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The Effect Of Web-Based Learning On Retention Of Non-traditional Students in a Rural Comprehensive University

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THE EFFECT OF WEB-BASED LEARNING ON RETENTION OF
NONTRADITONAL STUDENTS IN A RURAL COMPREHENSIVE UNIVERSITY

By

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Ed.D. Educational Leadership and Policy Studies

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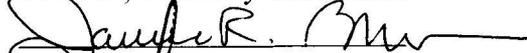
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THE EFFECT OF WEB-BASED INSTRUCTION ON RETENTION OF
NON-TRADITONAL STUDENTS IN A RURAL COMPREHENSIVE UNIVERSITY

By

Treva Gail Macy
Eastern Kentucky University
Richmond, Kentucky
2014

Submitted to the Faculty of the Graduate School of
Eastern Kentucky University
In partial fulfillment of the requirements
For the degree of
Doctorate in Educational Leadership and Policy Studies
December, 2014

DEDICATION

This dissertation is dedicated to my husband and
son Lloyd A. Macy, and Lloyd Allen Macy, II
for their unwavering support.

ACKNOWLEDGEMENTS

I would like to thank my dissertation chair, Dr. Charles Hausman for his selfless devotion to his students, his patience and guidance and the committee members, Dr. Verna Lowe, Dr. James Bliss, and Dr. Dorie Combs for their assistance and patience over the course of this project. A special thanks my classmates Caelin Scott, Caryn Huber, Barbara Shoemaker, Chassity Holliman-Douglas, and David Stumbo for their unfailing emotional support without which I am sure I would have not been successful. I would also like to posthumously thank my mother, Helen Blackwell Cole who not only was my first teacher but also the first person to encourage me to follow a dream, and my father Shirley "Joe" Cole who provided me with encouragement and support for my dreams. I extend a special thank you to my sister Patricia Centers, nephew Chad Centers, and niece Kara Centers for allowing me to use them as sounding boards throughout this process and provided encouragement to see this process through to its completion. I would also like to especially thank my husband Lloyd and son L.A. without whose support, patience, and understanding this dream would not have reached fruition.

ABSTRACT

This study examined the effects web-based courses effect retention of nontraditional students. Gender, student classification, first generation, and ACT composite scores were used as predictor variables for the purpose of this study. Data were collected from the university's BANNER system. The analysis of the results revealed that the retention rates of students who participated in online courses were higher than their in-person counterparts. Recommendations for policy and implications for future research are provided.

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CHAPTER I

INTRODUCTION

This study will examine factors that can impact nontraditional students in post-secondary institutions of higher learning in a web-based environment. The author will also examine the retention nontraditional students participating in web-based course work compared to their in-person counterparts. Covariates such as ACT score, first generation, gender, and GPA will be examined. This study is not inclusive and is narrow in scope as it examines only one institute of higher learning.

In the not so distance past, nontraditional students that dreamed of finishing their education may have found themselves facing a long hard journey. Many older students find it difficult to work and accommodate a traditional classroom schedule. The majority of classes meet during the day and only a select few in the evening, which makes the degree progress a slow and arduous process.

Today, nontraditional students have options and can finish not only their undergraduate degree but a graduate degree web-based on their schedules. Furthermore, they may never have to step foot on a college campus to accomplish their educational dream.

Educational institutions have evolved with technology (Bradbard & Peters, 2010). Almost everyone interested in seeking a college education today has choices regarding how that education will be delivered and a broader range of institutions they can attend. This dramatic shift in postsecondary education and the characteristics of the typical college student has been forevermore altered. Older students are entering college classes in record numbers and changing not only the traditional classroom but seeking alternative

modes of delivery of education (Cejda, 2007). At a national level, the number of students enrolling in at least one web-based college course accelerated from 1.6 million in Fall 2002 to 7.1 million students or 33.5% of all students in Fall 2012 (Allen & Seaman, 2014). In 2002, less than one-half of colleges and universities identified web-based education as critical to their long-term strategy; however, in 2013, that number rose to 70% (Allen & Seaman, 2014.) In that same report, the authors reported that of those institutions identifying web-based education as critical to their long term success, 20% indicated that web-based education has not specifically been included in their strategic plans (Allen & Seaman.)

Despite the staggering growth of web-based education, the most recent growth rate of 6.1% was the lowest recorded in the report series by Allen and Seaman. Less than one-third of the academic leaders surveyed believe that the quality of web-based education is no longer a concern (Allen & Seaman, 2014). These concerns are clear evidence for more research and dissemination of findings on the educational consequences of web-based programs.

The growth of web-based programs at EKU is consistent with growth at the national level. According to the office of Internal Research at Eastern Kentucky University (EKU), there has been an increase of approximately 525 students from fall 2012 to Fall 2013 in web-based programs (https://irserver.eku.edu/Reports/Factbook/Files/FB000000012.html). The office further reports that there 3,936 graduate and undergraduate web-based students as of fall 2013 (https://irserver.eku.edu/Reports/Factbook/Files/FB000000012.html). Undergraduates make up 2,844 of those students (1,840 are full-time), and graduate level students

comprise the remaining 1,092 (131 full-time) students

(https://irserver.eku.edu/Reports/Factbook/Files/FB000000012.html). Web-based

undergraduate students account for 17.65% of the total undergraduate student population

at EKU, while graduate students make up a larger segment or 49.18% of the graduate

school student base (https://irserver.eku.edu/Reports/Factbook/Files/FB000000012.html).

Increases in the number of nontraditional students has accompanied the above

increases in students taking web-based courses at EKU. As a whole, EKU serves

approximately 3,529 students classified as nontraditional students using age alone as a

qualifier to identify this specific student group. Specifically, students 25 years of age or

older are classified as nontraditional students. This group of students represents 25% of

the undergraduate student base, and when graduate students in the same age range are

factored in, nontraditional students comprise 32% of the overall student base at the

university https://irserver.eku.edu/Reports/Factbook/Files/FB000000013.html). Clearly,

the increase in web-based programs and nontraditional students has changed the delivery

of postsecondary education and the needs of students.

With the mass appeal of web-based programs making postsecondary education

more accessible to nontraditional students regardless of their geographic location,

research indicates that strategies regarding how to best provide the academic support

needs of these students needs to be identified (Lytle, 2011). In spite of having less

support, nontraditional students tend to perform better academically than traditional

students (Crompton-Carney & Tan, 2012). In addition, they are more likely to be

retained and graduate provided that appropriate student support services, namely

academic advising, are available. Academic advising and other student support services,

like financial aid assistance, were among the most important factors students identified that aid in their overall success (Shank, Winche, II, & Myers, 2001). The positive educational outcomes achieved by nontraditional students make this group highly sought after by institutions of higher learning.

With web-based students making up approximately 17.65% of EKU's total student enrollment and the large number of nontraditional students, the importance of retaining and graduating these students is obvious. The revenue stream from this base of students is expected to increase as Online Programs continues to add additional degree programs to their offerings. Specifically, the addition of the Doctorate in Nursing and Doctorate of Occupational Therapy as well as Masters in Nursing and Teacher Education programs that were added during fall 2013 are expected to increase overall enrollments and revenues for EKU Online Programs.

Purpose of the Study

Earning a college is difficult in itself. Compound college attendance with parenthood, work responsibilities, and/or marital responsibilities and the process is exponentially more challenging. Adults over the age 24 and younger adults with children or married that return to college or attend college for the first time are referred to as nontraditional students. (Schuetze & Slowey, 2002) The reasons adults return to the classroom range from improving the earning potential to self-improvement. Nontraditional students are attending college in rapidly increasing numbers (Stylus publishing, LLC, 2009). Nontraditional students' face all of the pressure entering college younger students face plus additional stressors related to normal adult life. It is not uncommon for today's nontraditional college student to juggle a full-time college

schedule, work and the added responsibilities of children and marriage. Furthermore,

nontraditional students are more likely to be women (Stylus publishing, LLC, 2009).

Research on web-based learning and the educational outcomes of nontraditional

students is rapidly emerging. However, the intersection of the two is in its infancy. Given

the brisk growth of web-based programs and numbers of nontraditional students, the

purpose of this study is to specifically examine the impact of web-based programs on the

retention nontraditional students.

Background of the Problem

With the advent of the internet and the World Wide Web, society has been forever

changed. These modern day marvels have brought even the most remote corners of the

world information and data at a rate never before experienced in history (Cejda, 2007).

With the proper equipment, the world can be at a person's fingertips through the World

Wide Web and the internet. A computer with internet capabilities, an internet connection,

and an internet browser can bring a wealth of knowledge to a computer screen (Cejda,

2007). "Online education is becoming part of the mainstream in higher education"

(Heyman, 2010, p. 19). Education has been a natural beneficiary of this technology as a

result of becoming more accessible and convenient for students to earn an undergraduate

or graduate degree without ever having to be on a college campus. Those living in rural

or remote communities and adult students wishing to finish their program of study or

attending for the first time have unprecedented access to institutions of higher learning by

using this technology (Cejda, 2007). Technology enables institutions of higher education

to reach out to and serve learners who would not have the opportunity otherwise to

continue their educations (Miller & Lu, 2003). Adult learners are not the only

beneficiaries as high school students can also participate in credit recovery programs via the internet in order to stay on track for high school graduation.

Because higher education has become an expensive endeavor and accessible by anyone regardless of geographic location, it is imperative for prospective students to approach the search for an institution of higher learning in the same manner as they would any other high value investment. Students must become informed consumers in order to make the best decisions regarding online education. In part because the adult population group has become a major source of income for postsecondary institutions, their growth in colleges and universities has raised new concerns about their retention and graduation rates.

Higher education has become more market-driven and competitive with adult students composing a market segment that is highly sought after by institutions (Bok, 2003; Maroney, 2010). Pressures from economic, social, and political sources require higher education institutions to reach out to all students in order to be competitive and stay relevant (Zemsky, 2007; Maroney, 2010). Recently, the Obama administration proposed creating more competition among educational institutions by increasing online courses and allowing students to complete requirements by examination as an attempt to get rising tuition costs under control (Bachman, Johnson, & Stewart, 2010). Critics raised the concern that the proposal could lead to one size fits all responses that would fail to meet the needs of students from different backgrounds. Although continuing-generation students may already have some basic data regarding college, and thereby have a higher comfort level, first-generation students are likely to require more information and assurance even as adults. Thus, these institutional variables will be of particular importance to them (Giancola, Munz, & Trares, 2008).

Tinto's Model of Retention

Retention of online students is often connected to attrition in fully web-based

programs (Heyman, 2010). Well known retention researchers like Tinto and Bean have

offered theories and models to assist educators in understanding variables such as

persistence, attrition, and retention (Heyman, 2010). Tinto's Model of Retention is the

most widely utilized model. Tinto's Model of Retention is depicted in Figure 1.1 on the

following page. Tinto's model will serve as the conceptual framework for this study.

While this research does not test the model in its entirety, variables relevant to the web-

based education of nontraditional students will be used as possible explanations for the

findings.
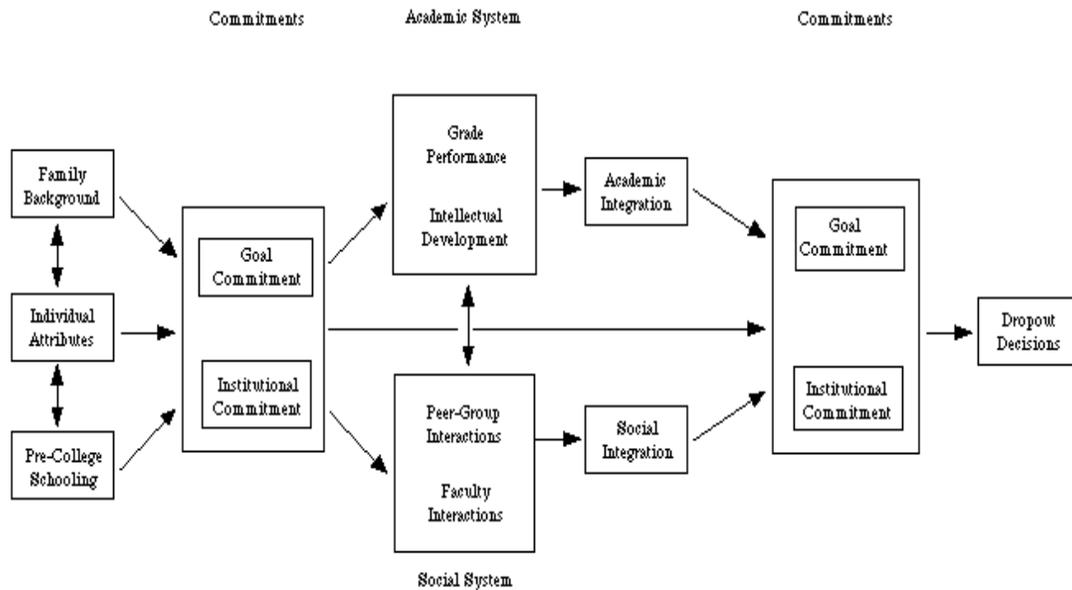
*Figure 1 Tinto's Revised Model of Retention Example Source: (adapted by McCubbin
from Tinto, V (1997) "Classrooms as Communities: Exploring the educational
Character of tudent Persistence" Journal of Higher Education Vol 68, no. 6 pp. 599-
623) (McCubbin, 1997)*

Research Problem

The retention and graduation of students have always been a concern of higher education. These concerns increase as the focus of federal financial assistance offered to students is being tied to the retention and graduation rates of the institution (Anderson, Haydarov, & Moxley, 2012-2013).   A recent study on national persistence rates reports that overall retention of students has declined by 3.1 million students from Fall of 2012 to Fall of 2013 with the biggest loss coming from high school to first year students (Fain, 2014). However, for profit four-year institutions have increased their overall persistence rate by 0.7 over the same time frame (Fain, 2014).

The influx of nontraditional students in web-based programs brings with it the same concerns for retention and graduation but within a new context and certainly raises the stakes for universities and students. By learning more about nontraditional students in web-based programs and what their specific needs are, universities can address the needs and provide the necessary support for this student base and increase the likelihood of retaining and graduating this group of students. Positive results increase the lifetime earnings of the students and the finances of the university.

Significance of the Research

Due to internal and external pressures on universities regarding the academic success of web-based students, this study may identify ways for universities, rural or otherwise, to better meet the needs of nontraditional students. By meeting the needs of this specific group of students, the university could not only gain a revenue stream but also improve the retention and graduation rates.

Definition of Terms

This section defines critical variables in the study. Nontraditional student is

defined several ways in the literature. For example, the definition Bean and Mentzer

(1985) did not define the term specifically based on characteristics; rather they focused

on what a nontraditional student was not. For example, a traditional student lives on

campus at most universities, and nontraditional students typically do not. A traditional

student typically is not married and has no dependents. A nontraditional student can be

married or not and may or may not have dependents. A traditional student is probably

not a veteran; a nontraditional student could be a veteran. Traditional students typically

attend as full-time students; a nontraditional student could be full-time but is more likely

to be a part-time student. Traditional students tend to work fewer hours than

nontraditional students.

Nontraditional students also tend to have fewer connections to the campus

community in general. They do not usually establish relationships with peers or

faculty/staff. Nontraditional students are less active overall in extracurricular activities

available to them. Part of the lack of participation with the campus community is more

than likely due to responsibilities to family and work (Noel-Levitz, 1993). Choy, in her

findings in a report for National Center for Education, estimated that if having

dependents, being a single parent, working full-time, being financially independent,

attending college part-time, or not having a high school diploma were used to define a

student as nontraditional, then about 73% of college students may be classified as

nontraditional (Choy, 2002). Despite these variations in how nontraditional students are

identified, for the purposes of this study, nontraditional students are defined as those 25 years of age or older.

In this study, web-based learning is defined as the use of the internet or web based technology to receive 100% academic instruction from a college or a university. Blended or hybrid courses are not included. In-person or face-to-face classes are defined as those classes taught solely in a traditional classroom on the institutions campus. Two other important terms necessary for understanding web-based programs lingo are asynchronous and synchronous formats. Asynchronous simply stated means instructors and students are not active online at the same time engaging in active conversations or work (Ahern, et al., 2006). Synchronous includes simultaneous interaction of both students and instructors online at the same time (Ahern, et al., 2006).

The vast majority of web-based students are nontraditional students based on these operational definitions. While the following characteristics are not collected in this study, nontraditional web-based students tend to be employed full-time, have families, do not live on campus, and have a smaller opportunity to connect to faculty on campus. They do not have the opportunities to participate in campus extracurricular activities as they are usually not located anywhere near campus (Bean & Metzner, 1985).

The final term that needs to be defined is retention. Vincent Tinto (1993) defines retention as the attainment of educational goals. This seems to contrast sharply with the measurement of retention today. For the purposes of this study, retention will be defined as the student returning the next academic year for classes. Tinto also defines dropping out. Dropping out traditionally is seen as the failure of the institution and the student.

Tinto cautions that universities need to know the goals of incoming students but also understand the goals of the institution (Noel-Levitz, 1993).

Summary

A nontraditional student is mostly defined by what he or she is not rather than what he or she is as there are many facets to being a nontraditional student. This study defines nontraditional students as those 25 years of age or older. Web-based programs have opened or reopened, in some cases, the door to education for adult students as it provides a way to bring the classroom to the student when attending a brick and mortar classroom is not an option for whatever reason. By identifying ways to support nontraditional students, universities not only retain and graduate a specific group of students but also open a revenue stream of a steadily growing segment of the population. This study compares the retention rates of nontraditional students taking web-based classes compared to nontraditional students taking the same courses face-to-face.

CHAPTER 2

LITERATURE REVIEW

Literature specific to this study was not easily identified. There are pockets of information available on nontraditional students and online learning, and extensive research on retention rates. However, there is little research on the intersection of these variables. Still, the information that was located is pertinent to add to the understanding of these topics as education has been forever changed by new technology and the explosive growth of web-based programs, increasing percentage of enrollments being accounted for by nontraditional students, and intense focus on retention rates driven by changes such as outcomes based funding.

Web-based learning has transformed postsecondary education by making it more accessible to the learner and learner focused (Roy, Roudi, & Schumm, 2011). Rural students can be particular beneficiaries of web-based learning since it brings the classroom to student. Web-based learning does offer many students the opportunity to restart or in some cases start their academic careers by making distance to campus and class scheduling non-issues. This allows the student to keep their job or care for family members while pursuing educational goals, thereby reducing many barriers to higher education.

One key factor for access to rural students participating in online education is broadband internet service (Mason & Rennie, 2004). Though many rural areas have access through local libraries, many still do not have access to high speed broadband from their homes. The lack of dependable internet access remains a barrier to web-based education for some (Mason & Rennie, 2004).

Communication has also been identified as a possible barrier to web-based learning (Berge, 2013). However, with the advent of modern technology and the ever increasing sophisticated forms of communication evolve, so does the opportunity to eliminate the barriers to ineffective communication (Anderson, Haydarov, & Moxley, 2012-2013).

Having access to broadband internet and sophisticated forms of communication do not always guarantee academic success. There are many factors that can be credited for nontraditional student success in an online environment. Online courses offer a never before seen level of convenience for students dispersed over large geographic area (Liest & Travis, 2010).

Regardless of the popularity of web-based education, attrition remains an issue with most universities (Hart, 2012). "Oftentimes, the decision to drop a course is unrelated to knowledge and is more a reflection on lack of persistence" (Hart, 2012, p. 20)

In a study by Street from Mississippi State, three factors adapted from Bandura's Reciprocal Causation Theory were identified in affecting attrition and persistence in web-based education (Street, 2010). The factors according to Street were Course Factors, Environmental Factors, and Person Factors. For the purposes of this study these similar factors have been divided into Personal Skill Sets, Belonging, and University Support and are discussed in the following sections.

Personal Skill Sets

Personal Skill Sets for nontraditional student success include but are not limited to the personal motivation to learn, instructor and student interaction, student to student

interaction, the sense of belonging in the course, the ability of the student to understand and interact with the material being presented (Hoskins, 2012), time management, self-discipline, active information seeking, and constructing knowledge (Stokes, 1999). Other important factors for nontraditional student success and retention include personal support from family and friends (Hoskins, 2012).

Taking web-based classes requires students to have a minimum comfort level with computers (Montanez, Ooms, & Rodriguez, 2008). For those students less skilled with computers, they must garner new skills while mastering the content of the course (Montanez, Ooms, & Rodriguez, 2008). Still, the overall schedule flexibility draws large numbers of students yearly to web-based courses.

It is interesting to note that one study found a slight correlation between learning motivation and advanced computer skills (Montanez, Ooms, & Rodriguez, 2008) and "a weak correlation between age and motivation" (Montanez, Ooms, & Rodriguez, 2008, p. 109). Also noteworthy, 52% of the students agreed that web-based courses met the "same quality standards as classroom courses" (Montanez, Ooms, & Rodriguez, 2008, p. 111). The authors of this study also suggested improving the computer skills of students that did not meet the minimum skill set before allowing them to participate in web-based classes either through remediation or prerequisites. They contended that such remediation would enhance the students' overall satisfaction with and success in web-based course as well as increase the perception of the program as one of high quality (Montanez, Ooms, & Rodriguez, 2008).

Students that experience success in the web-based environment are more likely to be retained; likewise, the less success the student experiences in a web-based

environment the more likely they are not to be retained (Conway, Hatchey, & Wladis, 2012). This correlation was found in a study in a study that involved the largest community college in the country with a student population of over 23,500. The authors of this study identified a pattern of higher attrition in web-based courses that was not noted in the in-person courses (Conway, Hatchey, & Wladis, 2012). Retention of web-based students is a growing concern as the number of students in these courses increases (Conway, Hatchey, & Wladis, 2012).

First-time web-based enrollees were identified as less confident that they could finish an online class with a good grade (Conway, Hatchey, & Wladis, 2012). First-time enrollees are also more likely to become frustrated when they do experience a problem in the course (Conway, Hatchey, & Wladis, 2012). This frustration can affect effort and persistence in web-based learning (Conway, Hatchey, & Wladis, 2012). The authors of this study found this to be true regardless of the computing skills of the student (Conway, Hatchey, & Wladis, 2012). Finally, this study found that if a student has only one unsuccessful online experience it can negatively impact their "Internet Self-efficacy" and lower the likelihood of future online success (Conway, Hatchey, & Wladis, 2012). Students with lower skills sets should be given the opportunity for remedial or refresher work to sharpen their skills and improve their chances for success (Rovai, Wighting, & Liu, 2005).

Another predictor of student success is engaged learning. Providing students with a variety of ways to connect with the material presented is an important facet of web-based learning (Hoskins, 2012). Using multimedia and a variety of video helps the

content to come alive for the student and increases the likelihood of the student to

connect to the content (Rovai, Wighting & Liu, 2005; Hoskins, 2012).

The ability of the student to direct his or her own learning is another factor in

student success in a web-based venue. Student Directed Learning, or SDL, consists of

the ability of the student to direct their own learning or—learning autonomy (Hill &

Song, 2007). Hill and Song found that "Recent research in a distance education indicates

that students need to have a high level of self-direction to succeed in a web-based

learning environment" (Hill & Song, 2007, p. 30).

Other important factors for success include GPA, gender, and first generation

status (Spitzer, 2000; Davis, 2011). According to Spitzer, nontraditional students and

females appear to have higher GPAs than their traditional male counterparts (Spitzer,

2000; Jenkins, 2009).

Persistence is also a factor in student success and retention. Some industry experts

argue that persistence and retention are equivalent concepts (Anderson, Haydarov, &

Moxley, 2012-2013) with the former being a student measure of how students make goal

progress, and the other a school measure of consecutive enrollment (Anderson,

Haydarov, & Moxley, 2012-2013).   Other experts avoid the term persistence altogether

and opt for three other variables: retention, attrition, and completion as a way to measure

progress to graduation (Anderson, Haydarov, & Moxley, 2012-2013).

University Support

In order for a web-based course to be successful, a transformational change must

occur, and web-based courses must be institutionalized (Austin, 2010). This

transformation not only changes the institution but also the community at large by

providing greater educational access to everyone (Austin, 2010). Institutionally provided support includes but is not limited to academic advising, library services, tutoring services, technical support and financial counseling support (Harroff & Valentine, 2006). University provided support for web-based learners is an integral part of student success and should not be underestimated (Hoskins, 2012).

Individualizing student support for web-based students is important to prevent attrition (Conway, Hatchey, & Wladis, 2012). Services such as guidance, counseling, assessment and coaching can help to identify those likely to drop out or fail (Conway, Hatchey, & Wladis, 2012). Also, unsuccessful students have been found to require more assistance with course layout, course expectations, and assignments (Conway, Hatchey, & Wladis, 2012). Special attention by instructors and instructional design to course layout and good web design, concise directions, consistent language, and a detailed course orientation at the beginning of the semester to assist student confidence are all important for student success (Conway, Hatchey, & Wladis, 2012).

Students were not the only group that was identified as needing support. Training of faculty, especially faculty new to the web-based environment, are necessary (McMurtry, 2013). Training faculty to focus on student needs in the web-based environment will help to ensure pedagogical effectiveness (McMurtry, 2013) and enhance student success.

Interaction with the instructor and other students is a theme that emerges as an important variable for student success in a web-based environment (Rovai, Wighting & Liu, 2005; Hoskins, 2012). In a study conducted by Baker of Tarleton State in University in 2010, the researcher found that instructor presence and immediacy in a web-based

learning environment had a positive impact on student motivation (Rovai, Wighting & Liu, 2005; Baker, 2010). In other words, the instructor's ability to give an immediate response helped to motivate student participation in the class and ultimately increased their success in the class. Instructors should relate to students in an open and social level in order to be truly effective (Rovai, Wighting & Liu, 2005; McFarland, 2011).

In a mixed-methods study by Kupczynki, Ice, Wiesenmayer and McClusky (2010), students were asked what contributed to their success in online courses, and their responses included the student's ability to perform higher level thinking through the active participation of the course instructor.   This study also emphasized that students desired direct feedback from the instructor regarding their performance (Ice, Kupczynski, McCluskey, & Wisenmayer, 2010).

Belonging

In 1993, Tinto posited that postsecondary students require academic, social and personal support from their school (Rovai, Wighting, & Liu, 2005). Students identify membership, influence, and shared emotional connection as the most important characteristics of belonging or a sense of community (Rovai, Wighting, & Liu, 2005). "A strong sense of community largely reflects a socializing experienced based on a holistic approach to education that values individuality, no one that focuses on mass delivery of skill-based instruction" (Rovai, Wighting & Liu, 2005; p. 364).

Web-based learning has forever transformed education and has fundamentally changed the sense of community within institutions of higher learning (Miller & Lu, 2003). Therefore, the task of creating the feeling or sense of community "must be intentional, well informed, and undertaken with a degree of caution that demonstrates

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respect for individual intellectual knowledge, and must find a way to integrate a vastly

different sense of knowledge and capacity and management" (Miller & Lu, 2003, p. 168).

This must be accomplished through skilled leaders, concerned faculty, and the

institution's commitment to change (Miller & Lu, 2003).

Nontraditional student status encompasses a wide range of abilities, skills sets,

life experiences, and educational goals (Scagnoli, 2001) (Melkun, 2012). This broad

mix, however, can be challenging and rewarding (Melkun, 2012). Using web-based

collaborative groups such as discussion boards can help to create a sense of community

(Melkun, 2012). This may require extensive planning and preparation by faculty,

instructional design staff, and network administrators (Carter, 2001).

Connecting to or creating the sense of belonging by web-based nontraditional

students to their institution of learning can be difficult. Participation in school life is

limited or nonexistent due to little if any face-to-face interaction with other students,

faculty or staff (Rovai, Wighting, & Liu, 2005). This physical and social isolation of

web-based students can have negative consequences (Rovai, Wighting, & Liu, 2005).

Orientation can be a key strategy to ensure student success and create a sense of

community (Scagnoli, 2001). Students need realistic expectations about the type of work

that will be expected in a class and the materials necessary to be successful (Robinson,

Burns, & Gaw, 1996). Communicating and working with new people are very important

learning experiences and are part of the academic adjustment (Robinson, Burns, & Gaw,

1996). The feeling of connection and commitment made in orientation to the program can

create a sense of support and belonging among participants (Robinson, Burns, & Gaw,

1996). After all, learning is not caused by technology but rather by the instructional

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method employed by the instructor (Rovai, Wighting, & Liu, 2005). By creating

pedagogies consistent with the Vygotsky learning framework, which suggests social

interaction plays a large role in cognitive development, it is possible to create a strong

sense of belonging or community within a web-based learning environment (Rovai,

Wighting, & Liu, 2005).

In a study by Rovai, Wighting and Liu (2005), the researchers found that web-

based students feel a weaker sense of connectedness and belonging than their on-campus

peers; they further suggested that they are more likely be a non-degree completers

(Rovai, Wighting, & Liu, 2005). The study also found that there was no difference

between the learning of web-based students and on-campus students (Rovai, Wighting, &

Liu, 2005). This study recommended that using a social construct that is culturally

responsive as a way to meaningfully engage students and can create a strong sense of

community amongst students (Rovai, Wighting, & Liu, 2005). The authors concluded

that the development of mentors, early communication with professors, assistance

availability located in the syllabus, and the establishment of social ties to be import

contributing factors to student success (Rovai, Wighting, & Liu, 2005). Finally, the

researchers noted that "students learn most from professors that are 'warm, friendly,

immediate, approachable, affiliative, and fostering of close, professionally appropriate

personal relationships'" (Rovai, Wighting, & Liu, 2005, p. 371). Combined, these

strategies can create powerful positive outcomes for web-based students (Rovai,

Wighting, & Liu, 2005).

Though there is a large body of research that acknowledges the importance of

community and belonging in institutions of higher learning, there is little guidance on

how to accomplish the task of integrating belonging into the web-based classroom (Liu, Magjuka, & Bonk, 2007). For web-based learners, isolation and the feeling of being disconnected is a risk and interaction is the key to lessening the risk of using technology (Liu, Magjuka, & Bonk, 2007). A study by Misanchuk and Anderson (2001) suggests building community through increasing levels of interactions and communication (Liu, Magjuka, & Bonk, 2007). A student site that allows the posting of profiles and an off-site portal that promotes student side or off-topic discussions are desirable and encourage students to bond and communicate informally (Liu, Magjuka, & Bonk, 2007). Other discussed strategies included high quality peer critiqued discussion boards, content based group projects that will require deep discussion amongst members, and modeling of effective communication skills for web-based discussion (Liu, Magjuka, & Bonk, 2007). The study also indicated that a collaboration friendly environment with high levels of interaction using authentic learning experiences contributes to effective learning (Liu, Magjuka, & Bonk, 2007).

Empirical data suggest that both asynchronous and synchronous communication can build a sense of community for web-based learners (Liu, Magjuka, & Bonk, 2007). Synchronous communication through chat and video conferencing can foster interaction, whereas asynchronous communication can offer deeper discussions without time or geographical constraints (Liu, Magjuka, & Bonk, 2007). Technology facilitates the building of community, but the social aspect must be built into the class by design through careful planning by the professor and instructional design team (Liu, Magjuka, & Bonk, 2007). The professor must promote a friendly environment that encourages cognitive development while monitoring discussions and recognizing the dichotomy

between technical and social solutions within the web-based environment (Liu, Magjuka, & Bonk, 2007). Other suggestions from the study included collaborative work, small team groups, and forming cohorts (Liu, Magjuka, & Bonk, 2007).

Criticisms of Web-based Education

There are some that believe that web-based courses are stealing away students from the regular classroom. However, research has shown that there are significant differences between the two types of students drawn to both delivery formats, and it is less likely that web-based courses are taking away students from the regular classroom (Cavanaugh, 2007).

Academic rigor has also been challenged by some experts as to whether web-based courses can duplicate the academic rigor of a traditional classroom. This argument was likened to the quality of instructor and ensuring that the instructors were properly trained to teach web-based and that the course itself was designed to be taught in the web-based environment (Harroff & Valentine, 2006). In addition, the publicizing of some institutions that emphasize convenience over quality is based on outdated mechanisms and assumptions about web-based education (Rovai, Wighting, & Liu, 2005). This approach is narrow minded, diminishes true intellectual stimulation that discourse and discovery bring to higher education, and adversely affects web-based students by weakening their sense of community, thereby increasing attrition rates (Rovai, Wighting, & Liu, 2005).

Some studies have suggested that fully web-based courses should be eliminated in favor of blended or hybrid (web-based and in-person) models (Rovai, Wighting, & Liu, 2005). The blended method incorporates the very best of both models and has generated

reported stronger senses of connectedness and belonging amongst participants (Rovai, Wighting, & Liu, 2005).

In the following chapter, the methods of the study are delineated. Specifically, the following sections include descriptions of the research question, study context, sample, data collection and analyses, and limitations of the study.

CHAPTER 3

METHODS

This study will be conducted in a similar manner as the study performed in 2010 at Fayetteville State University that compared two web-based and two in-person undergraduate business courses in an effort to identify why students in web-based courses were not performing as well as their in-person counterparts (Wilson & Allen, 2010). The following sections highlight the methods.

Research Question

The purpose of this study is to examine the impact of web-based courses on the retention of nontraditional students at Eastern Kentucky University. With that in mind, the specific research is:

Is there a difference in retention rates between nontraditional students in web-based programs compared to those in traditional face-to-face classes at a rural comprehensive university?

Context of the Study

The University

Eastern Kentucky University is a regional, coeducational, public institution of higher education offering general and liberal arts programs, pre-professional and professional training in education and a variety of other fields at both the undergraduate and graduate levels through web-based and in-person programs. Located in Richmond, Madison County, Kentucky, Eastern has a respected record of over a century of educational service to the Commonwealth and its service region. EKU will serve approximately 17,000 students in various programs of study during the fall 2014 term.

Support for Web-based Programs

As described in the review of literature, there are several factors that influence retention of nontraditional students and among them is university support. Eastern Kentucky University, which is the site of this study, currently provides several of the key areas of institutional support for its students. For example, web-based students are provided with a dedicated enrollment advisor, graduation track advisor, financial aid counselor, and a dedicated instructional design team that assists instructors with getting their classes up and operational web-based. The instructional design team is also responsible for the layout of the class itself and making it consistent with other classes already web-based and providing a consistent look and feel to each web-based class. Also, all courses taught through EKU's Online Programs are subject to a series of quality measures called Quality Matters, thus creating consistent, quality courses that have a similar layout that helps students easily locate materials and course assignments (Division of Public Relation & Marketing, 2011). Quality Matters is an organization recognized nationally as a quality assurance leader for online education (Division of Public Relation & Marketing, 2011).

The Online Program Department also encourages instructors to be responsive to students. As most of the web-based courses are taught in an eight-week format, not providing students with timely feedback can have a negative impact on student success. It is highly suggested by this department that instructors answer student questions within 24 hours and provide feedback on assignments as soon as is reasonably allowable so students have ample time to correct problems and experience success in the class.

Support for Nontraditional Students

Other areas of institutional support that is an important part of nontraditional student success is tutoring, library services, and technical support. The institution in this study has a tutoring service that is available to students 24 hours a day, seven days a week. The name of the service is Smarthinking. Students connect with Smarthinking through their Blackboard account and they can receiving tutoring assistance in three different ways. Once connected to Smarthinking students can get immediate assistance, they can schedule an appointment for one on one help, or they can receive help via their student email account.

The institution also offers tutoring through their GURU program that connects students to specially trained upper classman on campus that can help with writing, math, or other content courses until about 9 p.m. Monday through Thursday and 4 p.m. on Fridays. The institution also has a writing center that is now available to web-based students through email. The students connect with a Master's degree seeking student that works with the writing center to provide assistance to web-based students.

Library services is another important part of nontraditional student success. The institution that is the center of this study offers a library chat service with a librarian until about 10 p.m. in the evening Monday-Friday. The library also offers a large variety of databases for student research that is available to all students including web-based students.

Technical support for web-based students particularly, is very important. This institution does offer technical support through a university supported tech support line that is open to students, faculty and staff. Tech support can offer assistance with

computer issues (limited) and issues with Blackboard. This service is also available Monday – Friday from 8 a.m. through 4:30 p.m. daily.

Sample

This study will use the following decision rules to generate the final student sample used in this study:

1) Students had to be enrolled in the Police Studies and Psychology programs at EKU between the 2008-09 and 2013-14 academic years;

2) Students had to be classified as Freshmen, Sophomores or Juniors;

3) They had to be non-traditional students (i.e., 25 or older); and

4) They had to take web-based or in-person courses taught in both formats by the same professors.

The final sample includes 8,154 students.

The Police Studies and Psychology programs were chosen because both of the programs are taught online, and in-person and both programs have a large population of nontraditional students. The faculty sample includes 20 professors who taught the same courses in web-based and in-person formats. This was an attempt to make the classes as equal as possible in both environments--similar difficulty level, similar content and grade distributions. The final sample of students had to be enrolled in the web-based classes taught by these 20 faculty members. There were 24 courses in the final sample.

Research Design and Data Collection

This study will utilize a causal comparative research design. This specific study will use data collected directly from Eastern Kentucky University's database, BANNER. The data are to be pulled from BANNER include gender, nontraditional student status,

first-generation status, student grade level/classification, Composite ACT score, cumulative college GPA, grade earned in the courses included in this study, and retention status. The variables represent predictors of success (Allen & Wilson, 2011).

Data Analysis Procedures

Initially, descriptive statistics including means, frequencies, standard deviations and crosstrabulations will be reported. The main data analysis procedure used for this study will be an ANCOVA. The dependent variable is retention (0=No, 1=Yes). The independent variable is the type of delivery of the course—web-based or 100% in-person. Covariates include gender, first generation, grade classification (freshmen through juniors), and Composite ACT score. In other words, comparisons of mean retention rates will be made between the web-based nontraditional students and the on campus nontraditional students after controlling for gender, student classification, first-generation, and Composite ACT score. SPSS 22 will be utilized for all analyses. Significance will be determined at the .05 level.

The null hypothesis is that there will be no difference between the mean retention rates of the web-based nontraditional students compared to the nontraditional on campus students. The alternate hypothesis is that there will be a significant difference between the two groups.

Limitations of Study

There are several limitations of this study of this study that should be noted. This study only examines one rural comprehensive university and only nontraditional students in the Police Studies and Psychology Programs. This limits the generalizability of the findings to other types of institutions and programs. There are other programs that are

taught via both delivery formats that could have been chosen, but these were selected

specifically because of the likelihood of locating the highest concentration of

nontraditional students in both environments. In addition, these programs have offered

web-based courses for a relatively long time and therefore offer a good care to assess the

effectiveness of quality web-based programs on the retention of nontraditional students.

Other variables that may affect the retention of nontraditional students are not

included in this study. These variables include but are not limited to the marital status of

the student, whether the student has children, the employment status of the student, the

financial status of the student, veteran status, proficiency with technology, and distance

residing from the campus. Also, these classes are taught in different time formats. The

in-person sections are generally taught in 16 weeks whereas the on-line versions of these

courses are taught in 8 weeks. Therefore, time period of the courses is not controlled for.

It also cannot be presumed that the same course delivered via the two formats is identical

in every assignment, but given that the instructors are the same, they should be close

enough in content for general comparison purposes.

CHAPTER 4

RESULTS

Objective

This chapter begins with a brief review of the purpose and methods for this study.
The primary purpose of this study is to examine if nontraditional students that are
enrolled in web-based courses are retained at the same or different rates than their in-
person face-to-face counterparts. The independent variable is the delivery method of the
course and the dependent variable is retention.

This qualitative study will be initially discussed using descriptive statistics
including means, frequencies, standard deviation, and crosstabulations. An ANCOVA
will then be used to control for the covariates which are: gender, first generation, grade
classification (freshman through juniors), and Composite ACT scores.

Guiding Question

The guiding question for this study; is there a difference in retention rates
between nontraditional students in web-based courses compared to those in face-to-face,
or in-person, courses?

Unit of Study

This study includes any nontraditional student that has ever taken a web-based or
in-person course in either the Police Studies program or the Psychology program at
Eastern Kentucky University. The data included traditional students that were excluded
for the purposes of this study. The data were then filtered to include only freshman
through juniors. Seniors were excluded because it would not have been possible to
determine their intent to enroll the following academic year.

Table 4.1 below illustrates how crosstabulation was used to examine the retention of nontraditional in-person students and nontraditional web-based students based on student classification. In-person nontraditional students at the freshman level were retained at a rate of 36.6% (n=2,423). The nontraditional web-based students were retained at 17% (n=276). Web-based nontraditional freshman made up 10.2% (n=2,699) of the data compared to 89.8% (n=2.699) of face-to-face student. Web-based freshman level nontraditional students had the lowest retention rate between the two groups.

Nontraditional web-based sophomores were retained at a rate of 21.5% (n=331) compared to their in-person counterparts of 28.1% (n=1,860). Web-based nontraditional sophomores made up 15.1% (n=331) of the total data and their nontraditional face-to-face counterparts made up 84.9% (n=1,860) of the total sophomore population. Web-based sophomores had the lowest retention rate between the two groups.

Nontraditional web-based juniors were retained at 60.6% (n=935) rate compared to their face-to-face counterparts at a rate of 35.2% (n=2,329). Nontraditional web-based juniors made up 28.6% (n=935) of the total junior nontraditional population and their face-to-face counterparts made up 71.4% (n=2,329) of the nontraditional junior population. Web-based nontraditional students had the highest retention rate of all classification of students. Web-based juniors had the highest retention rate of between the two groups.

Table 4.1: Students Classification by Course Delivery

Student Classification * Course Delivery Crosstabulation

	Course Delivery

			In-person	Web 100%	Total
Student Classification	Freshman	Count	2423	276	2699
		% within Student Classification	89.8%	10.2%	100.0%
		% within Course Delivery	36.6%	17.%	33.1%
	Sophomore	Count	1860	331	2191
		% within Student Classification	84.9%	15.1%	100.0%
		% within Course Delivery	28.1%	21.5%	26.9%
	Junior	Count	2329	935	3264
		% within Student Classification	71.4%	28.6%	100.0%
		% within Course Delivery	35.2%	60.6%	40.0%
Total		Count	6612	1542	8154
		% within Student Classification	81.1%	18.9%	100.0%
		% within Course Delivery	100.0%	100.0%	100.0%

Table 4.1: Students Classification by Course Delivery continued

Table 4.2 below shows retention of nontraditional students based on gender in

both web-based and in-person courses. The crosstabulation below indicates that female

students in face-to-face classes are retained at a rate 63.6% (n=4,207) compared to their

web-based counterparts of 60.7% (n=936). Nontraditional female students in web-based

courses made up 18.2% (n=936) of the total female nontraditional base and the in-person

female students made up 81.8% (n=4,207) of the total base. Male students were retained

at a rate of 36.4% (n=2,405) in face-face courses compared to their web-based

nontraditional counterparts at a rate of 39.3% (n=606). Nontraditional males in web-

based courses made up 20.1% (n=606) of the male population and in-person

nontraditional males made up 79.9% (n=2,405).

Table 4.2: Gender by Course Delivery

Gender * Course Delivery Crosstabulation

			Course Delivery		
			In-person	Web 100%	Total
Gender	Female	Count	4207	936	5143
		% within Gender	81.8%	18.2%	100.0%
		% within Course Delivery	63.6%	60.7%	63.1%
	Male	Count	2405	606	3011
		% within Gender	79.9%	20.1%	100.0%
		% within Course Delivery	36.4%	39.3%	36.9%
Total		Count	6612	1542	8154
		% within Gender	81.1%	18.9%	100.0%
		% within Course Delivery	100.0%	100.0%	100.0%

Table 4.3 below examines nontraditional first generation students in web-based

courses and their in-person counterparts. First generation nontraditional web-based

students were retained at a rate of 38.9% (n=600) compared to 36.2% (n=2,394) first

33

generation nontraditional students in in-person courses. Non-first generation students in

web-based courses were retained at a rate of 18.3% (n=942) compared to their in-person,

non-first generation students retention rate of 81.7% (n=4,218). The data indicate that

non-first generation in-person students retained at the highest rate of 63.8% (n=4,218).

Web-based nontraditional students in web-based courses retained at the second highest

rate of 61.1% (n=942). First generation nontraditional students in web-based courses

retained at the third highest rate of 38.9% (n=600) and in-person nontraditional first

generation students retained at the lowest rate of 36.2% (n=2,394).

Table 4.3: First Generation by Course Dlivery

First Generation * Course Delivery Crosstabulation

| | | | Course Delivery | | |
			In-person	Web 100%	Total
First Generation	Not First Generation	Count	4218	942	5160
		% within First Generation	81.7%	18.3%	100.0%
		% within Course Delivery	63.8%	61.1%	63.3%
	First Generation	Count	2394	600	2994
		% within First Generation	80.0%	20.0%	100.0%
		% within Course Delivery	36.2%	38.9%	36.7%
Total		Count	6612	1542	8154

		Course Delivery		
		In-Person	100% Web	Total
	% within First Generation	81.1%	18.9%	100.0%
	% within Course Delivery	100.0%	100.0%	100.0%

The mean ACT score for nontraditional students are indicated in Table 4.4 below.

The mean of the ACT scores was 20.69% (SD=3.43). The minimum ACT score of 8 and

a maximum score of 33.

Table 4.4: Mean ACT Scores

Mean ACT Scores for Nontraditional Students

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ACT Composite Score	6656	8	33	20.69	3.438

In Table 4.41 the mean ACT composite score for in-person, face-to-face students

was 20.77 (n=5,697, SD=3.42). The mean for web-based students was 20.21 (n=959,

SD=3.47).

Table 4.41: ACT Composite Score

Means of ACT Composite Score

Course Delivery	Mean	N	Std. Deviation
In-person	20.77	5697	3.425
Web 100%	20.21	959	3.479
Total	20.69	6656	3.438

Table 4.5 displays the number of students in the sample by the specific course in
which they were enrolled. The largest percentage in the sample was PSY 200 (46.7%,
n=8,154, f=3,805). The only other courses represented more than 10% of the sample was
PSY 308 (11.9%, n=8,154, f=968).

Table 4.5: Table of Frequencies

Course Frequency Table

		Frequency	Percent	Valid Percent	Cumulative
Valid	PLS 103	332	4.1	4.1	4.1
	PLS 326	187	2.3	2.3	6.4
	PLS 330	149	1.8	1.8	8.2
	PLS 375	222	2.7	2.7	10.9
	PLS 414	29	.4	.4	11.3
	PLS 415	35	.4	.4	11.7
	PSY 200	3805	46.7	46.7	58.4
	PSY 250	354	4.3	4.3	62.7
	PSY 250W	237	2.9	2.9	65.6
	PSY 300	159	1.9	1.9	67.6
	PSY 305	393	4.8	4.8	72.4
		Frequency	Percent	Valid Percent	Cumulative
	PSY 308	968	11.9	11.9	84.3
	PSY 309	174	2.1	2.1	86.4
	PSY 309W	23	.3	.3	86.7
	PSY 310	119	1.5	1.5	88.1
	PSY 311	174	2.1	2.1	90.3
	PSY 312	397	4.9	4.9	95.1
	PSY 317	78	1.0	1.0	96.1
	PSY 319	64	.8	.8	96.9
	PSY 333	23	.3	.3	97.2
	PSY 400	17	.2	.2	97.4
	PSY 406	37	.5	.5	97.8
	PSY 408	81	1.0	1.0	98.8
	PSY 409	97	1.2	1.2	100.0
		Frequency	Percent	Valid Percent	Cumulative
	Total	8154	100.0	100.0	

Table 4.5: Table of Frequencies continued

Table 4.6 on page 47 shows nontraditional enrollments by term. The term with most enrollments was fall 2008 with 14% (n=8,145, f=1,145). The only other term with over 10% of enrollments was spring 2008 with 12.7%. Fall 2009 had 10% of enrollments. Spring 2009 and fall 2010 had 9.3% and 9.1% respectively.

Table 4.6: Enrollment by Term

Enrollments by Term

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2008 Fall	1145	14.0	14.0	14.0
	2008 Spring	989	12.1	12.1	26.2

		Frequency	Percent	Valid Percent	Cumulative Percent
	2008 Summer	59	.7	.7	26.9
	2009 Fall	812	10.0	10.0	36.9
	2009 Spring	759	9.3	9.3	46.2
	2009 Summer	86	1.1	1.1	47.2
	2010 Fall	746	9.1	9.1	56.4
	2010 Spring	636	7.8	7.8	64.2
	2010 Summer	73	.9	.9	65.1
	2011 Fall	506	6.2	6.2	71.3
	2011 Spring	373	4.6	4.6	75.8
	2011 Summer	36	.4	.4	76.3
	2012 Spring	357	4.4	4.4	84.6
	2012 Summer	46	.6	.6	85.2
	2013 Fall	413	5.1	5.1	90.2
	2013 Spring	248	3.0	3.0	93.3
	2013 Summer	32	.4	.4	93.7
	2014 Fall	321	3.9	3.9	97.6

	Frequency	Percent	Valid Percent	Cumulative Percent
2014 Spring	195	2.4	2.4	100.0
Total	8154	100.0	100.0	

Table 4.6 Enrollments continued

The frequency table (Table 4.7) below shows the distribution of nontraditional

students in attendance at Eastern Kentucky University. The majority of nontraditional

students are located on the Richmond campus with 77.7% (n=8,154, f=6,333). The

second largest population is located over the satellite campuses 13.3% (n=8,154, f=1,087)

and eCampus (Online Programs) at 9% (n=8,154, f=734) has the least concentration of

nontraditional students.

Table 4.7: Students by Campus Code

Nontraditional Student base by Campus Code

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Richmond Campus	6333	77.7	77.7	77.7
	eCampus	734	9.0	9.0	86.7
	Satellite Campus	1087	13.3	13.3	100.0
	Total	8154	100.0	100.0	

The Frequencies by Instructors table (Table 4.8) indicates duplicative case that

there are 20 (f=8,134, 98%) different instructors that have taught in both web-based

environment and the face-to-face environment for Police Studies Program and the

Psychology Department. The valid percent was two.

Table 4.8: Frequencies by Instructor

Frequencies: By Instructors

Indicator of each last matching case as Primary

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Duplicate Case	8134	99.8	99.8	99.8

		Frequency	Percent	Valid Percent	Cumulative Percent
	Primary Case	20	.2	.2	100.0
	Total	8154	100.0	100.0	

Table 4.8: Frequencies by Instructor continued

Table 4.9 shows the mean of retained student by web-based and face-to-face

courses. Web-based students are retained at a slightly higher rate 52% (n=1,542,

SD=.500) than their face-to-face counterparts at 41% (n=6,812, SD=.492).

Table 4.9: Mean of Students Retained

Means of Retained Nontraditional Students by Course Delivery

Course Delivery	Mean	N	Std. Deviation
In-person	.41	6612	.492
Web 100%	.52	1542	.500
Total	.43	8154	.496

The next table reports retained student by classification, Table 4.10. As indicated

below, juniors are retained at the highest rate of 64% (n=3,264, SD=.481), sophomores at

the second highest rate of 44% (n=2,191, SD=.497) and freshman at the lowest rate of

18% (n=2,699, SD=.386).

Table 4.10: Nontraditional Student Retained by Classification

Nontraditional Student Retained by Classification

Student Classification	Mean	N	Std. Deviation
Freshman	.18	2699	.386
Sophomore	.44	2191	.497
Junior	.64	3264	.481
Total	.43	8154	.496

When examining nontraditional student retention by gender, Table 4.11, female

nontraditional students are retained at a higher rate than their male counterparts. Females

were retained at a mean of 45% (n=5,143, SD=.498) rate compared to males at a mean of

a mean of 40% (n=3,011, SD=.491). This finding is consistent with other research found

in the literature that refer to female students (both nontraditional and traditional) are

retained at higher rates than males.

Table 4.11: Nontraditional Students Retained by Gender

Nontraditional Students Retention by Gender

Gender	Mean	N	Std. Deviation

	Mean	N	Std. Deviation
Female	.45	5143	.498
Male	.40	3011	.491
Total	.43	8154	.496

Table 4.12 shows retention rates of nontraditional students based on first generation. The data indicate that non-first generation students retain at a mean of 44% (n=5,160, SD=.496) compared to their first-generation counterparts at a mean of 42% (n=2,994, SD=.494).

Table 4.12: Nontraditional Students Retention by First Generation

Nontraditional Student Retention by First Generation

First Generation	Mean	N	Std. Deviation
Not First Generation	.44	5160	.496
First Generation	.42	2994	.494
Total	.43	8154	.496

When ACT means were compared between retained and non-retained nontraditional students (Table 4.13), the non-retained student mean was 20.46 (n=3,791, SD=3.391). The retained mean was 20.99 (n=2,865, SD=3.478).

Table 4.13: Retention by ACT Scores of Nontraditional Students

Retention by ACT Scores of Nontraditional Students

Retained	Mean	N	Std. Deviation

Not Retained	20.46	3791	3.391
Retained	20.99	2865	3.478
Total	20.69	6656	3.438

Student retention was compared between the in-person and web-based students using a one-way Analysis of Co-Variance (ANCOVA). The ANCOVA investigates whether there are differences in retention other than gender, first generation, student classification, ACT composite scores, and schedule type that explains the variances between the two groups.   In Table 4.14, the data indicated that there were more in-person nontraditional students in attendance than in web-based courses. Courses delivered in-person were marked with a 1 (n=5,697) and courses delivered via web-based instruction were marked with a 2 (n=959).

Table 4.14: ANCOVA between Subjects

Between-Subjects Factors

		Value Label	N
Course Delivery	1	In-person	5697
	2	Web 100%	959

Levene's Test for Equality of Variance indicates that homogeneity of variance between the two groups cannot be presumed [F=48.069, (df=1, 6654), p=.000] (Table 4.15). Equality of variance is an important assumption for an ANCOVA. When the two groups to be analyzed do not have equal N sizes, the results of an Analysis of Covariance

should be interpreted with caution when the assumption of equal variance is violated.

However, the literature does suggest that when sample sizes between groups are relatively

similar, violations of the assumption of homogeneity may be considered negligible

(Lomax & Hahs-Vaughn, 2012) (Ferland & Shields, 1978). The variations in this study are

due to the large number of in-person nontraditional students. In-person nontraditional

students had a mean of 41% (n=5,697, SD=.492) compared to the web-based counterparts

had a mean of 56% (n=959, SD=.497).

Table 4.15: Retention by Dependent Variable

Retention based on Dependent Variable: Retained

Course Delivery	Mean	Std. Deviation	N
In-person	.41	.492	5697
Web 100%	.56	.497	959
Total	.43	.495	6656

The Tests Between-Subject Effects was completed, (Table 4.16) where the

dependent variable was retention. This test is used to test the null hypothesis and it was

determined that .05 would indicate significance. The only area close to significance was

schedule type at .04. Collectively, the covariates accounted for 16.5% of the variance

$[F=262.035, (5=6,650), p=.000, n^2=.165]$. Among the covariates student classification

was the most powerful representing 14.8% of the variance. The ACT composite score

accounted for 5% of the variance and gender accounted for 2%. First generation is not a

significant covariate.

Table 4.16: Tests of Between-Subjects Effects

Tests of Between-Subjects Effects

Dependent Variable: Retained

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	268.579[a]	5	53.716	262.035	.000	.165
Intercept	1.819	1	1.819	8.874	.003	.001
GENDER	2.812	1	2.812	13.718	.000	.002

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
FIRST_GENERATION	.350	1	.350	1.710	.191	.000
CLASSIFICATION	236.557	1	236.557	1153.965	.000	.148
ACT_COMPOSITE	6.959	1	6.959	33.947	.000	.005
SCHEDULE_TYPE	.834	1	.834	4.068	.044	.001
Error	1363.214	6650	.205			
	2865.000	6656				
Total						
Corrected Total	1631.793	6655				

a.   R Squared = .165 (Adjusted R Squared = .164)

Table 4.16: Tests of Between-Subjects Effects continued

After controlling for gender ACT composite, student classification, and first generation there is a significant difference in retention rates of nontraditional students who took online classes compared to those that did not (p=.044). It is important to note that the effect of size (e.g., eta squared) shows that online when compared to face-to-face classes accounted for only.1% of the variance in retention rates of nontraditional students. The statistical difference is due to the large sample size, but the effect size suggests that size of the difference is not significant in practice. The variable that accounts for the largest variance in retention is Classification (14.8%).

In Table 4.17 the Estimated Marginal Means were examined after controlling for gender, first generation, and student classification. Web-based nontraditional students were retained at slightly higher rates than those in face-to-face courses. Table 4.17 reveals that nontraditional students in web-based courses have a mean of 4.88% (SD=.015). The in-person nontraditional students had a mean of 4.26% (SD=.006).

Table 4.17: Estimated Marginal Means

Estimated Marginal Means

Dependent Variable: Retained Estimates

Course Delivery	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
In-person	.426[a]	.006	.414	.438
Web 100%	.459[a]	.015	.429	.488

Covariates appearing in the model are evaluated at the following values: Gender = 1.37, First Generation = 1.37, Student Classification = 2.00, ACT Composite Score =

20.69. In the T-Test Group Statistics performed in Table 4.18, course grades had a mean

of 2.67 (n=5,697, SD=1.283, SEM=.017) for in-person nontraditional students. Web-

based nontraditional students had a mean of 2.61% (n=959, SD=1.323, SEM=.043).

Table 4.18: T-Test Group Statistics for Course Grades

T-Test : Group Statistics

	Course Delivery	N	Mean	Std. Deviation	Std. Error Mean
	Course Delivery	N	Mean	Std. Deviation	Std. Error Mean
Course Grade	In-person	5697	2.67	1.283	.017
	Web 100%	959	2.61	1.323	.043

Table 4.18: T-Test Group Statistics for Course Grades continued

Table 4.19 shows the Independent Samples test for course grades. The first test

assumes equal variances. The equal variances assumed (F=2.346, S=.126, t=1.45,

df=6,654, SE=.045) mean difference was .065%. The second test for equal variance

assumes the variance is not equal as the mean difference was .065% (t=1.41, df=1,279,

SE=.046). The lower confidence interval of the difference was -.025 and .155 for the

upper confidence interval. The degrees of freedom for course grades went from df=6,654

in test one to df=1,279.083. This test indicates that there is no statistical difference

between the means of these two groups when comparing course grades of in-person

nontraditional students to web-based nontraditional students.

Table 4.19: Independent Samples Test for Course Grades

Independent Samples Test

		Levene's Test for Equality of Variances		T-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
Course Grade	Equal variances assumed	2.346	.126	1.450	6654	.147	.065	.045	-.023	.153
	Equal variances not assumed			1.418	1279.803	.156	.065	.046	-.025	.155

Table 4.19: Independent Samples Test for Course Grades continued

A crosstabulation was performed in Table 4.20 to compare course grades between

nontraditional in-person students and the web-based nontraditional students.   32.6%

(n=1,858) of the nontraditional in-person students received the letter grade A compared

to the nontraditional web-based group at 30.3% (n=291). The web-based nontraditional

students received the most letter B grades or 32.4% (n=311) and 29.9% (n=1,701) of in-

person students receive a letter grade of B. The letter grade of C was assigned to in-

person nontraditional students at a rate of 20.2% (n=1,150) and web-based students

received the same grade at a rate of 17.3% (n=166). The letter grades of "D" and "F"

were assigned to in-person students at a rate of 6.7% (n=382) and 10.6% (n=606)

respectively. The web-based nontraditional students were assigned the same grades at a

rate of 7.3% (n=70) and 12.6% (n=121) respectively.

Table 4.20: Course Grade Comparison

Crosstabulations of Course Grade * Course Delivery

			Course Delivery		
			In-person	Web 100%	Total
Course Grade	F	Count	606	121	727
		% within Course Delivery	10.6%	12.6%	10.9%
	D	Count	382	70	452
		% within Course Delivery	6.7%	7.3%	6.8%
	C	Count	1150	166	1316
		% within Course Delivery	20.2%	17.3%	19.8%
	B	Count	1701	311	2012
		% within Course Delivery	29.9%	32.4%	30.2%
	A	Count	1858	291	2149

	% within Course Delivery	32.6%	30.3%	32.3%
Total	Count	5697	959	6656
	% within Course Delivery	100.0%	100.0%	100.0%

Table 4.20: Course Grade Comparison continued

CHAPTER 5

DISCUSSION

Overview

The findings from the research question will be presented in this chapter. There

will also be a summary of the research, a variables discussion, and implications for future

research and practice. The results of this study provides specific information to help

faculty and administrators to examine and address retention issues of web-based

nontraditional students. Finally, this chapter will conclude with key points of the study

and fill in gaps of existing literature on retention of web-based nontraditional students.

Summary of the Study

The purpose of this study was to examine the impact of online courses on

nontraditional student retention rates at Eastern Kentucky University. Specifically, the

guiding question was is there a difference in retention rates between nontraditional

students in online classes compared to those in face-to-face or in-person classes? The

study design examined both web-based nontraditional students and nontraditional

students in in-person courses taught by the same instructors in both environments. The

analysis of the data revealed that there was a higher retention rate among the web-based

nontraditional students with a mean of .52 (SD=.500) when compared to a mean of .41

(SD=.492) for in-person nontraditional students.

Interpretation of Results

Descriptive statistics including means, frequencies, standard deviations and

crosstabulations were used initially to describe the data. An ANCOVA was also

conducted in the study. The covariates included: gender, first generation, student

classification (freshman through juniors), and Composite ACT scores. Significance was

determined at the .05 level.

The data indicated that there were 4,207 female nontraditional students attending

in-person courses (63.6% of total in-person students) and 936 (60.7% of total web-based

students) attending web-based courses. Nontraditional females overall retained at a

higher rate than their male counterparts with females retaining at a mean of 45%

(SD=.498) compared to males with a mean of 40% (SD=.496). Male nontraditional

students attending in-person classes made up 2,405 (36.6% of total in-person students)

and 606 (39.3% of web-based population) males were attending web-based courses.

These results tend to follow previous research (Spitzer, 2000) (Jenkins, 2009). The

population of female nontraditional students is higher overall and could account for at

least some differences in retention rates. The average retention overall for nontraditional

students in both environments was 43% (SD=.496).

First generation was also used as a covariate in this study. The data indicate that

in-person non first generation students accounted for 4,218 (n=5,160) of the in-person

student base. Non-first generation students in web-based courses accounted for 942

(n=5,160) of the web-based nontraditional base of students. Non-first generation

nontraditional students had a retention mean of 44% (n=5,160, SD=.496). In-person

nontraditional first generation students totaled 2,394 (n=2,994) and the web-based first

generation student base was 600 (n=2,994). The web-based nontraditional students had a

retention mean of 42% (n=2,994, SD=.496). The non-first generation nontraditional

student did retain at a slightly higher rate than their first generation counterparts however,

the difference was not considered statistically significant.

Student classification was also used as covariate for this study. There were 2,423

(n=2,699) in-person freshman and 276 (n=2,699). The sophomore population included

1,860 (n=2,191) in-person and 331 (n=2,191) web-based students. Nontraditional

students classified as juniors included 2,329 (n=3,264) in-person students and 935

(n=3,264) web based students. Freshman nontraditional students retained at the lowest

mean rate of 18% (n=2,299, SD=.386). Sophomores were retained at a mean rate of 44%

(n=2,191, SD=.497). Juniors were retained at the highest mean rate of 64% (n=3,264,

SD=.481).

Historically, institutions of higher learning have indicated that freshman year is

the term that students experience the highest rate of attrition (Daempfle, 2003-2004) and

the data above seem to follow that research. Normal stressors of attending college for the

first time coupled with nontraditional issues like first generation, jobs, and family can be

overwhelming for some.

The ACT Composite score was also used a covariant in this study. The mean

ACT composite score for the nontraditional student base was 20.69 (n=6,659,

SD=3.438). The in-person mean was 20.77 (n=5,697, SD=3.425) and web-based

nontraditional student mean was 20.21 (n=959, SD=3.479). In-person nontraditional

students out performed web-based students by .56 but the difference is statistically

insignificant.

An ANCOVA was used to control for the covariates (gender, first generation,

student classification, and ACT composite score) to determine if they had an effect on

retention. Nontraditional students attending in-person courses had a retention mean of

41% (n=5,697, SD=.492). Web-based nontraditional students had a retention mean of

56% (n=989, SD=.497) which is statistically significant when compared to the in-person

nontraditional student base.

The results of the ANCOVA did indicate that collectively, gender, first

generation, student classification, and ACT composite score accounted for 16.5% of the

variance of retention with student classification making up over 14% of the variance.

Gender, ACT composite score, and student classification are significant covariates. First

generation is not a significant covariate. However, when all covariates are controlled,

there is a significant difference in retention rates of nontraditional students who took

online courses compared to those that did not. The data indicate that the variable that

impacts retention the most is classification.   However, it is important to note that the

effect size shows that online when compared to in-person nontraditional students

accounted for only .1% of retention variance. The statistical difference is due to the large

sample size but the effect size suggests that the size of the difference is not significant in

practice.

The data reveal that freshmen are the least retained of all nontraditional student

classifications. However, the data also indicate that juniors are the highest retained

nontraditional web based students. This would appear logical as this is the type of

student that seems attracted to web-based instruction as these students are completing

degrees and earning credentials.

Implications for Policy and Practice

Retention is an important issue in higher education as it has a direct impact on

state funding and how university funds are disbursed (Maroney, 2010). The issue of

retention has far reaching implication as recent studies indicate the demand for workers

that have a minimum of a college degree will increase (Carnevale & Smith, 2012).

Developing policies and best practices for improving retention have never been more

important with this specific group of students. Policy and practices that cultivate early

intervention strategies is the key to increasing retention.

Increasing retention not only increases the quality of the workforce by producing

qualified applicants, retention also improves the revenue streams of the university

(Carnevale & Smith, 2012). As state and federal funding becomes tied to retention and

graduation rates, it would be in the best interest of the student and the university to

address these issues as quickly as is reasonably possible to ensure continued funding

from state and federal programs as well as increased revenue stream through continued

student enrollment.

Tinto suggests that nontraditional students that are entering college for the first

time, or, are returning after a long hiatus should take a smaller class load, perhaps even,

just be a part-time student for the first academic year. (Tinto, 1996) Smaller class loads

would allow a less stressful re-entry into the college setting and allow students a better

footing for future success by allowing them to ease into and adjust to college work. If at

all possible he suggests that the student take major work only during that first year as a

way to spark student engagement and investment in the process. (Tinto, 1996) Tinto has

performed research that supports the theory that "learning communities has a significant

impact on student academic and social involvement and in turn on student persistence"

(Tinto, 1996) Learning communities bridge the "social divide that plagues students".

(Tinto, 1996) Learning communities were initially developed to "meet the needs of

beginning students." (Tinto, 1996).

Though this research noted above was structured around in-person classrooms,

many of the theories can easily be applied to the online environment. Currently, Eastern

Kentucky University's Online Programs are implementing many of the suggestions that

Vincent Tinto recommended.   Communities of learners are being established using the

Blackboard system for online students with an orientation site and a student portal,

though these areas may be underutilized. Areas are set aside within the system to

introduce students to each other and the faculty and plans are in process to use a

discussion board for the purpose of assisting students in exercising their knowledge base

as well as critical thinking skills.

Tinto theorizes that classrooms are more than just classrooms they are

communities (Tinto, 1996). This is especially true for online programs. Every effort

should be made to provide opportunities for online students to form communities that not

only encompass opportunities for learning (including performing research with

professors), but also of fellowship and bonding with instructors and other students.

This can be accomplished by providing online areas that are open to instructors and

students alike to discuss a myriad of topics from assignments, to career goals, to obstacles

that students and faculty face (Rovai, Wighting, & Liu, 2005).

Future Research

This research does add to the current body of knowledge about retention of web-based nontraditional students by identifying some of variables that do impact student retention (Tinto, 2006) (Wilson & Allen, 2010) and contributes to the general knowledge about nontraditional students. Additional research is needed to specifically identify other variables that directly impact web-based nontraditional students.

Future studies might include additional context on web-based nontraditional students. The data in this study indicate that the majority of students are lost in the freshman and sophomore years, with freshman classification experiencing the largest loss of nontraditional students. Identifying specific reasons why students are lost at this time could be done to identify the support services students need during this critical time to be successful. This study could be a mixed methods study that includes qualitative data on why nontraditional students stay in or leave a program of study.

Future research could also include a study to identify other variables that directly affect web-based nontraditional student retention. This study used gender, first generation, student classification, and ACT composite score. Future studies could look at orientation programs and how they impact web-based nontraditional students. Another study could investigate the professor effect on web-based nontraditional students and yet another could be done on support services and their effect on retention of online students (Hart, 2012) (Harroff & Valentine, 2006).

Conclusion

Use of information from this study could assist Eastern Kentucky University in understanding the relationship between web-based nontraditional students and issues that

affect their retention. The literature suggests that an orientation program (Scagnoli,

2001) (Conway, Hatchey, & Wladis, 2012), student support services and support

personnel (Conway, Hatchey, & Wladis, 2012), building a sense of belonging and a

support network for nontraditional web-based students (Rovai, Wighting, & Liu, 2005)

(Miller & Lu, 2003) all are indirect ways to positively impact student retention.

When student retention is affected in a positive way, the university as well as the

public at large benefits. There is a better prepared workforce to meet the demands of an

ever changing economy (Carnevale & Smith, 2012) and an increased revenue stream for

the university whose future funding could be tied to outcome based distribution system in

the near future.

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APPENDIX

Appendix A: Institutional Review Board Approval

EASTERN KENTUCKY UNIVERSITY
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Graduate Education and Research
Division of Sponsored Programs
Institutional Review Board

Jones 414, Coates CPO 20
521 Lancaster Avenue
Richmond, Kentucky 40475-3102
(859) 622-3636; Fax (859) 622-6610
http://www.sponsoredprograms.eku.edu

NOTICE OF IRB EXEMPTION STATUS
Protocol Number: 14-201
Institutional Review Board IRB00002836, DHHS FWA00003332

Principal Investigator: **Treva G. Macy**   Faculty Advisor: **Dr. Charles Hausman**

Project Title: **The Effects of Online Programs on Retention of Nontraditional Students in Rural Universities**

Exemption Date: **5/14/2014**

Approved by: **Dr. Jim Gleason, IRB Member**

This document confirms that the Institutional Review Board (IRB) has granted exempt status for the above referenced research project as outlined in the application submitted for IRB review with an immediate effective date. Exempt status means that your research is exempt from further review for a period of three years from the original notification date if no changes are made to the original protocol. If you plan to continue the project beyond three years, you are required to reapply for exemption.

Principal Investigator Responsibilities: It is the responsibility of the principal investigator to ensure that all investigators and staff associated with this study meet the training requirements for conducting research involving human subjects and follow the approved protocol.

Adverse Events: Any adverse or unexpected events that occur in conjunction with this study must be reported to the IRB within ten calendar days of the occurrence.

Changes to Approved Research Protocol: If changes to the approved research protocol become necessary, a description of those changes must be submitted for IRB review and approval prior to implementation. If the changes result in a change in your project's exempt status, you will be required to submit an application for expedited or full IRB review. Changes include, but are not limited to, those involving study personnel, subjects, and procedures.

Other Provisions of Approval, if applicable: None

Please contact Sponsored Programs at 859-622-3636 or send email to tiffany.hamblin@eku.edu or lisa.royalty@eku.edu with questions.

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VITA

Treva G. Macy was born in Seymour, Indiana on April 18, 1963. She attended Austin Elementary in Austin, Indiana until the age of eight. She then attended Ravenna Elementary School in Ravenna, Kentucky. She graduated from the Estill County School District in 1981. After several starts and stops, she graduated Eastern Kentucky University in May, 2008 with a Bachelor of Science in Management Marketing: Education Teaching. In summer, 2010 she graduated with a Master of Arts in Education in Reading/Writing P-12.

She is currently employed as an Adjunct Faculty for the Curriculum and Instruction Department part-time and as an Assistant Online Coordinator for Online Programs at Eastern Kentucky University in Richmond, Kentucky.