ONLINE VERSUS TRADITIONAL INSTRUCTION IN A COMMUNITY COLLEGE

Sirpa H. Cossaboom, Grand Canyon University

ABSTRACT

The purpose of this quantitative causal-comparative study was to assess if online and traditional learning environments are similar and whether there are gender differences, as measured by final grades, within the scope of a community college psychology course taught by a single instructor using the same curriculum and learning materials. Bandura’s social learning theory guided this study, as it accounts for environmental, situational, and personal factors of learning. This study sought to answer two research questions utilizing quantitative methodology and causal-comparative study design. The sample (n = 266) consisted of pre-existing archival data for final grades from students enrolled in the same psychology course taught both online and in a traditional setting, by the same instructor for two semesters at a community college in southeastern Pennsylvania. The findings of this study show that online learning is equal to traditional learning and that there are no gender differences across settings within the scope of a community college psychology course. Future research should focus on any potential interaction between gender, learning environment, and underlying reasons for any differences in learning that may impact student educational achievement in community college general education.

Keywords: online instruction, traditional instruction, gender differences in learning

INTRODUCTION

While overall postsecondary enrollment has continued to fall according to the most recent United States Department of Education statistics (Ginder et al., 2019), enrollment in online or hybrid, versus traditional face-to-face courses, has tripled in recent years (Ginder et al., 2019; Seaman et al., 2018). Per the National Center for Education (Ginder et al., 2019), overall postsecondary enrollment dropped nearly half a percentage point from Fall 2016 to Fall 2017, whereas the number of students who took at least some courses online grew by 5.7% during the same time period (Ginder et al., 2019). Overall, a third of all students now take at least one online course. Thus, it is reasonable to expect that without online elements, or online education, college enrollment would decline even more. Yet, there is much debate about the relative efficacy of online education, particularly in a community college environment. Whether online instruction is effective in community colleges is an important question, because, as reported by the Community College Research Center (CCRC), that sector educates 49% of all undergraduates in the United States, (yet, community colleges are criticized for low graduation rates (Community College Research Center [CCRC], 2019). Thus, having the option of online instruction could improve retention rates.

Significance of the Study

There is a need to look at learning outcomes based on different settings—online or traditional—while and gender differences in these learning formats, to better understand if online instruction is equivalent to traditional instruction as measured by final grades (Umek et al., 2017) in a community college setting (Ryan et al., 2016). This study specifically looked at community
college archival data for final grades in one psychology course section that was taught by the same instructor in both online and traditional formats using the same curriculum and learning materials. Bandura’s (1971) social learning theory (SLT) framework provided the framework for this study because STL considers environmental, situational, and personal factors in learning.

Relevant Literature

Some prior studies reported that students taking online courses tend to perform substantially worse than students in traditional courses (Bettinger & Loeb, 2017; Johnson & Mejia, 2014; Xu & Smith-Jaggars, 2013) and that taking an online course may impact future performance and the likelihood of dropping out of college (McWilliams, 2019). These findings are contrasted by the no significant differences phenomenon (Fendler et al., 2018; Stack, 2015) and many conflicting findings (Adams et al., 2015; Bennett et al., 2019; Cavanaugh & Jacquemin, 2015). Yet, most prior studies have failed to control for confounding variables that may impact learning outcomes, such as curriculum effects, which refers to factors that may impact learning outcomes or final grades, such as comparing different courses taught by different instructors or using different curriculums or leaning materials. (Alducin-Ochoa & Vázquez-Martínez, 2016; Powers et al., 2016; Stromie & Baudier, 2017).

Stack (2015) was able to control for some curriculum effects, such as instructor and course selection, due to a rare situation where the students were accidentally assigned to an online and a traditional course sections taught by the same instructor. Yet, the sample in that study was fairly small (n = 66) and in contrast to the present study, Stack (2015) was not a psychology course study and was not done in a community college setting. In contrast to Stack (2015), Cavanaugh and Jacquemin (2015) completed a very large comparative study using a dataset that included over 5,000 courses taught by over 100 faculty members over a period of ten academic terms at a large, public, four-year university. In addition, with the exception of Bennett et al. (2019), most prior research has failed to collect gender data within these learning formats, yet gender differences in these learning environments may exist (Harvey et al., 2017; Spieler & Slany, 2018; Wayan, 2018).

Fundamental Concepts

It was not known if, and to what extent, there was a difference in learning outcomes, as measured by final grades, between online and traditional instructional methods, after controlling for curriculum effects, and whether these differences were similar or different for male and female students within the scope of a community college psychology course. The importance of this study was to help community colleges improve student satisfaction and retention by tailoring the best available instructional format for diverse populations to achieve academic success and retention (Cavanaugh & Jacquemin, 2015; Ryan et al., 2016; Sublett, 2018). Since most universities in the United States offer online programs (Seaman et al., 2018), and given the scope of students taught in this way (Ginder et al., 2019), it is crucial for educators and educational institutions alike to better understand the effectiveness of online learning, how to structure it, and what role gender plays (Harvey et al., 2017; Spieler & Slany, 2018). Same as this study, many prior studies have used final grades as a measure of learning outcomes (Brooker et al., 2018; Luce & Kirnan, 2016; Umek et al., 2017). Thus, final grades are a commonly used direct measure of learning outcomes.

The community college environment offered an ideal setting to collect data on comparative learning outcomes because it has a wide diversity of learners as compared to the traditional college environment (Ryan et al., 2016; Sublett, 2018). In addition, a psychology course provided a neutral learning environment that may appeal to many different learners who may not excel in more traditional areas such as mathematics or languages. Thus, the research gap addressed by the present study, by controlling for the curriculum effects, and while looking at any potential gender differences within these learning formats, is the need for more information on whether online and traditional learning formats are equal or if either learning environment produces better student learning outcomes in community college general education.

Bandura’s (1971) SLT guided this study because it accounts for environmental, situational, and personal factors in learning. The environmental and situational factors were included in the learning environment because an online or a
traditional learning environment may impact student learning outcomes. Then personal factors, such as gender, may impact learning outcomes, as noted by gender differences in fields such as information technology and other STEM related fields that tend to be male dominant (Spieler & Slany, 2018).

**Research Questions**

This quantitative causal-comparative study sought to answer two research questions:

**Research Question 1:** Is there a difference in learning outcomes between online versus traditional classroom instructional methods?

**Research Question 2:** Do these differences exist for male and female students after controlling for curriculum effects?

**METHODOLOGY**

This quantitative causal-comparative study consisted of an archival sample of students enrolled in one section of a psychology course that was taught by a single instructor in both online and traditional formats over two semesters at a large community college consisting of a main campus and eight satellite campuses in two counties in southeastern Pennsylvania. The selected research site is representative of community colleges in general, as it serves both urban and rural populations by offering a variety of courses to diverse populations. Thus, the results are generalizable to community college general education.

Three variables provided the parameters for this quantitative causal-comparative study: classroom setting (online or traditional), gender, and final grades. There were two groups for Research Question 1: student final grades in the online course and student final grades in the traditional course. There were four groups for Research Question 2: female students in an online class, male students in an online class, female students in a traditional class, and male students in a traditional class.

I analyzed the archival data for student final grades using a Mann-Whitney U-test and Kruskal-Wallis H-test for the two research questions. The nonparametric Mann-Whitney and Kruskal-Wallis tests were proper methodologies to analyze data for this study, because they allowed me to analyze pre-existing ordinal final grade data and look at differences, if any, between the two groups of students for Research Question 1 and between the four groups of students for Research Question 2 (Salkind, 2010).

I analyzed the each of the six separate groups independently using a nonparametric Mann-Whitney U-test and Kruskal-Wallis H-test. I analyzed Research Question 1 with Mann-Whitney U-test because the two groups that were compared were student final grades in an online setting versus student final grades in a traditional setting. I analyzed Research Question 2 with Kruskal-Wallis H-test because the four groups that were compared were male or female students in an online class and male or female students in a traditional class.

**Random Selection and Assignment**

Due to the nature of the archival data and student self-selection of courses, the students were not randomly assigned to the class sections. Still, such self-selection eliminates researcher bias. In addition, the students in both the online and the traditional class sections had the same course materials and curriculum because the community college controls the course materials and the master course outline for each course (see Appendix B). In addition, both the online and the traditional courses were assigned three credits per the college administration (see Appendix C). Thus, I reasonably assumed that the instructor, who had taught the same course in both the online and traditional format abided by the college mandated curriculum and learning goals.

I selected one course section (course number two), which had been taught by the same instructor in both the online and traditional formats, from the archival data set provided by the community college. This satisfied the research goals and the a priori sample requirements per the G*power software calculation (Faul et al., 2007). The course selection criteria were that the same instructor had taught the same course in both online and traditional formats, that both courses were assigned three credits by the college administration to control for the curriculum effects, and that the a priori sample size requirement (n = 180) was satisfied. I selected instructor number six (and course number two) because the instructor had a
sufficient number of students (n = 266) to satisfy the a priori requirement (see Appendix A).

**DATA ANALYSIS AND FINDINGS**

This quantitative causal-comparative study sought to answer if there is a difference in learning outcomes between online and traditional classroom instructional methods and whether these differences exist for male and female students after controlling for curriculum effects. The sample for this study was provided by the community college and included students from seven psychology courses that were taught by six instructors in both online and traditional formats for two semesters. The final sample that I selected included final grade data for students from course number two, which was taught by instructor number six for two semesters, because that instructor had the most students in both the online and traditional formats.

The nonparametric Mann-Whitney and Kruskal-Wallis procedures were used due to the ordinal format of the final grade data. The Mann-Whitney U-test analysis is a nonparametric analog of a t-test, and since two analyses were required, one for each IV, the alpha level was required to be adjusted to 0.05/2 = 0.025. For a one-way ANOVA, this would have resulted in a projected minimum sample size of n = 156. As the accepted rule of thumb is that the nonparametric version of a parametric analysis requires a sample that is approximately 15% larger, the true minimum sample size for this study was 156*1.15 ≈ n = 180 (Appendix A). Since instructor six had 266 students in course number two (n = 266), the a priori sample size requirement was satisfied.

**Descriptive Statistics**

The frequency distribution of gender, class setting, and grade is illustrated in Table 1. There were more online than traditional students represented, and the sample was overwhelmingly female, which makes the statistical analysis for gender slightly more difficult to interpret. The majority of grades were As and Bs.

Frequency breakdowns by IV are illustrated in Tables 2 and 3. Table 2 reveals that the treatment group sizes were heterogeneous; however, the groups were not homogenous because there were more online students than traditional students and more females than males in both the online and traditional groups. In addition, more than half of the sample were females in the online setting. The data in Table 3 indicate that there were more As and Bs in the traditional than in the online class for both males and females.

**Data Assumptions Testing**

The primary data analysis procedure used to address the research questions and the associated hypothesis tests was the Mann-Whitney U test and Kruskal-Wallis H test. These are nonparametric analyses that require four data assumptions. This section includes a description of the assumptions tests performed on the data to ensure that the Mann-Whitney U analysis and Kruskal-Wallis H analysis could be used. The Mann-Whitney U and Kruskal-Wallis H procedures require satisfying the following data assumptions:

1. There is one dependent variable that is measured at the continuous or ordinal level.
2. There is one independent variable that consists of two or more categorical, independent groups.
3. There must be independence of observations.
4. The researcher must determine whether the distribution of scores for all groups of the IV have the same or different shape.

I had to determine whether the distribution of scores for each group of IVs had the same or a different shape, which determined how the results of the analysis were interpreted. Assumptions 1 through 3 were met based on the mechanics of the design; the DV is ordinal and the IVs are categorical with two groups each. Additionally, independence was satisfied based on the fact that no student could be in more than one IV group. Then, the distribution of scores for each group of IV had the same shape, as can be seen from the inspection of a population pyramid (Appendix D) and a boxplot (Appendix E). Thus, I could compare group medians.

**RESULTS**

The results of the data analyses are summarized in Table 4. With the adjusted alpha of .025, neither group differences were statistically significant. Results by research question are discussed in the following sections.
The results summarized in Table 4 indicate that the null hypothesis for Research Question 1 could not be rejected. The answer to the research question is that, based on the data obtained, there was not a statistically significant difference in final course grades between students in a traditional versus an online classroom, taught by the same instructor, in a community college psychology course in southeastern Pennsylvania. Because statistical power for a nonparametric analysis is not easily interpreted or calculated in a straightforward manner, power was not examined.

The results summarized in Table 4 indicate that the null hypothesis for Research Question 2 could not be rejected. The answer to the research question is that, based on the data obtained, there was not a statistically significant difference in final course grades between male and female students in a traditional versus an online classroom, taught by the same instructor, in a community college psychology course in southeastern Pennsylvania. The approximation of the interaction here was done using the nonparametric Kruskal-Wallis procedure to substitute for an ANOVA analysis due to the ordinal nature of the DV. Because statistical power for a nonparametric analysis is not easily interpreted not calculated in a straightforward manner, power was not examined.

The Kruskal-Wallis test showed that the mean ranks of the final grades were not statistically significantly different between the four groups: The traditional male group (f(x) = 108.79) and the traditional female group (f(x) = 147.71), and the online male group (f(x) = 143.65) and the online female group (f(x) = 131.04); (\(\chi^2(3) = 6.814, p = 0.078\)). Thus, I concluded that there were no statistically significant differences in final course grades between male or female students in a traditional versus an online classroom within the scope of a community college psychology course in southeastern Pennsylvania.

**DISCUSSION**

The results of the Mann Whitney U-test performed to assess if there was a difference between the learning environment (i.e., online vs. traditional) based on the final grades revealed no statistically significant differences between the online (f(x) = 133.97) and traditional groups (f(x) = 132.57); (\(\chi^2(2) = 7836.5, p = 0.884\)). This means that the online courses are equal to traditional courses because there were no statistically significant differences between the courses as measured by final grades.

The Kruskal-Wallis H-test performed to assess if there was an interaction between male and female students in the online and traditional setting, as measured by final grades, revealed no statistically significant differences. The Kruskal-Wallis test showed that the mean ranks of the final grades were not statistically significantly different between the online and traditional male and female groups (\(\chi^2(3) = 6.814, p = 0.078\)). Although the Kruskal-Wallis H-test revealed that the online male students, f(x) = 143.65, had slightly higher mean rank than female students, f(x) = 131.04, this result may be due to the male online group consisting only of 41 males, where the female group had 135 students. Yet, this result was not statistically significant. These findings revealed that there is no statistically significant difference in final course grades for male or female groups in an online or a traditional psychology course. Thus, I accepted the null hypothesis and rejected the alternative hypothesis for Research Question 2.

A Kruskal-Wallis test was conducted to determine, if there were differences in final grades between groups that differed in their type of educational environment and gender: Online male (n = 41), traditional male (n = 35), online female (n = 135), and traditional female (n = 55) groups. Distributions of final grades were similar for all groups, as assessed by visual inspection of a box plot. Thus, final grades were not statistically significantly different between the different groups, \(\chi^2(2) = 6.814, p = .078\). Pairwise comparisons using a post hoc analysis were not performed, because the overall test was not significant. Thus, I could not reject the null hypothesis for Research Question 2, because there were no statistically significant differences across settings, or in final course grades between online or traditional and female or male students per the Kruskal-Wallis test results.

This study provided empirical evidence that the learning outcomes of an online learning environment are equal to those of a traditional learning environment and that there is no relationship between gender and setting.
that theory takes into account environmental, social, and personal factors of learning.

**FUTURE RESEARCH AND IMPLICATIONS**

This study found that online students performed equally well compared to traditional students and that female students performed equally well to male students in a community college psychology course. Although there are many conflicting findings in the literature about the effectiveness of online versus traditional learning (Brooker et al., 2018; Luce & Kirnan, 2016), this study concurs with the prior studies that have found that online learning produces equal learning outcomes compared to traditional learning (Cavanaugh & Jacquemin, 2015; Stack, 2015). This study conflicts with the prior studies at community colleges, which have found that students tend to do significantly worse in online than in traditional courses (Bettinger & Loeb, 2017; Johnson & Mejia, 2014; Xu & Smith-Jaggars, 2013).

In addition, this study looked at the personal factor of gender across settings and found that there were no significant differences, but the main effect of gender was not assessed. In specific, this study found no gender differences across settings in a community college psychology course because male and female students performed equally well in an online and a traditional psychology course. Thus, this study added to the body of knowledge by showing that males and females performed equally well in a psychology course, which allows future researchers to investigate other underlying factors that may create a difference in community college courses.

The findings of this study contribute to the collective body of research tending to show that online learning is equal to traditional learning and that there are no gender differences across settings within a scope of a community college psychology course. Thus, based on the findings of this study, future research should focus on any potential interaction between gender, learning environment, and underlying reasons for any differences in learning that may impact student educational achievement in community college general education.

There are a number of implications based on the results of this study. Some of the implications relate to the theoretical framework upon which the research was based, but there are also some practical implications that may be meaningful to educators as well as future implications that may be meaningful to researchers.

**Theoretical Implications**

Bandura’s (1971) social learning theory (SLT) guided this study since it focuses on the environmental, situational, and personal factors of learning. The environmental, situational, and personal implications were incorporated into the research questions, because the independent categorical factors that were tested were the online versus traditional learning environment and gender. The theoretical implications encompass the interpretation of the findings in the extant literature framework.

The results provide an answer to the two research questions and reveal some theoretical implications. The data analysis indicates that there are no statistically significant differences in final course grades between students in a traditional versus an online classroom, or between male or female students across settings, within the scope of a community college psychology course. These findings tie in with the social learning theory (SLT) (Bandura, 1971), because per that theory environmental, situational, and personal factors may impact learning outcomes.

**Practical Implications**

The results of this study indicate that online learning provides equal or similar academic outcomes when compared to traditional learning in community college general education, because this study found that there were no statistically significant differences between learning environment and gender on student achievement as measured by final grades. These findings have practical utility because the results showed no significant differences between the learning environment and gender on student performance as measured by final grades. Since this study found there were no significant differences across settings, educators and academic institutions alike can market online courses as equivalent to traditional courses to increase student learning options.
**Future Implications**

This study indicates that the learning environment, across genders, does not impact student final grades in a community college psychology course. Thus, future research should focus on any other potential underlying factors, such as student economic status, ethnicity, or culture, that may impact student academic achievement, graduation, and retention rates in a community college setting. As a result, it would be beneficial for future researchers, educators, and educational institutions alike to investigate:

1. Whether any gender differences in performance exist in other community college courses, such as in language arts or mathematics, within the online and traditional environments.
2. Whether other factors, such as economic status or ethnicity, may impact performance in community college courses within the online and traditional environments.
3. Whether course load, or full-time versus part-time status, may impact performance in community college courses within the online and traditional environments.

**Strengths and Weaknesses of the Study**

A strength of this study is that the data source was archival and therefore there was no researcher bias. Another strength is that the college where the research was conducted was a large and diverse community college with an urban main campus and nine rural and urban satellite campuses. In addition, the community college research site controls the learning materials and the curriculum, which made it easier for me to control for the confounding variables, i.e., the curriculum effects. Another strength is that the community college research site was able to provide multiple courses and instructors for the unit of analysis. Due to the large student population in this community college, I was able to obtain a fairly large student sample while still being in control of the curriculum effects as noted. Thus, a strength of this study is that the courses were taught by the same instructor, using the same curriculum and learning materials, and final grades are commonly used as direct and valid measure of student learning outcomes, as seen in the literature (Brooker et al., 2018; Luce & Kirnan, 2016; Umek et al., 2017).

A weakness of this study is that I was not able to obtain continuous numeric final grade data to be able to run an ANOVA analysis of variance. However, this limitation did not significantly impact the study results, because the nonparametric Mann-Whitman and Kruskal-Wallis procedures approximate the ANOVA analysis. Thus, the major conclusions of this study, that there is no statistically significant differences in final course grades between male and female students across settings in a psychology course, are valid as they reliably and credibly reflect the outcome of the research questions as noted given the methodology, research design, data analysis, and results as discussed.

**RECOMMENDATIONS**

Future research should focus on other potential factors, such as economic status, course load, culture, and other burdens that may impact student academic achievement. Thus, I recommend that:

1. Future research should investigate if cultural differences impact student academic achievement because of the global reach of online learning and other personal factors that may impact learning outcomes (Kumi-Yeboah, 2018; O’Brien & Battista, 2019; Rinties et al., 2012). For example, Kumi-Yeboah (2018) discussed a cross-cultural collaborative online learning framework that would incorporate elements such as cultural awareness activities, inclusion of global examples, and internationalized curriculum. Thus, to expand the global learning environment offered by online technologies, such an expansion of learning research is needed.
2. Future research should investigate if student course load and hours worked in outside employment impact student performance in an online environment. If so, future research should investigate where the threshold is between hours worked and course load and how that will impact academic achievement.
3. Future research should also investigate what impact economic status has on student performance in the online learning environment.
4. Future research should also investigate whether student age has an impact on student performance in the online environment, because community colleges educate students with a wide age disparity.

5. Future qualitative studies should examine student perceptions of each type of setting, or how well the students feel they learn the course material in the different settings, because such underlying factors may shed light on the reasons behind differences in learning outcomes (Nortvig et al., 2018).

6. Future qualitative studies should also examine if a specific learning modality is preferred by different genders within a specific content area. This will expand this area of interest to shed light on how to improve learning modalities in the future.

It may be beneficial for educators and educational institutions alike to further examine or address gaps in online and traditional education. The next steps in forwarding this line of research relate to investigating any interaction between learning environment and other factors, such as course load versus hours worked, full- or part-time status, cultural factors, subject matter or content issues, socio-economic status, prior experience with online learning, level of self-efficacy, motivation, and self-determination. Such research would highlight any specific issues that may impact student educational achievement in online education.

Based on the results of this study, future research would investigate the factors noted above that may impact educational achievement and learning outcomes in community college online courses. For future practice to achieve this, community college administrators, educators, and educational institutions alike that seek to increase student achievement should:

1. Promote online elements and online enrollment by teaching parents and students about the benefits of online learning, such as its self-paced, self-selected, and self-directed learning, which can be synchronous or asynchronous (Papadima-Sophocleous & Loizides, 2016). In an asynchronous online setting, learning can occur when it is most convenient, but such activities can also enhance traditional courses. In addition, online education can support and accommodate different learning styles and different populations (Hroncich, 2019). Advanced online tools can provide real-time assessments (Papadima-Sophocleous & Loizides, 2016) without geographical barriers, and online learning enhances computer and internet proficiency. Business Wire (2019) reports that the global academic elearning market will near $152 billion by 2026. Thus, online learning and skills are a necessary part of modern life, including access to information, communication, and collaboration, which are necessary for learning and success in the global marketplace.

2. Investigate how to incorporate more online active learning elements into traditional courses, because such elements will enhance the learning capacity of different students and allow for flexibility in access to learning tools. As Carvalho et al. (2018) noted, students learn better when engaged in active learning activities. Such active learning elements can be incorporated in traditional courses by using online elements in learning activities. Thus, online elements can enhance traditional courses.

3. Invest in supplemental online learning systems that allow students in traditional learning settings additional resources outside of the traditional classroom setting to bolster their learning.

4. Investigate why students chose one modality over the other and identify if there are gender differences in the rationale.

5. Research what students and instructors identify as critical online skills that lead to student success in an online class setting with the goal of helping colleges improve online learning outcomes and retention rates for different populations.

In sum, these recommendations are made to improve online learning outcomes and student achievement for different populations, who may benefit from understanding their own limitations and for educators and educational institutions alike to improve student success. Overall, since
this study found that online education is equivalent to traditional education, community college educators can market online learning to improve student options, satisfaction, and retention rates, by offering more online courses to different populations. Such online course options should improve overall community college graduation rates in the global learning environment.
REFERENCES


McWilliams, J. (2019, February 28). Online courses are cost effective but detrimental to learning researchers find. Pacific Standard. https://psmag.com/education/online-courses-are-cost-effective-but-detrimental-to-learning-researchers-find


APPENDIX A

Sample Size Analyses

![G*Power 3.1.9.4 interface showing sample size analysis for Mann-Whitney tests]

**G* Power a priori Sample Size Analysis for Two Mann-Whitney Tests.**
XX Community College Academic Learning Goals

XX Community College’s competency-based degree and certificate programs have been designed to offer graduates the knowledge, skills, and abilities needed to perform competently in their area of study.

Our degree programs include three types of competencies—College Academic Learning Goals, Program Outcomes, and Course Competencies. The nine College Academic Learning Goals (CALGs) are broad statements of the learning opportunities that are included in every degree program. Program Outcomes describe the specific skills and knowledge included in particular degree programs. Course competencies describe the specific knowledge and skills included in particular college courses.

Since the focus is on skills, knowledge and abilities rather than courses, there is no mandatory set of courses that every graduate will take to complete the general education portion of a degree program. Instead, each degree program, career and transfer, has been designed by the College’s faculty to meet these goals. The goals are met either by general education courses or by required program courses that have been designed to meet one or more of the learning goals.

Each degree program guides its graduates to achieve the College Academic Learning Goals in the way that is most reasonable and helpful to students in that field of study. The courses that meet the goals are part of, not in addition to, the program. The nine College Academic Learning Goals are:

- **Critical Reasoning**: Graduates will demonstrate critical reasoning.
- **Diversity and Social Justice**: Graduates will demonstrate an understanding of inequality, oppression, power, privilege, and the struggle for social justice faced by historically marginalized people.
- **Global Understanding**: Graduates will demonstrate the ability to recognize and analyze global topics and issues.
- **Information Literacy**: Graduates will demonstrate the ability to find, evaluate, and communicate information found in the course of their research.
- **Information Technology**: Graduates will demonstrate the ability to use information technology.
- **Oral Communication**: Graduates will demonstrate the ability to communicate orally by delivering and receiving messages competently.
- **Quantitative Reasoning**: Graduates will demonstrate the ability to apply mathematical concepts and quantitative reasoning to solve problems.
- **Scientific Inquiry**: Graduates will demonstrate a conceptual and a quantitative understanding of natural science disciplines and develop scientific inquiry skills.
- **Written Communication**: Graduates will demonstrate the ability to compose coherent, evidence-based academic writing.
XX Community College Academic Learning Goals Designated Courses

XX Psychology

Course Description

This course is a one-semester introduction to the basic principles and major theoretical approaches that are used to explain human behavior, with emphasis on understanding and application of such principles and theories as they relate to ourselves and our surroundings.

Upon successful completion of this course, students should be able to:

• Explain the nature of psychology and describe the methods used by psychologists to study behavior.
• Identify the major physiological structures involved in the study of behavior.
• Identify the principles of sensation and perception.
• Describe current theories of learning and thinking explaining their influence in education, life-span development, and other life situations.
• Describe the major trends in explaining human emotion and motivation and how they are assessed.
• Identify the major theories of human personality and development.
• Evaluate the impact of major trends in analyzing ourselves, interpersonal and social relationships and the origins, classification and treatment of mental disorders.
• Explain the relationship among physiology, perception, learning, cognition, motivation, and personality, applying them to understanding life situations.

College Academic Learning Goal Designation: Critical Reasoning (CR)
Credit Hours: 3
Lecture Hours: 3
Population Pyramid

Independent-Samples Mann-Whitney U Test

Setting

Online
N = 176
Mean Rank = 133.97

Traditional
N = 90
Mean Rank = 132.57

Grade

Frequency

Grade

Frequency

Population Pyramid for Independent-samples Mann-Whitney Test.
Box Plots for Kruskal-Wallis H-test

**Independent-Samples Kruskal-Wallis Test**

<table>
<thead>
<tr>
<th>Group</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>f2f_male</td>
<td></td>
</tr>
<tr>
<td>f2f_female</td>
<td></td>
</tr>
<tr>
<td>online_male</td>
<td></td>
</tr>
<tr>
<td>online_female</td>
<td></td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total N</td>
<td>246</td>
</tr>
<tr>
<td>Test Statistic</td>
<td>6.814</td>
</tr>
<tr>
<td>Degrees of Freedom</td>
<td>3</td>
</tr>
<tr>
<td>Asymptotic Sig. (2-sided test)</td>
<td>.078</td>
</tr>
</tbody>
</table>

1. The test statistic is adjusted for ties.
2. Multiple comparisons are not performed because the overall test does not show significant differences across samples.

*Independent-samples Kruskal-Wallis H-test for Traditional Male, Traditional Female, Online Male, and Online Female Students*