# Online Versus Traditionally-delivered Instruction: A Descriptive Study of Learner Characteristics in a Community College Setting

*Alana M. Halsne,*
*Doctoral Candidate,*
*Loyola University of Chicago*
*ahalsne@hotmail.com*

*Louis A. Gatta, Ph.D.,*
*Assistant Professor,*
*Loyola University of Chicago,*
*School of Education,*
*Department of Curriculum, Instruction, & Educational Psychology*
*lgatta@luc.edu*

## Introduction

There is a trend in American higher education toward using educational technologies. These educational technologies challenge the notion that education needs to take place in a classroom (Toffler, 1980). One force driving these educational technologies is the demand for a well educated and skilled workforce. Another force is older, more mature students. Akker and Plomp (1992) and Gray, Vernez, and Rolph (1996) have found that that the composition of the student population has changed dramatically since the 1980s. Today's college students are older, more diverse, and display varying degrees of academic readiness. Many are well above traditional college age and, due to various commitments, cannot relinquish their current jobs for the sake of education. Further, some people are disadvantaged due to geographic remoteness or restricted by their work schedule and need distance learning methods. Overall, distance learning provides learners a more flexible way to further their education.

As such, distance learning, with its attendant technology, is the fastest growing educational modality (Martin & Samels, 1995; Bell, 1991; Hayes, 1995). Distance learning has the potential to affect colleges and universities, businesses and industries, and personal lives. An obvious impact is the growing number of individuals seeking advanced education and training as a result of the availability of such learning programs. In response to the demand for distance learning, governments and the private sector are trying to develop new ways to provide education that is accessible to the whole population. Gordon (1995) recommends that more research in distance education be conducted, using other learning style instruments that identify the learning style preference of off-campus learners**.**

## Purpose of the Study

The purpose of this study was to compare the learning styles of community college students who enrolled in an off campus online course (via the Internet) and those who were taking the same course on-campus.

## Significance of the Study

According to the University Continuing Education Association (UCEA) (2000), the number of adults enrolled in distance education is increasing. However, much of the research on learning styles has not involved adults, despite the usefulness of learning styles diagnosis for higher education (Price, 1983). Coggins (1988) deplores the lack of learning style-related research that focuses on those adults who are pursuing their education outside the classroom.

The results of this study should have benefits for faculty and administrators, as well as students. Both of these groups will gain information regarding the learning preferences of adult students. Knowledge of students' learning styles may allow faculty to present information in a way that will accommodate those various learning styles, enable administrators to design and implement better programs, and help students to better understand their learning styles and needs.

**Methodology**

This study was designed to compare the demographic characteristics (age, gender, marital status, number of dependent children, racial or ethnic background, Spanish/Hispanic origin, and total family income), employment and occupational status, and educational characteristics (student classification, student status, highest level of education completed, and college major). The study also looked at the course enrolled in, section number of course, average time spent on classwork per week, and learning styles of students enrolled in an online course or traditional on-campus course.

**Limitations**

The limitations of this study are as follows. First, the data collected from the surveys were self-reported and, as such, were subject to reporting bias. Second, due to online students having to visit a web site on their own time to take the survey, the return rate could be low. Current research in survey design illustrates that survey return rates are commonly low (Dillman, 2000). Third, the study was limited to one community college, so the results are limited to the students at this institution.

**Sample**

The participants in this study were chosen randomly from one community college in the Chicago suburbs and were taking at least one course during the spring semester, either online or on-campus. The participants were chosen from the courses that were taught over the Internet in the spring 2001 semester and compared to those who were taking the same course on-campus during the same semester.

**Instrumentation**

A researcher-developed demographic background survey was used to gather information on: average time spent on the classwork each week, course enrolled in and section number, student status, gender, age group, marital status, number of dependent children, racial or ethnic background, Spanish/Hispanic origin, employment status, occupational status, total family income, highest level of education completed, and college major.

Based on research contained in the Mental Measurements Yearbook (Impara & Plake, 1998) and conversations with several researchers who developed learning style inventories, the researcher decided on Dr. Jeffrey Barsch's Learning Style Inventory (1996). The main reasons for using Barsch's inventory were its content and short length. The inventory contains 32 forced-choice questions and focuses on the areas of auditory, kinesthetic, tactile, or visual learning. The cost

was also a consideration. Academic Therapy Publications allowed the researcher to use Dr. Barsch's Learning Style Inventory with no permission fee for dissertation use. The researcher received permission to use their learning style instrument for this study.

**Data Collection Procedures**

The researcher obtained permission to conduct the study from the Institutional Research Board at Loyola University in Chicago, Illinois and the Office of Institutional Effectiveness, Planning and Research at the community college used in this study. All students who enrolled in an online course at the community college in the Spring of 2001 were given, by their instructor, a web site address (http://clconline.clc.cc.il.us/survey) to go to participate in the study. As such, the students were able to participate in the online study at their convenience. At the web site, the students read a letter of consent and clicked "I Accept" on a button to continue on to the survey part. At the end of the survey, students clicked on a button, "Send My Responses," which sent the results to the researcher's e-mail mailbox. The researcher was able to determine whether students clicked on the "Send" button twice and eliminated the duplicate results.

The online study took place from February 2001 to May 2001. Throughout the semester, online instructors were sent e-mail reminders to have their students to participate. On-campus students taking the same course as the online students were surveyed during their class time during the spring semester of 2001 at the community college. The instructors mailed the surveys to the researcher's on-campus mailbox.

**Data Analysis**

The data collected for this study were analyzed using descriptive statistical procedures for calculating frequencies and percentages, along with general linear model tests, crosstabulation tests, i.e., multivariate analyses of variance (MANOVA), and t-tests. The data were analyzed separately for each research question.

*Research Question 1*

Are there differences in learning styles of students who enroll in courses taken online compared to students who take traditional courses on-campus in the community college level?

Participants were identified by course and section number to determine whether they were taking the course on-campus or over the Internet. The responses for the 32 items contained in the Barsch Learning Style Inventory correspond to four learning styles. When the responses are summed, the category with the highest amount of points indicates the student's preferred style of learning.

To determine the learning style of each participant, using the scoring key provided in the learning style manual, the question responses were translated into visual, auditory, tactile, or kinesthetic. The style was determined by the greatest sum in one particular category. If none of the scores was greater than the others, that individual was classified as having a mixed style. The frequencies and percentages of each of the four dependent variables (learning styles) were calculated. To analyze the statistical data for this research question, general linear model tests were used to find the differences between the traditional and online students by looking at means and standard deviations along with correlations such as Pearson Correlation and significance (2-tailed) tests. In multivariate tests, the Wilks' Lambda was analyzed.

*Research Question 2*

Are there differences in demographic characteristics (gender, age group, marital status, number of dependent children, racial or ethnic background, Spanish/Hispanic origin, and total family income) of students who enroll in online courses compared to those of the traditional on-campus students in a community college level?

The demographic characteristics were analyzed separately. Frequencies for each of the categories were calculated. Due to the fact that raw scores are difficult to interpret, the percentage of students that fell under each category was calculated. For the demographic characteristic categories, the frequencies of each category and the corresponding percentages were calculated from both groups for all the demographic questions asked in the survey instrument. To statistically analyze this research question, a MANOVA, using crosstabulations, was conducted.

*Research Question 3*

Are there differences in the employment and occupational status of students who enroll in online courses compared to traditional on-campus students in the community college level?

As noted above, the demographic characteristic of employment status had the following five categories: (a) full-time employment (more than 35 hours/week), (b) homemaker, (c) part-time employment (less than 35 hours/week), (d) not working for pay, and (e) retired. Occupational status has the following eleven categories: (a) business owner or manager, (b) clerical worker, (c) sales representative, (d) service worker, (e) professional, (f) educator, (g) skilled laborer or foreperson, (h) student, (i) homemaker, (j) retired, and (k) other (please specify). The frequencies and percentages of each category were calculated for both groups. To analyze this research question statistically, a MANOVA, using crosstabulations, was conducted.

*Research Question 4*

Are there differences in the educational characteristics (student status, highest level of education completed, and college major) of students who enroll in an online course compared to the traditional on-campus course in a community college?

Each characteristic was analyzed separately. As noted above, the variable of student status had two categories: (a) full-time student and (b) part-time student. The highest level of education completed had the following six categories: (a) high school graduate, (b) some college courses taken, (c) Associate Degree, (d) Bachelor's Degree, (e) Master's Degree, and (f) Doctorate/Professional Degree. The college major of the student was also calculated and analyzed. The frequencies and percentages of each category were calculated. To analyze this research question statistically, a MANOVA, using crosstabulations, was conducted.

*Research Question 5*

Does an online student spend more time on classwork each week, on average, than a student who takes traditional courses on-campus in a community college?

As noted above, the following question was asked: How much time do you spend on

the class, on the average, each week? The frequencies and percentages of responses were calculated. A t-test, using the Levene's Test for Equality of Variance, along with the t-test for Equality of Means, was conducted to analyze the statistical data for this research question.

**Summary of the Data Analysis**

In analyzing the research questions, 13 tests were conducted, with an alpha level of .05. The general linear model test was used for research question 1. The variables involved included the four learning styles (visual, auditory, tactile, and kinesthetic), along with the SECTCAT (categorized by section), including traditional and online students. The results of the test yielded the mean, standard deviation, and sample size (N), which allowed for a comparison of the differences in learning styles between the traditional and online students. The multivariate tests for this research question involved the Wilks' Lambda test, Pillai's Trace, Hotelling's Trace, and Roy's Largest Root.

MANOVA crosstabulations were used for research questions 2, 3, and 4, for a total of 11 tests. The dependent variables for these tests were traditional and online students. The independent variables for these tests included gender, age group, marital status, dependent children, ethnic or race background, Spanish/Hispanic origin, income level, employment status, occupational category, student status and educational level. Specifically, for research question 2, gender, age group, marital status, dependent children, ethnic or race background, Spanish/Hispanic origin, and income level were analyzed separately. For research question 3, employment status and occupational category were analyzed separately. For research question 4, student status, and education level were analyzed separately. College major was excluded from the crosstabulation data due to the online student survey data missing this variable. For research question 5, a t-test was conducted using the traditional and online students as the dependent variables with the average amount of time spent on classwork as the independent variable. In analyzing the t-test, the Levene's Test for Equality of Variances and t-test for Equality of Means were used.

**Demographic Findings**

The sample consisted of 1,642 students who were enrolled in an online course or a traditional course offered through the Internet at the community college during the Spring 2001 semester. There were 587 online students, of whom 340 completed the study, for a return rate of 57.9%, and 1,302 traditional students, all of whom completed the study, for a return rate of 100%. The difference in the sample sizes was due to online students generally having only one section per course available over the Internet, while the traditional students were able to enroll in 5 to 20 sections on-campus for the same course offering.

**Learning Style Data**

The answers to the learning style inventory questions were considered categorical data, with a minimum score of 8 and a maximum score of 40. Skewness and kurtosis were not an issue, and there were no outliers.

**Addressing of the Research Questions:**

*Research Question 1*

Are there differences in learning styles of students who enroll in courses taken online compared to students who take traditional courses on-campus in the

community college level?

Individual learning style scores, standard deviation, mean, and sample size can be found in Appendices AH through AK. Table 1 presents the descriptive statistics showing the differences in mean (M) and standard deviation (SD) between online and traditional students in terms of the four learning styles.

**Table 1. Learning Styles for Traditional and Online Students**

| | Student | Mean | Student Deviation | N |
|---|---|---|---|---|
| *Visual* | Traditional | 29.3487 | 4.5758 | 1302 |
| | Online | 31.3941 | 4.5516 | 340 |
| | Total | 29.7722 | 4.6440 | 1642 |
| *Auditory* | Traditional | 26.4624 | 5.3061 | 1302 |
| | Online | 24.8588 | 5.2896 | 340 |
| | Total | 26.1303 | 5.3408 | 1642 |
| *Tactile* | Traditional | 24.9969 | 5.3924 | 1302 |
| | Online | 24.1941 | 5.7804 | 340 |
| | Total | 24.8307 | 5.4828 | 1642 |
| *Kinesthetic* | Traditional | 26.5637 | 7.3939 | 1302 |
| | Online | 24.4059 | 8.0463 | 340 |
| | Total | 26.1169 | 7.5818 | 1642 |

Table 2 presents the results of the Pearson Correlation tests of the four learning styles. For all correlations, p = .00.

**Table 2. Pearson Correlation Tests of the Four Learning Styles**

| N = 1642 | | *Visual* | *Auditory* | *Tactile* | *Kinesthetic* |
|---|---|---|---|---|---|
| *Visual* | Pearson Correlation | 1.000 | -.228 | .096 | .099 |
| | Sig. (2-tailed) | | .000 | .000 | .000 |
| *Auditory* | Pearson Correlation | -.228 | 1.000 | .187 | .236 |
| | Sig. (2-tailed) | .000 | | .000 | .000 |
| *Tactile* | Pearson Correlation | .096 | .187 | .1000 | .289 |
| | Sig. (2-tailed) | .000 | .000 | | .000 |
| *Kinesthetic* | Pearson Correlation | .099 | .236 | .289 | 1.000 |
| | Sig. (2-tailed) | .000 | .000 | .000 | |

Table 3 presents the results of a Wilks' Lambda to compare learning styles between online and traditional students.

**Table 3. Comparison of Learning Styles Using Wilks' Lambda**

| **Effect** | | **Value** | **F** | **Hypothesis df** | **Error df** | **Sig.** |
|---|---|---|---|---|---|---|
| Intercept | Wilks' Lambda | .016 | 24582.256 | 4.000 | 1637.000 | .000 |
| SETCAT | Wilks' Lambda | .947 | 23.041 | 4.000 | 1637.000 | .000 |

With an F value of 23.041 on 4 and 1,637 degrees of freedom, the null hypothesis was rejected at $p < .001$. This indicates there are significant differences in learning styles of students who enroll in courses taken online compared to the learning styles of students who take traditional courses on-campus in the community college level.

Table 4 presents the results of univariate tests of between-subjects effects. As seen below, all four subscales were significantly different at p £ .02. This is strong evidence that there is a significant difference between the online and traditional student groups for each of the four subscales.

**Table 4. Between-Subjects Effects**

| | | Type III Sum | | | | |
|---|---|---|---|---|---|---|
| *Source* | *Dependent Variable* | *of Squares* | *df* | *Mean Square* | *F* | *SIg.* |
| SETCAT | Visual | 1127.933 | 1 | 1127.933 | 53.989 | .000 |
| | Auditory | 693.230 | 1 | 693.230 | 24.654 | .000 |
| | Tactile | 173.757 | 1 | 173.757 | 5.797 | .016 |
| | Kinesthetic | 1255.352 | 1 | 1255.352 | 22.120 | .000 |

The mean score for online students was 31.39 while the traditional students had a mean score of 29.35 for the visual subscale. Online students had a mean score of 24.86 while traditional students had a mean score of 26.46 for the auditory subscale. The mean score for online students was 24.19 while the traditional students had a mean score of 25.00 for the tactile subscale. Online students had a mean score of 24.41 while traditional students had a mean score of 26.56 for the kinesthetic subscale. The largest difference between the two subscale groups was the visual learning style for the online students. The traditional students were found to have an auditory and kinesthetic learning style compared to the online students. The learning style of tactile, even though statistically significant, showed very little difference for both groups of students.

*Research Question 2*

Are there differences in demographic characteristics (gender, age group, marital status, number of dependent children, racial or ethnic background, Spanish/Hispanic origin, and total family income) of students who enroll in online courses compared to those of the traditional on-campus students in a community college level?

## Gender

In regard to gender, for online students, males comprised 32.0% of the sample and females

comprised 68.0%. For traditional students, males comprised 48.4% of the sample, while females comprised 51.6%.

Table 5 presents the results of the Pearson Chi-Square test (Chi-Square = 29.325, p = .000), which indicates that there is a significant relationship between gender and type of student. This is a result of the female to male ratio for online courses being significantly larger than traditional courses.

**Table 5. Relationship between Gender and Type of Student**

| | | | ***Asymp. Sig*** | ***Exact Sig.*** | ***Exact Sig*** |
|---|---|---|---|---|---|
| | *Value* | *df* | *(2-sided)* | *(2-sided)* | *(2-sided)* |
| *Pearson Chi-Square* | 29.325 | 1 | .000 | | |
| *Continuity Correction* | 28.663 | 1 | .000 | | |
| *Likelihood Ratio* | 30.012 | 1 | .000 | | |
| *Linear-by-Linear Association* | 29.306 | 1 | .000 | | |
| *N of Valid Cases* | 1614 | | | | |

## Age Group

In the characteristic of age group status, the online students who were less than 25 years of age comprised 44.2% of the sample, while the traditional students comprised 80.0%. The online students of the 26-35 years group comprised 27.3% of the sample, while the traditional students comprised 10.9%. The online students of the 36-45 years group comprised 14.6% of the sample, while the traditional students comprised 6.4%. The online students of the 46-55 years group comprised 12.7% of the sample, while the traditional students comprised 2.1%. The age categories of 56-65 years and over 65 years did not have a sufficient sample size to be analyzed for this study.

Table 6 presents the results of the Pearson Chi-Square test (Chi-Square = 192.373, p = .000), which indicates that there is a significant relationship between age group and type of student. Specifically, the majority of online students are 26 years old and older, while the traditional students are primarily less than 25 years of age.

**Table 6. Relationship between Age Group and Type of Student**

| | ***Value*** | ***df*** | *Asymp. Sig. (2-sided)* |
|---|---|---|---|
| *Pearson Chi-Squared* | 192.373 | 5 | .000 |
| *Likelihood Ratio* | 171.712 | 5 | .000 |
| *Linear-by-Linear Association* | 152.736 | 1 | .000 |
| N of Valid Cases | 1625 | | |

## Marital Status

Online married students comprised 42.5% of the sample, while traditional married students comprised 13.2%. Online separated students comprised 0.6% of the sample, while the traditional

separated students comprised 0.9%. Online widowed students comprised 1.2% of the sample, while traditional widowed students comprised 0.4%. Divorced online students comprised 7.5% of the sample, while traditional divorced students comprised 2.9%. Never married online students comprised 48.2% of the sample, while traditional never married students comprised 82.6%.

Table 7 presents the results of the Pearson Chi-Square test (Chi-Square = 178.526, p = .000), which indicate that there is a significant relationship between marital status and type of student. Specifically, the majority of online students are married, while the majority of traditional students were never married.

**Table 7. Relationship between Marital Status and Type of Student**

| | *Value* | *df* | *Asymp. Sig* |
|---|---|---|---|
| *Pearson Chi-Square* | 178.526 | 4 | .000 |
| *Likelihood Ratio* | 159.038 | 4 | .000 |
| *Linear-by-Linear Association* | 159.254 | 1 | .000 |
| N of Valid Cases | 1618 | | |

## Number of Dependent Children

In regard to the number of dependent children, online students with no children comprised 56.0% of the sample, while traditional students with no children comprised 82.7%. Online students with one child comprised 17.1% of the sample, while traditional students with one child comprised 8.9%. Online students with two children comprised 15.9% of the sample while traditional students with two children comprised 5.1%. Online students with three children comprised 8.3% of the sample, while traditional students with three children comprised 2.4%. Online students with four children comprised 1.8% of the sample, while traditional students with four children comprised 0.7%. Online students with five children comprised 0.9% of the sample, while traditional students with five children comprised 0.2%.

Table 8 presents the results of the Pearson Chi-Square test (Chi-Square = 117.412, p = .000), which indicate that there is a significant relationship between number of dependent children and type of student. This can be attributed to the fact that there is a significant relationship between marital status and type of student, as noted above.

**Table 8. Relationship between Number of Children and Type of Student**

| | ***Value*** | ***df*** | ***Asymp. Sig*** |
|---|---|---|---|
| *Pearson Chi-Square* | 117.412 | 5 | .000 |
| *Likelihood Ratio* | 103.929 | 5 | .000 |
| *Linear-by-Linear Association* | 104.933 | 1 | .000 |
| N of Valid Cases | 1624 | | |

## Race/Ethnicity

In regard to race/ethnicity, online Asian American students comprised 3.0% of the sample, while the traditional Asian American students comprised 4.5%. Online Black/African American

students comprised 6.0% of the sample, while traditional Black/African American students comprised 6.2%. Online White/Caucasian students comprised 84.7% of the sample, while traditional White/Caucasian students comprised 76.1%. Online Native American students comprised 1.5% of the sample while traditional Native American students comprised 0.5%. Online Pacific Islander students were not represented in the sample. Online other ethnic or race background students comprised 2.4% of the sample, while traditional other ethnic or race background students comprised 1.3%. Online Hispanic-Any Race students comprised 2.4% of the sample, while traditional Hispanic-Any Race students comprised 10.5%.

Table 9 presents the results of the Pearson Chi-Square test (Chi-Square = 33.076, p = .000), which indicate that there is a significant relationship between race/ethnicity and type of student. This is attributed to the majority of online students being White/Caucasian, while Hispanic-Any Race was more prevalent in traditional students.

**Table 9. Relationship between Race/Ethnicity and Type of Student**

| | ***Value*** | ***df*** | ***Asymp. Sig*** |
|---|---|---|---|
| *Pearson Chi-Square* | 33.076 | 6 | .000 |
| *Likelihood Ratio* | 40.663 | 6 | .000 |
| *Linear-by-Linear Association* | 10.941 | 1 | .000 |
| N of Valid Cases | 1607 | | |

## Spanish/Hispanic Origin

In regard to Spanish/Hispanic Origin, online students of this group comprised 3.3% of the sample, while the traditional students comprised 12.5%. Table 10 presents the results of the Pearson Chi-Square test (Chi-Square = 23.409, p = .000), which indicate that there is a significant relationship between Spanish/Hispanic origin and type of student. This is attributed to the majority of online students not being of Spanish/Hispanic origin.

**Table 10. Relationship between Spanish/Hispanic Origin and Type of Student**

| | ***Value*** | ***df*** | ***Asymp. Sig. (2-sided)*** | ***Exact. Sig. (2-sided)*** |
|---|---|---|---|---|
| *Pearson Chi-Suared* | 23.409 | 1 | .000 | |
| *Continuity Correction* | 22.451 | 1 | .000 | |
| *Likelihood* | 29.289 | 1 | .000 | |
| *Linear-by-Linear Association* | 23.395 | 1 | .000 | |
| N of Valid Cases | 1609 | | | |

## Family Income

For total family income, online students with under $12,499 comprised 6.0% of the sample, while traditional students comprised 12.3%. Online students with income between $12,500-$14,999 comprised 2.2% of the sample, while traditional students comprised 4.7%. Online students with income between $15,000-$12,499 comprised 1.9% of the sample, while traditional students comprised 4.3%. Online students with income between $17,500-$19,999

comprised 2.8% of the sample, while traditional students was comprised 1.8%. Online students with income between $20,000-$22,499 comprised 1.9% of the sample, while traditional students comprised 3.3%. Online students with income between $22,500-$24,999 comprised 2.5% of the sample, while traditional students comprised 4.9%. Online students with income between $25,000-$29,999 comprised 4.4% of the sample, while traditional students comprised 3.8%. Online students with income between $30,000-$34,999 comprised 4.7% of the sample, while traditional students comprised 4.3%. Online students with income between $35,000-$39,999 comprised 6.0% of the sample, while traditional students comprised 4.2%. Online students with income between $40,000-$49,999 comprised 9.9% of the sample, while traditional students comprised 6.9%. Online students with income between $50,000-$59,999 comprised 8.2% of the sample, while traditional students comprised 8.8%. Online students with income between $60,000-$74,999 comprised 16.8% of the sample, while traditional students comprised 11.0%. Online students with income over $75,000 comprised 32.7% of the sample, while traditional students comprised 29.7%.

Table 11 presents the results of the Pearson Chi-Square test (Chi-Square = 35.109, p = .000), which indicate that there is a significant relationship between family income and type of student. This is attributed to the majority of online students having income levels of over $40,000, while the majority of the traditional students have income levels under $12,499.

**Table 11. Relationship between Family Income and Type of Student**

| | ***Value*** | ***df*** | ***Asymp. SIg. (2-sided)*** |
|---|---|---|---|
| *Pearson Chi-Square* | 35.106 | 12 | .000 |
| *Likelihood Ratio* | 37.294 | 12 | .000 |
| *Linear-by-Linear Association* | 19.038 | 1 | .000 |
| *N of Valid Cases* | 1436 | | |

*Research Question 3*

Are there differences in the employment and occupational status of students who enroll in online courses compared to traditional on-campus students in the community college level?

In regard to employment status, the online students who had a full-time status comprised 59.8% of the sample, while the traditional students comprised 32.1%. The online students who had a part-time status comprised 26.3% of the sample, while the traditional students comprised 55.6%. The online students who are homemakers comprised 8.0% of the sample, while the traditional students comprised 2.9%. The online students who are not working for pay comprised 5.6% of the sample, while the traditional students comprised 9.1%. The online students who are retired comprised 0.3%, while the traditional students comprised 0.3%.

Table 12 presents the results of Pearson Chi-Square test (Chi-Square = 121.039, p = .000), which indicate that there is a significant relationship between employment status and type of student. Specifically, the majority of online students are of a full-time employment status, while the traditional students are primarily of a part-time employment status.

**Table 12. Relationship between Employment Status and Type of Student**

| | *Value* | *df* | *Asymp. SIg. (2-sided)* |
|---|---|---|---|
| *Pearson Chi-Square* | 121.039 | 4 | .000 |
| *Likelihood Ratio* | 120.137 | 4 | .000 |
| *Linear-by-Linear Association* | 31.117 | 1 | .000 |
| *N of Valid Cases* | 1617 | | |

**Occupational Status**

For occupational status, the online students who were business owners or managers comprised 3.3% of the sample, while the traditional students comprised 5.6%. The online students who were clerical workers comprised 10.8% of the sample, while the traditional students comprised 8.3%. The online students who were sales representatives comprised 4.2%, while the traditional students comprised 8.3%. The online students who were service workers comprised 1.8% of the sample, while the traditional students comprised 11.8%. The online students who were skilled laborers or foremen comprised 4.2%, while the traditional students comprised 5.0%. The online students who were professionals comprised 22.9%, while the traditional students comprised 5.2%. The online students who were educators comprised 7.2%, while the traditional students comprised 3.0%. The online students who were students comprised 16.2%, while the traditional students comprised 35.3%. The online students who were homemakers comprised 5.7%, while the traditional students comprised 2.3%. The online students who were retired comprised 0.3%, while the traditional students comprised 0.2%. The online students who were of the other occupational status comprised 23.4%, while the traditional students comprised 15.0%.

Table 13 presents the results of the Pearson Chi-Square test (Chi-Square = 192.672, p = .000), which indicate that there is a significant relationship between occupational status and type of student. Specifically, the majority of online students are of the professional status, while the traditional students are primarily of the student status.

**Table 13. Relationship between Occupational Status and Type of Studen**

| | *Value* | *df* | *Asymp. SIg. (2-sided)* |
|---|---|---|---|
| *Pearson Chi-Square* | 192.672 | 10 | .000 |
| *Likelihood Ratio* | 186.584 | 10 | .000 |
| *Linear-by-Linear Association* | 8.175 | 1 | .004 |
| *N of Valid Cases* | 1591 | | |

*Research Question 4*

Are there differences in educational characteristics (student status, highest level of education completed and college major) of students who enroll in an online course compared to the traditional on-campus course in a community college?

Online full-time students comprised 37.3% of the sample, while traditional full-time students comprised 70.8%. Online part-time students comprised 62.7% of the sample, while traditional part-time students comprised 29.2%.

### Student Status

Table 14 presents the results of the Pearson Chi-Square test (Chi-Square = 130.385, p = .000), which indicate that there is a significant relationship between student status and type of student. Specifically, the majority of online students are of a part-time student status, while the majority of traditional students are of a full-time student status.

**Table 14. Relationship between Student Status and Type of Student**

| | *Value* | *df* | *Asymp. Sig. (2-sided)* | *Exact Sig. (2-sided)* | |
|---|---|---|---|---|---|
| *Pearson Chi-Square* | 130.385 | 1 | .000 | | |
| *Continuity Correction* | 128.937 | 1 | .000 | | |
| *Likelihood Ratio* | 125.931 | 1 | .000 | | |
| *Linear-by-Linear* | 130.305 | 1 | .000 | | |
| *N of Valid Cases* | 1626 | | | | |

### Educational Level

In regard to educational level, for online students, high school graduate comprised 7.4% of the sample, while the traditional students comprised 31.2%. The online students who had taken some college courses comprised 66.9% of the sample, while the traditional students comprised 57.8%. The online students who had an associate degree comprised 7.7%, while the traditional students comprised 6.7%. The online students who had a bachelor's degree comprised 9.7%, while the traditional students comprised 2.3%. The online students who had a master's degree comprised 8.0%, while the traditional students comprised 1.6%. The online students who had a doctorate/professional degree comprised 0.3%, while the traditional students comprised 0.4%.

Table 15 presents the results of the Pearson Chi-Square test (Chi-Square = 135.970, p = .000), which indicate that there is a significant relationship between educational level and type of student. Specifically, the online students had at least taken at least some college courses and received college degrees, while the traditional students are primarily high school graduates.

**Table 15. Relationship between Educational Level and Type of Student**

| | *Value* | *df* | *Asymp. SIg. (2-sided)* |
|---|---|---|---|
| *Pearson Chi-Square* | 135.970 | 5 | .000 |
| *Likelihood Ratio* | 138.198 | 5 | .000 |

| | | | |
|---|---|---|---|
| *Linear-by-Linear Association* | 111.841 | 1 | .000 |
| *N of Valid Cases* | 1617 | | |

**College Major**

College major data were not crosstabulated as the data did not show up when sent through the Internet after respondents filled in the information. The frequencies are reported for the traditional students in the beginning of this chapter.

*Research Question 5*

Does an online student spend more time on the class on the average per week than a student who takes traditional courses on-campus in a community college?

To evaluate whether a student spends more time on an online course versus a traditional course, an independent t-test was run.

**Table 16. Hours Per Week on Classwork**

| | ***SECTCAT*** | ***N*** | ***Mean*** | ***Std. Deviation*** | ***Std. Error Mean*** |
|---|---|---|---|---|---|
| Average Class Time | Traditional | 1265 | 4.0397 | 2.8351 | 7.971E-02 |
| | Online | 339 | 5.1445 | 3.5173 | .1910 |

As seen in Table 17, with an F value of 17.325, Levene's Test for equal variances was rejected at p £ .000. Given this result, the t-test analysis was performed by not assuming equal variances.

**Table 17. Levene's Test for Equality of Variances for Hours Per Week on Classwork**

| | | **Levene's Test For Equality of Variances** | |
|---|---|---|---|
| | | F | Sig |
| Average Class Time | Equal variances assumed | 17.328 | .000 |
| | Equal variances not assumed | | |

As seen in Table 18, the t-value of -5.338, with 462.206 degrees of freedom, was significant at p £ .001. The significant difference is attributed to online students spending 5.15 hours per week on classwork and traditional students spending 4.04 hours per week on classwork.

**Table 18. Independent Samples Test for Hours Per Week on Classwork**

| **t-test for Equality Menus** | | | | | |
|---|---|---|---|---|---|
| | | **t** | **df** | **SIg. (2-sided)** | **Mean Difference** |
| Average Class Time | Equal variances assumed | -6.038 | 1602 | .000 | -1.1049 |
| | | -5.338 | 462.206 | .000 | -1.1049 |

| | | |
|---|---|---|
| | Equal variances not assumed | |

**Summary of the Findings**

Of the 1,302 surveys distributed to traditional students, all were returned, for a response rate of 100%. Of the 587 surveys distributed to online students, 340 were returned, for a response rate of 57.9%. Of the 1,642 returned surveys, all were usable and only a few surveys were missing demographic data.

The major findings of the study were as follows. The majority of the respondents were female, full-time students, less than 25 years of age, White/Caucasian, and had taken some past college courses. The most frequent major fields of study among respondents were business, education, computers, criminal justice, and accounting.

**Conclusions**

In this section, the researcher presents conclusions based on a comparison of the results of the data analysis with past research findings.

Online learners at this community college had several distinguishing characteristics. The online learners were predominately visual learners and spent, on the average, an hour more per week on classwork than did their traditional student counterparts. There also more women than there are men taking online classes. The online learners at this community college were primarily married or divorced and had children living at home. These findings are in keeping with Hickson and Baltimore (1996), who found that females have more of a preference for visual learning tasks than do males.

The findings of this study also support research by the American Association of University Women Educational Foundation (2001), which found that the average online student is a woman, 34 years old, employed part-time, and has previous college credits. This report also found that many of these women have children and take their online courses late at night, after their children are in bed, or early in the morning before work.

The results also indicated that online learners at this community college were typically White/Caucasian, not of Spanish/Hispanic origin, and 26 to 55 years of age. The average online learner's total family income of over $40,000 a year was higher than that of the traditional learner. Online learners were typically full-time workers, and their professional status was as a professional, educator, or "other" occupational category. Typical online learners had more education than their traditional learner counterparts, who had part-time student status. These findings are in keeping with those of the Distance Education and Training Council (DETC) (1998), which determined that the profile of the typical student is a median age of 31 years old, 48% percent male, and 90% employed at the time of course enrollment. Other studies have found that the majority of distance learners were at least 24 years old and employed (Sheets, 1992; Mngomezulu, 1999; Burton, 1999).

The traditional learners at this community college were primarily auditory or kinesthetic learners. Traditional learners were typically male, not married, under 25 years old, and had no dependent children living at home. They were White/Caucasian and more likely to be Hispanic-Any Race than were online learners. They also were more likely to be of Spanish/Hispanic origin then their

online counterparts. The typical traditional learner had a lower total family income than did online learners. The traditional learner had a part-time job status and was employed as a student, service worker, or sales representative. The traditional learner was a full-time student and had graduated from high school.

---

**References**


Akker, J. & Plomp, T. (1992). What kind of leadership stimulates the integration of information technology in education? *Teaching Education, 5*(1), 29-34.

Barsch, J. (1996). *Barsch learning style inventory (rev. ed).* Novato, CA: Academic Therapy Publications.

Bell, J. D. (1991). *Distance learning: new technology and new potential.* (ERIC Document Reproduction Service No. ED 355 927).

Burton, J. (1999). *The impact of networking on k-12 education reform.* Retrieved January 13, 2001 from the World Wide Web http://www.bev.net/project/researc/NSF99Report.html

Coggins, C. C. (1988). Preferred learning styles and their impact on completion of external degree programs. *American Journal of Distance Education, 2*(1), 25-37.

Dillman, D. A. (2000). *Mail and Internet surveys the tailored design method* (2nd ed.). New York: John Wiley & Sons, Inc.

Distance Education and Training Council. (1998, May). *1998 distance education survey, a report on course structure and educational services in distance education and training council member institutions.* Washington, D.C.: Michael P. Lambert, Executive Director.

Gordon, H. R. D. (1995). *Description of the productivity and learning style preferences of on- and off-campus distance education participants at Marshall University.* (ERIC Document Reproduction Service No. ED 390 308)

Gray, M. J., Vernex, G., & Rolph, E. (1996). Student access and the "new" immigrants assessing their impact on institutions. *Change, 28*(5), 41-47.

Hayes, K. G. (1995). *Distance learning policies in postsecondary education: a state-by-state assessment (coordination boards).* Unpublished doctoral dissertation, Oklahoma State University.

Hickson, J. & Baltimore, M. (1996). Gender related learning style patterns of middle school pupils. *School Psychology International, 17,* 59-70.

Impara, J. C. & Plake, B. S. (Eds.). (1998). *The thirteenth mental measurements yearbook.* Lincoln, NE: Buros Institute.

Kramarae, C. (2001). *The third shift women learning online.* Washington, DC: American Association of University Women Educational Foundation.

Martin, J. & Samels, J. E. (1995). The near and far of distance learning. *Trusteeship, 3*(2), 26-31.

Mngomezulu, C. (1999). *A descriptive study of selected characteristics and learning styles of selected cable television students.* Unpublished doctoral dissertation, North Carolina State University.

Price, G. E. (1983). Diagnosing learning styles. *New Directions for Continuing Education,* 19, 49-55.

Sheets, M. A. (1992). Characteristics of distance education students and factors which determine course and program completion: a review. *New Horizons in Adult Education, 6*(1), 3-14.

Toffler, A. (1980). *The Third Wave.* New York: Bantam Books.

University Continuing Education Association (UCEA). (2000). [Online] Available: http://www.nucea.edu

---

*Online Journal of Distance Learning Administration, Volume V, Number I, Spring 2002*

*State University of West Georgia, Distance Education Center*

Back to Journal of Distance Learning Administration Contents