those programs. Several advisors in this study felt that the participants in the web-based program did not remember some pieces of information from the Cyber Orientation because of the time that lapsed between when they actually did the orientation and when they came into an individual advising appointment. Advisors cover a good portion of the same information in the individual appointments so the students who attend the on-campus program have that information reinforced by their advisors immediately after receiving the information. The question advisors ask is how much of all of the information is retained. This question has come up at several NACADA conferences because some advisors wonder whether they are wasting their time doing orientations if students do not remember the information presented. A study, maybe using a pre-test and post-test could be conducted to determine the effectiveness of academic orientations in general. Since advisors are also always looking for better ways to present materials, another study could identify and compare other programs or processes used to present the academic information to determine which are the best practices.

Further research on Cyber Orientation could also compare the participants of the on-campus and web-based programs just to see if there are significant differences. The impact of incorporating the recommendations in this study could also be researched to determine whether adding more interaction with the sections of questions with automatic feedback, the FAQ or chat room, or incorporating more visuals and graphics does result in greater student satisfaction and more knowledgeable students.

APPENDIX

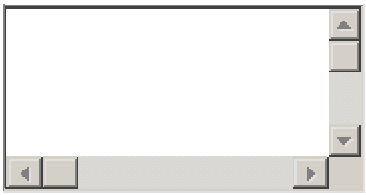
APPENDIX A

CYBER ORIENTATION SURVEY

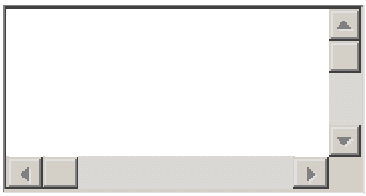
A&S CYBER ORIENTATION
A Web-Based Orientation to Arts and Sciences

Part I. Academic Orientation.

1. List several words or phrases which best describe a liberal arts education.



2. Please list the A&S degree requirements—what a student must complete in order to graduate with a degree from Arts and Sciences.



3. As a new transfer student, you should have received an evaluation of the credits you have taken at other schools. Please check below which types of information you can find on a credit evaluation. (Click all that apply.)

☐ **whether you need to take placement exams**

☐ **which courses satisfy A&S requirements**

☐ **the maximum of non-A&S evaluated courses**

☐ **grades from the previous courses taken**

☐ **all of the above**

4. As a transfer or reinstated student, you may have already fulfilled some of your General Education Requirements.

a. Which of those have you already fulfilled? List all that apply.

b. Which General Education Requirements must you still fulfill?

5. A&S also has Foundational Skills requirements. Please list which Foundational Skills requirements you still need to complete.

6. List several academic enhancements and opportunities outside of the classroom from which you can gain experience and knowledge.

7. How can you change your schedule of classes once you are registered?

8. What grade options are available to you?

9. Please fill in the blanks in statement below in regards to A&S academic standards.

Students in A&S are required to maintain a cumulative Grade Point Average (GPA) of _____ or above for each term of enrollment. Students who fall below a cumulative GPA of _____ after their first term will be placed on academic probation. Students on probation who still fall below a cumulative GPA of _____ after their next term of enrollment will be subject to _____. Students returning from suspension are reinstated on academic probation. If their cumulative GPA remains below a _____,

they will be subject to _____, a final action. Dismissed students are not eligible for future enrollment in A&S.

10. List several support services and campus resources that are available to help you develop your skills.

11. What are the steps in the Pitt Pathway?

12. Please list the publications or tools that are available to you in creating your schedule of classes.

13. What should you do to be prepared for your advising/registration appointment with your advisor?

14. What information presented in the Cyber Orientation Program did you think was most important and why?

15. Are there any other campus resources you would have liked to have information about?

Part II. We need your help in evaluating Cyber Orientation. Please answer the questions below and include any further comments that you feel would help to enhance this delivery method.

16. Why did you choose to participate in Cyber Orientation?

17. Would you have preferred to attend an orientation program on campus?

☐ **Yes** ☐ **No Why?**

18. What are the advantages to participating in Cyber Orientation as compared to attending an on-campus orientation program?

19. What are the disadvantages?

20. Rate the ease by which you were able to access the information listed below by circling the appropriate corresponding number.

0 = Very Difficult; 1 = Not Easy; 2 = Easy; 3 = Very Smooth

Degree requirements

Academic standards

Other resources and support services available to students

A Liberal Arts Education ☐

Advising and registration procedures ☐

Please make any further comments.

21. Did you find it easy to navigate through the web pages? ☐ Yes ☐ **No**

If you answered no, please indicate what problems you encountered.

22. Was the information presented on the web site clear? ☐ **Yes** ☐ **No**

If not, then please comment on what areas you would like to see improved.

23. Did you read this survey before you entered the web site?

☐ **Yes** ☐ **No**

24. If you used any other resources to find the answers to the questions in Part I of this survey, please list them below.

25. Please provide any other comments or suggestions on how the website can be improved.

26. How many times did you visit the Cyber Orientation Site? ☐

27. Please rate your overall satisfaction on the following items. 1 is the lowest and 5 is the highest.

Having the opportunity to participate in Cyber Orientation ☐

The Cyber Orientation site ☐

The Cyber Orientation process ☐

When you click the "Submit" button below you will get a confirmation page that you can print and your form will be automatically emailed to the A&S Advising Center.

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