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AUTHOR	Sellers, Rebecca G.; Wright, Kenneth E.; Wright, Vivian H.
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ABSTRACT

The purpose of this study was to compare and contrast perceptions and attitudes of graduate students enrolled in an allied health program who access the same course material from a distance via the Internet with those students who may also access course material via the Internet, but who also have the opportunity to attend traditional on-campus class meetings. Two groups were defined based on residential status. The interactions of residential status and other independent variables affected some attitudes toward learning environments. Students who were under 25 years of age disagreed that an online learning environment gave them the ability to take a more active role in learning. Students with higher grade point averages were least satisfied with electronic access to library materials. Students who waited at least 4 years before returning to school were least satisfied with accessing resources through the Internet. This study provides a snapshot of a particular student population at a particular moment and offers implications for educators interested in offering and developing online graduate programs. (Contains 9 tables and 17 references.) (Author/SLD)

Running head: ATTITUDES OF ON- AND OFF-CAMPUS STUDENTS

Attitudes and Perceptions of On- and Off-Campus Students of an Internet-Based Graduate Allied Health Program

Rebecca G. Sellers, Kenneth E. Wright, and Vivian H. Wright

University of Alabama

Introduction

Distance education has evolved from print medium and correspondence studies in the 1870s to today's use of the Internet to deliver instruction anywhere at anytime (Armstrong, Gessner, & Cooper, 2000). This method of delivery has brought with it the promise of an ever-evolving change to the traditional method of delivering higher education to those who may not otherwise have an opportunity to earn higher degrees. Entire degree programs are now available via the Internet. Pennsylvania State University is one of many institutions offering students a complete baccalaureate degree program that may be earned entirely through distance education (Whitall, 2001). Dunn (2000) sites eleven worldwide "mega-universities" as examples of the impressive change in this new method of accessing education. It is estimated that distance education is the method of delivery for more that 50,000 college-level courses (Dunn, 2000). The number of nontraditional students, those students in the age group of 35 or older, is expected to continue to increase in the next 15 – 25 years (Busacco, 2001). Whithall (2001) reports that of the students enrolled in one completely distant baccalaureate program offered at Pennsylvania State University 29 percent are 20-29 years old, 39 percent are 30-39 years old, and 17 percent are 40-49 age years old. Many of these nontraditional distance-education students lack the same exposure to technology than those younger students for whom technology has played a major role in their educational career. This new college population also includes students who are working in full-time positions in addition to having family responsibilities.

This study examines the characteristics that make distance education a successful option for particular students. This study investigates the influence that lack of exposure

to technology has on achievement, attitudes, and perceptions of nontraditional students enrolling in an allied health distance-education graduate program. Intended to offer a snapshot to students' perceived satisfaction and needs, this study also investigates the possibility that students who are employed full time may perform better academically in a graduate program than those who are not. All students in the allied health program used for this study have access to course material via the Internet. On-campus students also have the opportunity to attend class meetings. All students have the same access to the instructor via email and telephone and have electronic access to the university library system. On-campus students have the opportunity for face-to-face interaction with the instructor and to physically visit the university libraries. This population provides an opportunity to compare not only differences in grade point average (GPA), but also what characteristics affect difference in achievement of students from an educational environment that differs only by the geographical location of students. Age, gender, marital status, employment status, and educational history of these two student populations are analyzed for any influence on achievement, attitudes, and perceptions.

Relevant Literature

We know that learning at a distance has been a method of acquiring knowledge for many years. Students, instructors, and institutions are taking advantage of the vast dissemination of information through the use of rapidly improving technology. The ease of Internet access has given instructors and students the capability to interact regardless of geographical distance. The popularity of distance education is attributed to flexibility for students, instructors, and institutions. It allows access to the best instructors and educational resources (Spooner, Jordan, Algozzine, & Spooner, 1999). Distance education provides an opportunity to students who would otherwise find higher education

out of reach (Oder, 2001). Oder states that distance education makes it possible for those who have jobs and who are unable to relocate to continue their education. Oder classifies the growth in distance education as a major transformation in American education, citing that some 20 library and information schools in the United States offer online courses (Oder, 2001). State University of New York reports that enrollment in its online program has at least doubled each year since the program began in 1995 ("SUNY Online Education Enrollment Doubles," 2001).

There is extensive research that supports the idea that distance education is effective. In a study conducted at California Sate University, Northridge, there was a significance difference in midterm and final exam scores between two groups of students enrolled in the same course. One group attended traditional classes for instruction while the other group accessed the course through the Internet. The students in the virtual classroom scored an average of 20% higher than the students in the traditional classroom (Schutte, 1998). Johnson's article "Introductory Biology Online: Assessing Outcomes to Two Student Populations (as cited in Russell, n.d.) states no significant difference in achievement between distance education students and traditional on-campus students enrolled in a biology course taught by the same instructor. This same study indicated no significant difference in interest in biology and in confidence in ability to succeed between the two groups of students (Russell, n.d.). After assessing synchronous and asynchronous methods of distance education, it was found that the Internet is effective in delivering content in a health policy course (Milstead & Nelson, 1998). Virtual interaction between students and the instructor of an Internet statistics course was

credited for the better test performance when compared to face-to-face communication through on-campus learning (Schutte, 2001).

In contrast, Brown and Liedholm (n.d.) indicate there was a difference in performance between students who took an economics course online through distance education and those who took the same course in a traditional environment. The distance education students' achievement scores were not as high as those who took the same course in a traditional educational environment on campus. Lynch (2002) found that students in a business course at Louisiana State University (LSU) who preferred virtual learning performed "slightly" better. There was no significant difference found in a study conducted by Wright (1999) between a group of students in a synchronous, traditional learning environment and another group who received instruction through the Internet in an asynchronous learning environment.

This disparity in comparing achievement between the two groups of students demonstrates the need for additional research to compare distance-education students with traditional on-campus students. There is little published research that investigates the factors that may attribute to the difference in achievement between these two groups. These factors may include age, gender, employment status, purpose of enrollment, and previous educational history.

The limited research of student attitudes and perceptions of distance education focuses mainly on evaluation of instruction and organization of material. A study was performed in a graduate teacher education program to compare course evaluations from distance-education courses with the same on-campus courses (Spooner et. al., 1999). Students from the sample who participated in distance education rated the organization of

the course higher than did those who took the same course on campus (Spooner et. al., 1999). Positive learning satisfaction was found in a problem-based learning course taught via audio teleconferencing in a nursing course (Edwards, Hugo, Cragg, & Peterson, 1999). Wright (1999) found that distance learners in a computer applications course rated the learning experience as valuable; however, Wright suggests that the novelty effect of taking an Internet course for the first time should be considered.

In a study conducted to measure what students deem important to distance education, it was found that students rank quality of content very high (Rangecroft, Gilroy, Long, & Tricker, 1999). The definition of quality of content in this study included logistical structure and the consistency of such, readability, current content, clearly stated learning outcomes, and punctual delivery of material (Rangecroft et. al.). The students surveyed in this course stated that professional development was the number one reason for their decision to take an online course. When asked about course satisfaction, a flexible schedule was ranked highest especially among post-graduate students (Rangecroft et. al.). Kenny (2002) sited online learning used in nursing courses as a secondary method of exposing students to information technology, which resulted in computer confidence and more active learning. Atack and Rankin (2002) reported that the majority of post-graduate nursing students participating in a study found the overall online learning experience to be positive while some working students reported limited computer access as a barrier to the learning process. Again, there is limited published research that investigates factors that may influence student satisfaction, attitudes, and perceptions about distance learning. For example, age may affect student comfort in

accessing course material via the Internet. The satisfaction with distance education of post-graduate students may depend on their educational history.

Method

The purpose of this study was to compare and contrast perceptions and attitudes of graduate students enrolled in an allied health program who access the same course material from a distance via the Internet with those students who may also access course material via the Internet, but who also have the opportunity to attend traditional on-campus class meetings. The study questioned whether the demographic characteristics considered were related to these perceptions and attitudes and whether demographic characteristics considered were related to student achievement. The survey instrument was developed by the team of researchers after carefully researching what characteristics might influence achievement, perceptions, and attitudes. The survey included six demographic questions and 21 questions pertaining to achievement and attitudes and perceptions (Table 1).

Demographic data collected in this study included gender, age, marital status, employment status, residential status, the lapse of time between when a student completes undergraduate studies and pursues a graduate degree, undergraduate GPA, and purpose of enrollment into the program. The questions concerning attitude and perceptions of the program included student opinion concerning satisfaction with the availability of course material and library resources and with the instructions for both accessing course material and library resources. Also included were questions concerning satisfaction with the availability of resources through the Internet, satisfaction with the availability of the instructor and fellow students via telephone and email, and satisfaction with students'

success in the program. Participants were also asked questions concerning the benefits that use of the Internet to access course material had provided. They were asked about the influence this learning method may have had on flexibility of their daily activities, their ability to take a more active role in the learning process, and preparation for the use of technology in the profession.

The Participants

The target population of this study included students and graduates of a Master of Arts in Allied Health program at a major southeastern university. The program is designed to provide access to the same course material for students who reside at a geographical location which prevents them from attending classes on campus and for those students living within commuting distance from the college. Those students who reside outside of practical commuting distance from the college are dependent on the Internet for access to all course material and other necessary resources. Those students living within commuting distance from the college have the same access to the course material and other resources via the Internet, but may also attend scheduled classes and may physically visit university libraries. The participants were separated into two distinct groups based on residential status. A student who reported residing outside the same state as the college and for whom commuting to campus is impractical is referred to as an off-campus student. A student who reported residing within the same state as the college and for whom commuting to campus is practical is referred to as an on-campus student. On-campus students not only use the Internet for learning in the program, but also have the opportunity to attend classes on campus. WebCT version 3.7 is used to manage the delivery of course material to students via the Internet.

All students enrolled in the program have the same opportunity to interact with the instructor via email and telephone. On-campus students also have the opportunity to interact with the instructor at class meetings. All students had the same electronic access to the university library system, while on-campus students may also physically visit university libraries.

The survey was sent to 34 potential participants via email. Along with the survey was an introduction explaining the importance of the participant's input to the study, the assurance that confidentiality would be protected throughout the study, and a statement of informed consent. Sixteen students, nine males and seven females, responded to the survey. Three respondents were married. Six were employed fulltime, eight were employed in part-time graduate assistant positions, and two were unemployed. Six were less than 25 years of age, seven were between the ages of 25 and 30, two were between the ages of 31 and 35, and one was between the ages of 36 and 40. Seven were geographically located within commuting distance of the college (on-campus students) and eight were geographically located at such locations that it would not be practical to commute to campus (off-campus students). One respondent did not indicate residential status. Twelve participants had applied for admission to the program within two years of completion of undergraduate studies, while three had applied after four years of completion of under-graduate studies. One respondent did not indicate this time frame. Four participants reported an undergraduate GPA, based on a 4.0 scale, of 3.5 or above with nine reporting undergraduate GPAs within the range of 3.0 to 3.49, and three reporting undergraduate GPAs of 2.5 to 2.99. All participants reported their purpose of enrollment to be career advancement.

Results

The interaction of residential status and other independent variables affected some attitudes toward the learning environment. Off-campus students who were employed full time achieved the highest GPAs in the group. However, off-campus students who were older and/or had waited some time to begin graduate studies appeared to be less satisfied with instructions for accessing resources and with the availability of resources via the Internet.

A two-way analysis of variance indicated a significant difference ($p = 0.007$) in the interaction of residence with employment status and graduate GPA (Table 2). Students accessing the course only via the Internet who worked fulltime had a higher graduate GPA than on-campus students and on-campus students who were employed in part-time positions had a higher GPA than those who were unemployed (Table 3).

A two-way analysis of variance indicated a significant difference ($p = 0.017$) in the interaction of residential status with undergraduate GPA and satisfaction with instructions concerning access to the university library system (Table 4). Off-campus students who had a GPA of 3.5 or above were less satisfied with instructions concerning access to the university library system than any other participants from any other group (Table 5).

A two-way analysis of variance indicated a significant difference ($p = 0.03$) in the interaction of residential status with the time lapse between undergraduate studies and graduate studies and satisfaction with availability of resources needed for the program through the Internet (Table 6). Off-campus students who waited more than four years to pursue graduate studies were the least satisfied with the availability of resources needed

for the program through the Internet (Table 7). Also, a t-test indicated a significant difference in the lapse of time between undergraduate studies and graduate studies and satisfaction with instructions concerning access to course material ($p = 0.015$). The mean for students who began graduate studies within two years of completing undergraduate studies ($m = 2.9091$, s. d.$= 0.3015$) was greater than for those who waited at least four years before pursuing graduate studies ($m = 2.0$, s. d.$=1.0$, Table 8).

A two-way analysis of variance indicated a significant difference ($p = 0.041$) in the interaction of residential status with age and agreement that an Internet instructional environment enabled the student to take a more active role in the learning process (Table 9). Off-campus students between the ages of 36 and 40 and on-campus students less than 25 years of age were less likely to agree that an Internet instructional environment enabled them to take a more active role in the learning process than did on-campus students between the ages of 25-35 years (Table 10).

Conclusions

This study implies some of the characteristics that make distance education a successful option for a particular population of students. The notion that students who prefer or who are limited to distance education perform better academically than those who prefer traditional lecture courses was explored. Lynch (2002) found that students in a business course at LSU who preferred virtual learning performed "slightly" better. In contrast, Brown and Leidholm (n.d.) found slightly better performance among traditional lecture students. This study found that when the interaction of residential status and employment status was examined, off-campus students who were employed in full-time positions achieved higher GPAs. The researchers of this study believe that these students

may be more motivated since they are in the work place and realize the importance of a higher degree. It should be noted that on-campus students were either unemployed or were employed as part-time graduate assistants. On-campus students who were also part-time graduate assistants achieved a higher GPA than unemployed on-campus students. Employment at any level had some impact on the GPAs of the students in this population. Are working students driven harder by their experience in the work place? Are working students better equipped to handle multiple tasks such as school, work, and family?

Considering the rapidly changing use of technology in education during the last decade, it would be feasible to conclude that non-traditional students who are enrolling in distance education have less experience with technology and less exposure to technology. On the contrary, on-campus students in this study who were less than 25 years of age did not agree that using the Internet to access course material enabled one to take a more active role in the learning process. This may be attributed to the idea that students in this age group are already accustomed to using technology, including the Internet, to actively participate in the learning process. Therefore, they may not attribute the use of the Internet in this program as having effect on their learning experience. The one participant who was between the ages of 36 to 40 also did not agree that using the Internet to access course material enabled one to take a more active role in the learning process. It would not be practical to draw any conclusion from this one participant when investigating the effect age may have on comfort with technology. More research is required to conclude any link with the aging population of distance learners and student comfort level with technology.

Another interesting indication from the survey is that the off-campus participants who waited at least four years after completing undergraduate studies before entering graduate studies were not satisfied with instructions concerning access to course material nor were they satisfied with the Internet availability of resources needed for program completion. The perception of possible difficulty using the Internet for learning seems to be linked to the time frame between undergraduate completion and graduate study enrollment. This study seems to indicate that these students are not as comfortable using technology and the Internet as those students who enroll in graduate studies within a short lapse of time after completing undergraduate studies. The longer lapse of time would logically correlate with age in a positive pattern and since the number of students in the nontraditional age group who are enrolling in distance-education programs is increasing (Whithall 2001), educators may find it necessary to assess and remediate technology skills for nontraditional students.

Another implication in this study is that undergraduate GPA and residential status affect student satisfaction of instructions concerning access to library materials. The participants of this study who used only the Internet to access the program and have a higher undergraduate GPA are more satisfied with instructions concerning access to library materials. This could be explained by the idea that off-campus students explore other resources for materials needed for the program. It could also indicate that off-campus students who achieve a higher GPA use the library extensively and are therefore more experienced with using the available resources.

Brown and Leidholm (n.d.) found that women showed a disadvantage in traditional courses with lecture delivery, but this was not the case in this study. This study

indicated no significant difference in neither GPA nor attitudes and perceptions based on gender. In our findings, neither marital status nor purpose of enrollment influenced GPA or attitudes and perceptions of this population.

This study should be viewed as a snapshot of a particular student population at a moment in time. It cannot be used to make definite conclusions about the over all population of distance learners. The study provides information that suggests that the main characteristics that impact success, attitudes, and perceptions of off-campus students are age, educational history, and employment status. With these factors in mind, educators interested in developing graduate programs online should consider technology remediation to help ensure student satisfaction and success.

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Table 1

Summary of Responses to Attitude and Perception Statements

	Agree		Neither agree nor disagree		Disagree	
Statement	n	%	n	%	n	%
In review of academic content on WebCT, I was given adequate instructions concerning access to the course material.[a]	12	75	2	12.5	1	6.3
I am comfortable using technology to access academic course material.	11	68.8	3	18.8	2	12.5
The resources I need for the course of study in sports medicine health care are readily available through the Internet.	10	62.5	5	31.3	1	6.3
I am satisfied with the availability to the course material.	12	75	3	18.8	1	6.3
I was given adequate instructions concerning access to the University's library system.[a]	12	75	2	12.5	1	6.3
The resources I need from the University's library are readily available.[a]	10	62.5	4	25	1	6.7
I am satisfied with the degree of accessibility to course instructors via the internet (email, etc.).	14	87.5	1	6.3	0	0

Table 1

Summary of Responses to Attitude and Perception Statements (continued)

Statement	Agree		Neither agree nor disagree		Disagree	
	n	%	n	%	n	%
I am satisfied with the degree of accessibility to course instructors via phone conversation.	11	68.8	4	25	0	0
I am satisfied with the degree of accessibility to other students enrolled in individual classes via the internet (email, etc.).	8	50	6	37.5	1	6.3
I am satisfied with the degree of accessibility to all graduate enrolled in the sports medicine health care program via the internet (email, etc.).	8	50	7	43.8	0	0
I am satisfied with my success in the courses.	12	75	2	12.5	1	6.3
Working in an Internet instructional environment (WebCT) has allowed me more flexibility in my daily activities.	12	75	4	25	0	0
Working in an Internet instructional environment (WebCT) enables me to take a more active role in the learning process.[b]	9	56.3	3	18.8	2	12.5
The Internet instructional environment is preparing me for the use of technology in my profession.[a]	12	75	3	18.8	0	0

[a]One participant gave no response. [b] Two participants gave no response.

Table 2

Effects of Residence and Employment Status on Graduate GPA

	Sum of Squares	df	Mean Square	F	p
Residence	0.970	1	0.970	5.480	0.047
Employment Status	0.524	2	0.262	1.478	0.284
Interaction	2.261	1	2.261	12.767	0.007
Within Groups	1.417	8			
Total	282.0	12			

Table 3

Means for Graduate GPA

				95% Confidence Interval	
Residence	Employment	Mean	Standard Error	Lower Bound	Upper Bound
On-Campus	Part-time Graduate Assistant	4.750	0.210	4.265	5.235
	Unemployed	3.000	0.421	2.030	3.970
Off-Campus	Full-Time	5.000	0.210	4.515	5.485
	Part-time Graduate Assistant	4.333	0.243	3.773	4.894
	Unemployed	5.000	0.421	4.030	5.970

Table 4

Effects of Residence and Undergraduate GPA on Satisfaction with Instructions Concerning Access to the University Library System

	Sum of Squares	df	Mean Square	F	p
Residence	1.107	1	1.107	8.536	0.017
Undergraduate GPA	1.341	2	0.670	5.172	0.032
Interaction	1.107	1	1.107	8.536	0.017
Within Groups	1.167	9	0.130		
Total	108.0	14			

Table 5

Means of Satisfaction with Instructions to Access to the University Library System

				95% Confidence Interval	
Residence	Undergraduate GPA	Mean	Standard Error	Lower Bound	Upper Bound
On-Campus	3.0-3.49	3.000	0.161	2.636	3.364
	3.5 or higher	3.000	0.360	2.186	3.814
Off-Campus	2.5-2.99	2.667	0.208	2.196	3.137
	3.0-3.49	3.000	0.208	2.530	3.470
	3.5 or higher	1.500	0.255	0.924	2.076

Table 6

Effects of Residence and Time Lapse between Undergraduate and Graduate Studies on Satisfaction with Availability of Internet Resources Needed for the Program

	Sum of Squares	df	Mean Square	F	p
Residence	0.970	1	0.970	4.000	0.071
Time Lapse	0.545	1	0.545	2.250	0.162
Interaction	1.515	1	1.515	6.250	0.030
Within Groups	2.667	11	0.242		
Total	107.0	15			

Table 7

Means for Satisfaction with Availability of Internet Resources Needed for the Program

				95% Confidence Interval	
Residence	Time Lapse Since Undergraduate Studies	Mean	Standard Error	Lower Bound	Upper Bound
On-Campus	0-2 years	2.667	0.201	2.224	3.109
	4 or more years	3.000	0.492	1.916	4.084
Off-Campus	0-2 years	2.833	0.201	2.391	3.276
	4 or more years	1.500	0.348	0.734	2.266

Table 8

Results of t-test for Effects of Time Lapse between Undergraduate and Graduate Studies on Satisfaction with Instructions Concerning Access to Course Material.

Mean 0-2 Years (N=11)	Standard Deviation 0-2 Years	Mean More than 4 Years (N=3)	Standard Deviation More than 4 Years	t	df	p
2.9091	0.3015	2.0000	1.0000	2.83	12	0.015

Table 9

Effects of Residence and Age on Perception that Using the Internet Enables an Active Role in the Learning Process

	Sum of Squares	df	Mean Square	F	p
Residence	0.860	1	0.860	5.895	0.041
Age	4.333	3	1.444	9.905	0.005
Interaction	0.860	1	0.860	5.895	0.041
Within Groups	1.167	8	0.146		
Total	95.00	14			

Table 10

Means of Perception that Using the Internet Enables a More Active Role in Learning

				95% Confidence Interval	
Residence	Age	Mean	Standard Error	Lower Bound	Upper Bound
On-Campus	Less than 25	2.50	0.270	1.877	3.123
	25-30	3.00	0.191	2.560	3.440
Off-Campus	Less than 25	1.333	0.220	0.825	1.842
	25-30	3.000	0.270	2.377	3.623
	31-35	3.000	0.270	2.377	3.623
	36-40	2.000	0.382	1.119	2.881

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Organization/Address: University of Alabama, Tuscaloosa, AL 35487	Telephone: 205-879-9364	Fax: 205-879-2866
	E-mail Address: rgsellers@bellsouth.net	Date: July 17, 2003

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Author(s): Rebecca G. Sellers, Kenneth E. Wright, and Vivian H. Wright	
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Signature:	Printed Name/Position/Title:	
Kenneth E. Wright	Kenneth E. Wright/Director of Sports Medicine/Health Care	
Organization/Address: University of Alabama, Tuscaloosa, AL 35487	Telephone: 205-348-4705 E-mail Address: kwright@ches.ua.edu	Fax: Date: July 17, 2003

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