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## Comparing experiences, perceptions, and achievement of students in fully online and web-enhanced courses to assess differences in course quality

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COMPARING EXPERIENCES, PERCEPTIONS, AND ACHIEVEMENT OF STUDENTS IN  
FULLY ONLINE AND WEB-ENHANCED COURSES TO ASSESS  
DIFFERENCES IN COURSE QUALITY

A Dissertation

by

JOSE A. BANDA

Submitted to the Graduate College of  
The University of Texas Rio Grande Valley  
In partial fulfillment of the requirements for the degree of

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May 2019

Major Subject: Curriculum and Instruction



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May 2019



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## ABSTRACT

Banda, Jose A., Comparing Experiences, Perceptions, and Achievement of Students in Fully Online and Web-Enhanced Courses to Assess Differences in Course Quality. Doctor of Education (Ed.D.), May, 2019, 95 pp., 9 tables, 2 figures, references, 110 titles, 2 appendices.

The purpose of this study was to assess the differences in course quality between fully online college courses and web-enhanced face-to-face college courses by comparing student experiences, perceptions, and achievements. The researcher collected data from students at a two-year college in Texas regarding their learning experiences and outcomes in 21 fully online and 12 web-enhanced face-to-face sections of nine core courses common to all programs of study.

The research was conducted with 281 students enrolled in general education classes. Student participants used the *Chico Rubric for Online Instruction* from California State University (2009) to evaluate each of the core courses they were enrolled in during the Spring 2015 semester. The researcher used the Mann-Whitney U test to analyze the student's responses on the *Chico Rubric for Online Instruction*, student responses on end-of-course evaluations were analyzed using a nonparametric binomial test, and Spearman's rank-order correlation was used end-of-course grades to investigate differences in student experiences and perceptions of course quality and student achievement. The overall findings showed no statistical differences in student



experiences, perceptions, or academic achievement between fully online courses and web-enhanced face-to-face courses, indicated no differences in the quality of the courses. As a result, the finding of this study cannot be generalized.

Keywords: *Web-enhanced face-to-face courses, online instruction, student perceptions, learning outcomes, student achievement.*

## DEDICATION

The completion of my doctoral studies would not have been possible without the love and support of my family. My wife Jessica, my daughters Briana, Crystal, and Jeani, who inspired, motivated, and encouraged me to complete this journey. Thank you for your love and patience.



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## CHAPTER I

### INTRODUCTION

As technology has improved, the delivery of online courses has changed significantly. Colleges and universities offer online courses as a cost-effective alternative to the traditional classroom, as well as to increase educational access to students who cannot attend class in person. Pitler, Hubbell, Kuhn, and Malenoski (2007) suggested that technology use in the classroom could have an additional positive influence on student learning when learning goals are articulated. Also, Allen and Seaman (2014) state that the number of online courses has dramatically increased in the United States in recent years, with one-third of students in higher education taking at least one online course.

Driscoll, Jicha, Hunt, Tichavsky, and Thompson (2012) argued that understanding the effectiveness of online learning environments is an issue of growing importance and debate. As Hurt (2008) noted that understanding students' experiences in online classes is important for the successful implementation of teaching strategies that are commonly used in online instruction.

In addition to fully online courses, many institutions of higher education offer web-enhanced face-to-face courses. Delialioglu and Yildirim (2007) reported several names for web-enhanced learning, including hybrid instruction, mediated learning, technology-enhanced learning, and web-assisted instruction. Osguthorpe and Graham (2003) defined web-enhanced learning as a form of instruction that combines a face-to-face learning environment with distance

delivery systems to maximize the benefits of both face-to-face and online methods. Also, the transition of instructional modality from face-to-face to web-enhanced courses vary for every course because of the nature of the instructional goals, student characteristics, and instructor background are unique to the participants in these courses. Delialioglu and Yildirim (2007) argued that there is a need to examine the effectiveness of blended or web-enhanced courses. Thus, with the development of technology, it is important to research the effects of both fully online and web-enhanced learning environments on student achievement and perceptions of course quality.

The access to online learning has accelerated with the development of technology. According to Bataineh, Brooks and Bassoppo-Moya (2005) students in online learning environments need support, structure, and interaction. Additionally, Lao and Gonzales (2005) argued that it is important to recognize instructors and students' experiences to help instructors design and prepare online courses and to assist students with achieving meaningful and positive learning experiences. They also point to the fact that student attitudes and perceptions about online classes help administrators at institutions of higher education make changes to improve the quality of courses offered.

Picciano (2002) stated that student perceptions of how well they learn, as determined by performance measures such as grades and withdrawal rates, indicated a correlation between the interaction in online courses and student satisfaction is high. Student satisfaction is important because these perceptions may be the determining factors in students' decisions to continue to pursue coursework and other learning opportunities. In another study on students' experiences, Hurt (2008) found that students who took online courses reported both positive and negative

experiences. Some of the negative experiences included students' feelings of isolation, technology issues, and students' lack of technical skill; while some of the positive experiences included increased student opportunities for student interaction, flexibility, and better time management. In another study on student achievement, Angiello (2010) found that students who participated in online courses performed academically higher than students taking the same course through traditional face-to-face instruction did. Thus, in order to address some of the differences between traditional face-to-face and online learning environments, it is important to understand the challenges and experiences of students in online learning environments.

### **Statement of the Problem**

Educators are looking for ways improve the quality of instruction in their web-enhanced learning environments and developing better fully online courses. Hamman, Pollack, and Wilson (2012) argued that research has underscored the importance of understanding the benefits of using online learning environments for developing positive student perceptions' in online instruction.

Researchers have compared student achievement and satisfaction between online and face-to-face learning environments and have found mixed results (Allen & Seaman, 2014; Delialioglu & Yildirim; 2007, Frantzen, 2014; Russell et al., 1994; Summers, Waigandt & Whittaker, 2005). Frantzen (2014) states that when appropriately integrating the content with technologies, it is as effective as traditional methods in promoting student learning, achievements and supporting student's understanding of abstract and complex concepts. Through technology educators are expanding student's perspectives and creating opportunities for student learning. The purpose of this study was to compared student experiences, perceptions, and academic



achievement in fully online and web-enhanced face-to-face learning environments to assess any differences in course quality between the two instructional modalities.

### **Statement of the Purpose**

The purpose of this study was to compare the quality of fully online college courses versus web-enhanced face-to-face college courses as measured by student experiences and perceptions of, and academic achievement in, such courses. The researcher utilized the questions below to guide this comparison.

### **Research Questions**

1. Is there a difference in experiences of course quality between students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses as measured by the *Chico Rubric for Online Instruction* (2009)?
2. Is there a difference in perceptions of course quality between students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses as measured by end-of-course evaluations?
3. Is there a difference in academic achievement between students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses as measured by end-of-course grades?

### **Null Hypotheses**

1. There is no statistically significant difference between mean scores on the *Chico Rubric for Online Instruction* (2009) assigned by students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses.

2. There is no statistically significant difference between scores on end-of-course evaluations assigned by students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses.
3. There is no statistically significant difference in end-of-course grades between students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses.

### **Research Hypotheses**

1. There is a statistically significant difference between mean scores on *Chico Rubric for Online Instruction* (2009) assigned by students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses.
2. There is a statistically significant difference between scores on end-of-course evaluations assigned by students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses.
3. There is a statistically significant difference in end-of-course grades between students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses.

### **Limitations of the Study**

Like most studies, this research had limitations and this section acknowledges these limitations. The following limitations may have affected the results of this study.

1. A small sample of a population of students who were attending a two-year technical college were used and, therefore included only core academic courses in this study; the researcher did not include technical courses in this study.

2. The researcher limited the study to 12 fully online and 21 web-enhanced face-to-face sections in nine core courses that were common to all programs of study. These were the only courses where the same instructor taught all sections of the course, regardless of instructional modality, using identical resources and assignments to teach both versions of the course. The researcher did not include students enrolled in other fully online or face-to-face courses in the study. Using a small sample size may limit the generalizability of the findings.
3. The data were collected by using a convenience sampling method; randomization and matching were not possible since students self-enroll in their courses.
4. There were no training for the study participants to use the *Chico Rubric for Online Instruction* (2009) and this may have affected the quality of the results.
5. The end-of-course evaluations were comprised of a two-question survey distributed and collected by a third party organization. These evaluations might not have been the most suitable end-of-course evaluation for addressing course quality.
6. The college where the study occurred reports academic performance through letter grades of A, B, C, D, and F. The college does not report numeric grades as final course grades. Letter grades are categorical data and are, therefore, not as precise as numeric grades.

### **Definitions of Terms**

For the purpose of this study, the researcher used the following definitions:

**Fully online courses.** Fully online courses are courses that are delivered entirely over the internet.

**Learning environment.** Learning environment refers to the locations, contexts, and cultures in which student learning ranges from components and activities in which learning occurs. The term is used to define a variety of settings or alternative classroom settings in addition to the traditional classroom.

**Mean of means.** Mean of means is the term used by the researcher to indicate the average mean of all participants' mean scores for the all six categories of the *Chico Rubric of Online Instruction* (2009).

**Student perceptions.** Student perceptions are the students' reflections of the course as perceived by the student.

**Web-enhanced face-to-face courses.** Web-enhanced courses are courses that are taught face-to-face but are enhanced by the use of the internet and various Learning Management Platforms. Students complete their course work through an online site developed specifically for their course. Web enhancement is any form of technology used to aid instruction, including multimedia slide presentations, discussion forums, wiki's, and social networking. These courses may involve online activities such as chat, discussion boards, online quizzes, and online group collaborations.

### **Summary**

This chapter presented an introduction to the study that discussed the following: (a) the need for the study, (b) the statement of the problem, (c) the purpose of the study, (d) the research questions and research hypotheses addressed in the study, (e) the limitations of the study, and (e)

the definitions of terms. The following chapter presents a review of the literature relevant to the study.

## CHAPTER II

### LITERATURE REVIEW

#### **Introduction**

The purpose of this study was to compare the quality of fully online college courses versus web-enhanced face-to-face college courses as measured by student experiences and perceptions of, and academic achievement in, such courses. Because the researcher sought to identify student perceptions, student achievement, and course design of fully online and web-enhanced courses, the relevant literature review is divided into five sections: (a) web-enhanced learning environments, (b) fully online learning environments, (c) assessing online/web-enhanced course quality, (d) the *Chico Rubric of Online Instruction* (2009), and (e) a framework for improving course quality. A summary of the literature review will conclude this section.

The majority of colleges and universities are offering some form of web-based or online instruction (Palloff & Pratt, 2007). Students gained access to either fully online or web-enhanced instruction through the development of online course management software. The development of the Internet and the advancement of technologies have influenced education systems and online learning is a part of the transformation of higher education (Bach, Haynes, & Smith, 2007).

The development of fully online courses and web-enhanced face-to-face courses in higher education raises questions about the effectiveness of the two learning environments, mostly as it pertains to student perceptions and student achievement. The issues that influence

the efficacy of the two learning environments relate to students' perceptions of the course design and students' achievement compared to their counterparts who are taking traditional face-to-face courses.

According to Frantzen (2014), there are questions as to whether the popularity of technology-driven applications across different course modalities positively influences student learning outcomes and perceptions. Frantzen observed that very few studies have examined how the various course modalities affect the students' learning experiences, outcomes, and perceptions of fully online or web-enhanced courses. As Reiser and Dempsey (2012) reported, attempts to simultaneously separate education by modality (web-enhanced and fully online learning), geography (distance vs. face-to-face), and time (asynchronous vs. synchronous) have been difficult. However, they argue that expansion of online learning in both fully online and web-enhanced courses in higher education has clearly had an impact on student perceptions, achievement, and course design (Reiser & Dempsey, 2012).

### **Web-Enhanced Learning Environments**

The Texas Higher Education Coordinating Board (2014) defines a web-enhanced course as a class in which “a majority (more than 50 percent but less than 85 percent) of the planned instruction occurs when the students and instructor(s) are not in the same place” (para. 1).

According to Cennamo, Ross, and Rogers (2002), web-enhanced courses provide students with control over their learning, as well as with online access to materials, discussions, course content, and assessments. Wingard (2004) stated that there are some advantages of web-enhanced courses, including

- Students are motivated when they have responsibility for their learning.

- Students can review materials on their own time.
- Web-enhanced learning can accommodate a variety of learning styles.
- Students can interact inside and outside the classroom environment.
- Instructors get to know their student and can evaluate students' progress.
- Students may feel more comfortable to contributing to online discussions.
- Wider access to media and tools allows for a more elaborate discussion of course content.

Web-enhanced environments are different learning experiences for students than the traditional classroom approach (Wingard, 2004). In 2012, Gee and Reis estimated that 79% of public institutions of higher education in the United States were utilizing blended, web-enhanced, or hybrid course offerings. In web-enhanced courses, the learners have the opportunity for face-to-face interaction with the instructor, while students in fully online courses typically do not. Additionally, Hayward (2004) looked at students' experiences and perceptions of learning and concluded that students' communication and perceptions were different in online learning environments. According to Hayward, web-enhanced instruction is a strategy that can foster deeper thinking about an assignment and provide opportunities for the student to share their ideas with others.

The existing literature shows the benefits for students in practical web-enhanced instructional learning environments and there has been an increased use of web-enhanced learning environments. However, there is a lack of detailed and empirical studies on the learning process in web-enhanced learning environments (Delialioglu & Yildirim, 2007). Wilson-Jones and Caston (2006) examined the attitudes of undergraduate education majors in two different



courses regarding the courses' effectiveness. In one course, the instructor used traditional face-to-face instructional strategies while the instructor of the other course used a web-enhanced learning environment. The instructor of the web-enhanced course presented the majority of the course assignments, lecture material, projects, and exams in an online learning management system (LMS). Wilson-Jones and Caston found that 44% of the students surveyed preferred traditional instructional delivery compared to 56% of the students preferring web-enhanced instructional delivery.

Aguirre and Mitschke (2011) evaluated student perceptions regarding the integration of web-based tools with face-to-face instruction, as well as the relationship of the frequency of student access to web-based tools, to their understanding of the course. They contended that their study would be helpful to instructors considering incorporating web-based instruction into a course design. They used a variety of web-based tools in the learning management platform to increase interaction among students and instructor, which included email and discussion boards. The authors found that the use of these web-based tools increased student interaction with the content in the learning management platform and they concluded that web-enhanced instruction might create a meaningful and productive learning experience (Aguirre and Mitschke, 2011).

### **Fully Online Learning Environments**

Mayadas and Miller (2014) defined online learning environments as a course conducted online, with no required face-to-face sessions and no requirements for on-campus activity. The authors also stated that these environments “consist entirely of online elements that facilitate the three critical student interactions: with content, the instructor, and other students” (para. 17). Compared to traditional classroom environments, online courses eliminate geography as a factor

in the relationship between the student and the institution (Mayadas & Miller, 2014).

Additionally, online instruction involves interactions with a class that can be synchronous or asynchronous, thus eliminating both the need to be in the same place and the same time.

Various researchers have examined aspects of teaching and learning in online education. A significant amount of research has focused on evaluating the effectiveness of online courses in contrast to face-to-face courses (Buckley, 2003; Parker & Germino, 2001). According to Cohen (1999), a Learning Management Systems enhances the student learning experiences. Aragon (2003) observed that the literature regarding online education “indicates that institutional support, interaction with faculty and evaluation, and assessment are crucial for successful online education” (p. 23).

The development of online courses raises questions on the quality of fully online courses compared to traditional face-to-face learning environments regarding student perceptions, student achievement, and course design (Ya Ni, 2012). Warren and Holloman (2005) examined two graduate courses with the same course requirements and the same instructor; one was a fully online class, and the other was a face-to-face class. The authors found that there was no significant difference in course satisfaction or grade distributions between the two learning environments. Frantzen (2014) also found that online course design delivery had no statistically significant difference on student outcomes compared to traditional face-to-face courses, although past academic success and hours completed had the largest effects.

Bernard et al. (2009) conducted a study on interaction in online education and concluded that interactions of all kinds benefit learner outcomes and course satisfaction; however, student achievement was statistically significantly higher in online courses. Additionally, Peterson and

Bond (2004) observed that students who took online courses perceived that they learned more than their counterparts in face-to-face instruction did. However, the results of Peterson and Bond's study did not show a statistically significant difference in students' academic performance. Summers et al. (2005) examined the differences in students' final grades and student satisfaction between online and traditional classroom instruction in an undergraduate statistics course at a Midwestern university. The authors concluded that there were no statistically significant differences in student satisfaction or student achievement.

Jones (2012) explored online courses and proposed that course evaluations can provide useful information for faculty to identify actions that may improve students' perceived satisfaction. However, Jones observed that students lack the ability to gauge teaching effectiveness because they do not have a sufficient understanding of instruction. In addition, course evaluations do not measure students' learning, which predicts better teaching effectiveness and course design.

According to Ternus, Palmer, and Faulk (2007), a consistent standard of quality instruction would provide uniform student experiences in online course environments. Clark (1983) proposed that the quality of education is dependent on the pedagogy and design of the instruction, rather than the delivery. Boettcher and Conrad (2010) argued that teaching in an online environment was still in the growing stage. They compared achievement, perceptions, and course evaluations of students enrolled in web-enhanced face-to-face courses and fully online courses taught by the same instructor. According to the authors, courses with a primary focus on content place importance on the teacher's actions, rather than on the interactions with the students and their engagement with the core concepts and skills of the course. They found that a

number of online teaching practices contribute to an effective, efficient, and satisfying instruction and learning experience for the faculty and the students. Instructors that follow these practices increase learning opportunities. Thus, Boettcher and Conrad laid out 10 best practices for teaching in an online environment:

1. Be present at the course site.
2. Create a supportive online course community.
3. Develop a set of specific expectations for your learners and yourself as to how you will communicate and how much time students should be working on the course each week.
4. Use a variety of large group, small group, and individual work experiences.
5. Use synchronous and asynchronous activities.
6. Ask for informal feedback early in the term.
7. Prepare a discussion post that invites responses, questions, discussions, and reflections.
8. Search out and use content resources that are available in digital format, if possible.
9. Combine core concept learning with customized and personal learning.
10. Plan a proper closing and wrap activity for the course. (p. 37)

Studies, such as that conducted by Summers et al. (2005), suggest that pedagogical issues are more important than logistical matters in determining course satisfaction and achievement between students who experience face-to-face instruction and those that take online courses. Learning involves social interaction, negotiation, and collaboration to increase cognitive growth and understanding (McLoughlin & Marshall, 2000). According to McLoughlin and Marshall, the design principles and resources that support learning include articulating goals; fostering self-regulation; promoting learner development of independent study strategies; creating an environment of self-reflection, peer support, and communication; and providing relevant

feedback. Additionally, Boettcher and Conrad (2010) proposed that an effective strategy for developing supportive online instruction is to design an equal balance of dialogues in courses between faculty to the learner, learner to learner, and learner to resources.

Picciano (2002) sought to investigate students' perceptions of how much they learn in an online course. He examined students' participation in online classroom discussion to measure student presence and utilized an end-of-course survey to gauge the students' perceptions. The conclusion of the author was that there was a relationship between students' perceptions of the quality and quantity of interaction and perceived performance in an online classroom environment. However, comparing student interaction to actual performance, the results were not consistent because there was a difference between the amount and quality of interaction with other students and the instructor compared to traditional face-to-face courses.

Driscoll et al. (2012) focused on an introductory sociology course taught by the same instructor in both fully online and traditional face-to-face courses. The materials and evaluations were constant over different semesters and between the various course sections. Driscoll et al. concluded that there was no significant difference in student satisfaction between students taking fully online courses and students taking the traditional face-to-face courses. The fact that students in both fully online course and traditional face-to-face courses were satisfied supports the idea that the online courses are successful in promoting active student learning. Additionally, Dobbs, Waid, and Del Carmen (2009) found that the perception of students in online courses indicated that they considered their online course to be as challenging as traditional courses.

Some issues that affect students in fully online environments include the feeling of isolation, poorly designed courses, communication difficulties, lack of program support, and

difficulty with the technology (Gleason, 2004). Furthermore, Gleason proposed that poorly designed courses might be detrimental to student retention in online courses. Gleason argued that some students do not have the needed motivation or self-discipline for online courses, and some instructors lack the technical skill required to run online classroom environments. According to the author, a successful online program requires a delicate balance of student, faculty, program design, and administrative support (Gleason, 2004). Lowe (1991) defines learner support as quality material, appropriate delivery technology, and material resources. Lowe contended that academic support, along with relational support, encourages, motivates, and nurtures the learning process.

### **Assessing Online/Web-Enhanced Course Quality**

#### **Using Course Grades to Assess the Relationship Between Course Quality and Academic Achievement**

Institutions of learning often use end-of-course grades as an indicator of academic achievement and many researchers have used them to assess overall course quality. O'Brien, Hartshorne, Beattie, and LuAnn (2011) examined education majors in a fully online asynchronous course and a web-enhanced course. They investigated students' academic performance between the two modes of instruction. The results indicated that there was no statistically significant difference between student performance in the web-enhanced face-to-face course compared to the traditional face-to-face course that was not web-enhanced. Aly (2013) also examined academic achievement between fully online accounting courses and a web-enhanced classroom environment. The author found that the academic performance of students

receiving online instruction was comparable to that of the students in the web-enhanced learning environment.

Sweat-Guy and Wishart (2008) used a casual-comparative design to examine the effects of course design on student performance in businesses courses in both the traditional face-to-face and online learning environments. They concluded that there is no evidence of a statistically significance difference between the final grades and the quality of course delivery.

Guidry (2015) reported that there are many discussions regarding the performance of students enrolled in fully online courses compared to traditional face-to-face courses. The author studied students taking a higher-level financial business management course with delivery methods of both fully online and web-enhanced face-to-face. The descriptive statistical analysis and the multiple regression analysis in the Guidry (2015) study showed that students who took the courses fully online performed academically the same as students who took the web-enhanced face-to-face courses on campus.

Urtel (2008) also explored differences in academic performance between students taking a traditional face-to-face course and fully online courses. The author found that course design, content, instructors, and assessments were consistent between the two modalities. However, Urtel found that freshman academic achievement performance was significantly different between the two modalities and that online freshmen students scored lower grades than students who were taking the traditional face-to-face courses.

Eom and Wen (2006) examined factors that affect the perceived learning outcomes and student satisfaction in fully online courses using a forty-two question survey from the Individual Development and Educational Assessment developed by Kansas State. The researchers e-mailed

the survey to 1,854 students enrolled in fully online courses in a university in the Midwestern United States. Eom and Wen (2006) concluded that six factors significantly influence students' satisfaction: class structure, self-motivation, learning styles, instructor knowledge and facilitation, interaction, and instructor feedback. The authors found no significant difference in the relationship between online course structure and perceived learning outcomes, or between student's self-motivation and perceived learning outcomes.

### **Using Course Evaluations to Assess the Relationship Between Course Quality and Student Satisfaction**

End-of-course evaluations are the most commonly used metric for evaluating online instruction in colleges and universities (Pina and Bohn, 2013). Pina and Bohn (2013) surveyed instructors and students to determine what measures higher education institutions use to evaluate the quality of online faculty. They asked participants to validate nine visible indications of online instructor quality that ranged from the frequency of instructor logins to instructor feedback. They sampled 368 students and professors that participated in online course instruction and found that institutions of higher education primarily use student surveys to assess online faculty. The authors concluded that as the number of online courses continues to increase, the efforts to determine how best to evaluate these courses also need to increase.

Du and Wu (2014) also examined student satisfaction in fully online and traditional face-to-face learning environments, using introductory accounting courses. The authors argued that interaction is one of the most important components of the learning experience and that it is essential to consider behavioral and cognitive elements when designing quality courses. They



concluded that student evaluations improved with increased instructor interactions, suggesting that human interaction was associated with greater satisfaction.

In another study that examined student experiences, Nichols (2011) compared student perceptions of course design and professors in both fully online and traditional face-to-face formats. The author asked students to assess their courses and instructors with an end-of-course evaluation, which was the same for both formats. Using a two-response questionnaire that focused on the course design and the professor efficacy, Nichols asked the students to rate the following statements on a scale of:

1. The design/organization of this course effectively facilitated my learning.
2. I would highly recommend this professor to other students. (p. 867)

The author concluded that online instruction had less to do with the instruction and more to do with the work habits of students.

Stowell, Addison, and Smith (2012) investigated differences in students' evaluation rating between students enrolled in online classes compared to those in traditional face-to-face classes. The authors studied the relationships between high grades and favorable student end-of-course evaluations. They found that there was no significant difference in the distribution of grades between online and traditional face-to-face classroom modalities. The mean score of online students' end-of-course evaluations was identical to the mean score of the traditional face-to-face classroom evaluations (Stowell et al., 2012).

Addison, Best, and Warrington (2006) studied 71 students enrolled in a fully online statistics class and 86 students enrolled in a face-to-face psychology class. The authors compared the students' perceptions of their teacher's effectiveness and the students' perceptions of the

difficulty of the course in an end-of-course evaluation. They conducted a one-way analysis of covariance and a chi-square test of independence on the data and found that students who earned higher grades rated their instructors higher than those who received lower grades did. Similarly, Addison et al. (2006) concluded that students who considered the class easier evaluated their instructor more favorably.

Stewart, Waight, Norwood, and Ezell (2004) conducted a study on 191 students enrolled in seven fully online courses in the Department of Human Development and Consumer Science at a large urban university. The authors used a correlation analysis and found a statically significant difference between students' college experience in online courses and the end-of-course evaluations. About 75% of the students in the study concluded that the course design was developed well, compared to 22.75% that believed that the class lacked organization in their design (Stewart et al., 2004).

In another study that utilized end-of-course evaluations, Roach and Lemasters (2006) investigated the level of satisfaction with online learning compared to the perceived quality of the course design in both traditional face-to-face and online course delivery in an Educational Administration and Leadership graduate program. The authors administered end-of-course evaluations to seven classes, including two face-to-face classes and five online classes. They ran a comparative analysis of the mean scores for each question on the evaluations and the results indicated that there were no statistically significant differences between the online courses and the traditional face-to-face courses.

Bollinger and Martindale (2004) also used end-of-course evaluations to measure student satisfaction in online courses. The authors surveyed 507 participants enrolled in a technology

graduate course at a university in the southeastern United States. The analysis indicated that the standard deviations for the mean scores were relatively minor and there was no statistically significant difference. A correlation coefficient analysis of the end-of-course survey showed that teacher communication, feedback, preparation, content knowledge, teaching methods, encouragement, accessibility, and professionalism were important indicators for student satisfaction in online learning environments. The authors concluded that the most important factor for student satisfaction in the online environment was the instructor. The authors also argued that, although student satisfaction did not correlate with student achievement, satisfaction contributes to motivation, and motivation predicts student success. It is important to note that course evaluations do not measure students' learning, which is a more accurate assessment of teaching effectiveness (Bollinger and Martindale, 2004).

### **The Chico Rubric for Online Instruction**

With the increasing number of online programs, institutions of higher education have a growing need to evaluate the quality of the online courses. The practical evaluation of fully online and web-enhanced face-to-face course design and instruction quality is important to institutions of higher education. According to Chao, Saj, and Tessier (2006), the most common tools for gauging course quality are surveys and course evaluations in which instructors, learners, and sometimes administrators, provide perceptions, opinions, and/or experiences. Chao et al. argued that the data collected from these surveys and course evaluations only touch on some aspects of a course's quality. These aspects mostly relate to teaching and learning, including how an instructor performs in class or how the learning experience affects learners.

Chickering and Gamson (1987) proposed seven principles for good instructional practices in undergraduate education. Originally written to communicate best practices for face-to-face instruction, the principles translate to online education and can guide designing online courses (Dreon, 2013). The Seven Principles for Good Practice in Undergraduate Education address student-faculty contact, cooperation among students, active learning, giving prompt feedback, time on task, communicating high expectations, and respecting diverse talents and ways of learning (Chickering & Gamson, 1987). The Committee for Online Instruction at Chico State University drew from these seven principles to create the *Chico Rubric for Online Instruction* (2009) to address the need for demonstrating quality in online instruction and for setting guidelines for developers of online teaching. The *Chico Rubric* is a tool for institutions of higher learning to encourage a discussion about the way students learn, as well as to use in the development and evaluation of online courses.

The authors of the *Chico Rubric* proposed that institutions of learning use it to provide: (a) criteria for evaluation and recognition of exemplary courses, (b) a means of self-evaluation for faculty to improve their courses, and (c) guidelines for new course development (Chico.edu, 2009). One benefit of using the *Chico Rubric* in course evaluation is that feedback for each area can help course designers and instructors create a plan for improving fully online or web-enhanced courses. California State University, Chico argued that the evaluation system provides an opportunity to share best practices and recognize faculty for their effort in creating a high-quality course. They developed the *Chico Rubric* as a tool for use in evaluating the design of a fully online or blended course. The rubric is not a checklist according to Sederberg (2003); it is a

guideline that clearly describes exemplary online instruction. The six categories of the *Chico Rubric* are below.

### **Category One. Learner Support and Resources**

Category 1. Learner Support and Resources: (a) the course contains extensive information about being an online learner and links to campus resources; (b) the course provides a variety of course resources, contact information for instructor, department, and programs; and (c) the course offers access to a wide range of resources supporting course content and different learning abilities. (CSU Chico, 2009, p. 2)

Summers et al. (2005) suggested that information resources are more important to students enrolled in online courses than students in face-to-face courses. McLoughlin and Marshall (2000) identified resources that support learning as: articulating goals to students, fostering self-regulation, and supporting learner development of independent study strategies. According to Steinbronn and Merideth (2008), higher education institutions that assist faculty and students in accessing a variety of course materials efficiently by creating, maintaining, and updating a diverse set of shared resources have greater success.

### **Category Two. Online Organization and Design**

Category 2. Online Organization and Design: (a) the course is well-organized and easy to navigate; Students can clearly understand all components and structure of the course; (b) the course syllabus identifies and clearly delineates the role the online environment will play in the total course; (c) aesthetic design presents and communicates course information clearly throughout the course; (d) all web pages are visually and functionally

consistent throughout the course; and (e) accessibility issues are addressed throughout the course. (CSU Chico, 2009, p. 3)

Crews and Butterfield (2014) found that students reported that class structure, which includes the organization of course design, clear expectations, class schedule, and flexibility, had the most positive impact on online learning experience. Additionally, Dykman and Davis (2008) proposed that it is important to standardize the structure and organization of course requirements and pedagogical operations as much as possible, and that advanced planning is critical to assuring a quality online experience for both the instructor and the students.

### **Category Three. Instructional Design and Delivery**

Category 3. Instructional Design and Delivery: (a) the course offers ample opportunities for interaction and communication student to student, student to instructor, and student to content; (b) the course goals are clearly defined and aligned to learning objectives; (c) learning objectives are identified, and learning activities are clearly integrated; (d) the course provides multiple visual, textual, kinesthetic and auditory activities to enhance student learning and accessibility; and (e) the course provides multiple activities that help students develop critical thinking and problem-solving skills. (CSU Chico, 2009, p. 4)

According to Major and Taylor (2003), establishing learning objectives ensures the alignment of, and the avoidance of gaps in, the scope and sequence of the curriculum. The authors proposed that the best practices for online delivery include outcomes-based learning; facilitating higher-level thinking; psychomotor learning and skill development; and a shift in focus from teaching to the use of student-centered participation and active learning, facilitated by instructional technologies. Additionally, Evans and Lockeed (2008) contended that designers of

online courses should consider the organization, development, presentation, delivery, design, and evaluation of online instruction. They observed that institutions of learning expect instructors to be proficient in technological options for instruction, but with so many choices, decisions on instructional design and delivery can be overwhelming.

#### **Category Four. Assessment and Evaluation of Student Learning**

Category 4. Assessment and Evaluation of Student Learning: (a) the course has multiple timely and appropriate activities to assess student readiness for course content and mode of delivery; (b) learning objectives, instructional and assessment activities are closely aligned; (c) ongoing multiple assessment strategies are used to measure content knowledge, attitudes and skills; (d) regular feedback about student performance is provided in a timely manner throughout the course; and (e) students' self-assessments and peer feedback opportunities exist throughout the course. (CSU Chico, 2009, p. 5)

Ludwig, Bentz, and Fynewever (2011) argued that course feedback provides information that instructors and students can use to assess themselves and each other, and to modify teaching and learning activities. Additionally, as Nicol and Macfarlane-Dick (2006) argued, feedback has implications for the way teachers support learning in that it helps the student take control of their learning by becoming self-regulated learners.

#### **Category Five. Innovative Teaching with Technology**

Category 5. Innovative Teaching with Technology: (a) the courses use a variety of technology tools to appropriately facilitate communication and learning; (b) new teaching methods are applied and innovatively enhance student learning, and interactively engage students; (c) a variety of multimedia elements and learning objectives are relevant to

accommodate different learning styles throughout the course; and (d) the course optimizes internet access and effectively engages students in the learning process in a variety of ways throughout the course. (CSU Chico, 2009, p. 6)

According to Porter, Pitterie, and Hayney (2014), online courses offer advantages to students when compared to traditional classroom settings. Students in online courses learn course materials at their own pace and have more time to review and engage with course materials. However, in a study conducted at the University of Wisconsin, Porter et.al (2014) concluded that there was no statistically significant difference in academic achievement between students in fully online courses and students in web-enhanced face-to-face classes. The authors conducted the study on participants in pharmacy immunization courses and administered a 28-question survey that focused on technology preference and course delivery format. They observed that students in fully online courses spend more time online than students in web-enhanced face-to-face courses did. The authors also argued that institutions must implement innovative teaching delivery methods and use instruction and learning methods that meet the needs of diverse learning preferences.

### **Category Six. Faculty Feedback**

Category 6. Faculty Feedback: (a) instructor offers multiple opportunities for students to give feedback on course content; (b) instructor offers multiple opportunities for students to give feedback on ease of online technology and accessibility of course; and (c) instructor uses formal and informal student feedback on an ongoing basis to help plan instruction and assessment of student learning throughout the semester. (CSU Chico, 2009, p. 7)



Bonnel (2008) proposed three types of feedback for optimizing opportunities for course improvement: course design, faculty roles, and student participation. According to Bonnel, when structuring online course design, feedback needs to be part of the teaching plan. In addition, Bonnel argued that a positive learning environment provides numerous opportunities for feedback. The instructor's role is to provide students with valuable feedback regarding their progress and to provide guidance (Bonnel, 2008). The students' responsibility is to seek feedback from both instructors and peers, in addition to learning how to provide peer feedback (Bonnel, 2008).

According to Berryhill and Durrington (2006), higher education has created online learning environments that require faculty to adapt to new methods of teaching and communicating with their students. An online course requires that the faculty learn how to use new technologies, how to present material, evaluate activities, and provide feedback to students (Berryhill & Durrington, 2006).

The rapid growth of online instruction promises to be a dominant source of distance education. Therefore, the interest in assessing quality online education has grown. McDaniel (2004) used the *Chico Rubric* at Middle Tennessee State University to help assess course quality. The author applied the rubric to courses taught by sixty faculty members and found two variables that had significant effects on course quality: level of technical ability, and online teaching experience. McDaniel reported that instructors with high technical skills did not receive a higher rating on instructional qualities in online courses than those without such skills. Thus, he argued that face-to-face faculty could thrive online with adequate support.

Rees (2011) contended that the *Chico Rubric* is a useful guide before, during, and after the development of an online course. She suggested that course developers could use the *Chico Rubric* to develop courses that are purely asynchronous or blended with both synchronous and asynchronous components. Thus, institutions of higher education use the *Chico Rubric* to design or evaluate fully online or web-enhanced face-to-face courses.

### **Developing a Theoretical Framework for Improving Course Quality**

According to Akhavan and Arefi (2014), there is a need for a systematic and comprehensive approach to instructional design to ensure that students achieve learning outcomes and objectives when using online courses. Khan (2001) provides several recommendations to instructional designers to use when developing online instruction.

Khan (2001) argued that information technology provides an opportunity to create well designed, learner-centered, engaging, meaningful, and flexible e-learning environments. He developed a framework for online learning that course developers have used to create an effective online learning experience for diverse learners, and focuses on the following eight dimensions:

1. Institutional dimension is deals with issues of administrative affairs such as organization and change, accreditation, budgeting, and information technology services, instructional development and media services, marketing pedagogical, technological, interface design, evaluation, management, resource support, and ethical.
2. The pedagogical dimension of online learning refers to teaching and learning. This dimension addresses issues concerning goals/objectives, content, design approach, organization, methods and strategies, and medium of online learning environments.
3. Resource support dimension examines the online support such as instructional/counseling support, technical support, career counseling services, other online support services, and resources of the learning environments.

4. Technological dimension of the framework examines issues of technology infrastructure in online learning environments. This includes infrastructure planning, hardware, and software.
5. Interface design refers to the overall look and feel of online learning programs. Interface design dimension encompasses page and site design, content design, navigation, and usability testing.
6. Evaluation for online learning includes both assessments of learners and evaluation of the instruction and learning environment.
7. The management of online learning refers to the maintenance of learning environment, and distribution of information, environment, and distribution of information.
8. Ethical considerations of online learning related to social and cultural diversity, bias, geographical diversity, learner diversity, information accessibility, etiquette, and the legal issues. (para. 3)

Akhavan and Arefi (2014) identified challenges and issues faced by instructional designers when designing and evaluating the effectiveness of learning objectives. They argued that learning objectives are a necessary part of instructional design in order to ensure that students achieve learning outcomes. Similarly, Dee (2007) stated that course design needed to be learner-centered and systematic. Thus, quality course design is essential for the success of student learning.

### **Summary**

Various researchers have compared fully online and web-enhanced learning environments. According to Parker and Germino (2001), a significant amount of research has focused on evaluating the effectiveness of online courses in contrast to face-to-face classes.

Summers et al. (2005) found that there were no statistically significant differences in student satisfaction or achievement between students in courses with an online component and students in traditional face-to-face courses with the same instructor. Similarly, Warren and

Holloman (2005) found that there was no significant difference in course satisfaction or grade distributions between face-to-face and online courses. Additionally, Russell et al. (1994) contended that delivering the same content through online education and face-to-face classes using technology would not minimize instruction as long as it is practical and economically feasible.

The current study seeks to contribute to the literature and fill in gaps regarding student perceptions, students' evaluation of course design, and student achievement in an online learning environment. As online education expands, so does the need to identify practices and tools that are beneficial to quality online educational experiences. Based on the research, the framework illustrated in Figure 1 highlights recommended best practices to consider when developing an online education initiative.



*Figure 1.* Framework for best practices in the online learning environment.

For this study, the literature reviewed included: (a) web-enhanced learning environments, (b) fully online learning environments, (c) assessing online/web-enhanced course quality, (d) the *Chico Rubric for Online Instruction* (2009), and (e) a framework for improving course quality. In the following chapter describes the methodology for this research study.

## CHAPTER III

### METHODOLOGY

#### **Introduction**

As previously explained, the purpose of the study was to compare students' perceptions about the quality of fully online college courses versus students' perceptions about the quality of web-enhanced face-to-face college courses. The researcher addressed the following research questions:

1. Is there a statistically significant difference between course quality, based on the evaluations of students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses as measured by the *Chico Rubric for Online Instruction* (2009)?
2. Is there a statistically significant difference between perceptions of the quality of course design of students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses as measured by end-of-course evaluations?
3. Is there a statistically significant difference between the academic achievement of students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses as measured by end-of-course grades?

## **Research Design**

The researcher utilized a comparative research design to test the hypotheses in this quantitative cross-sectional study. The researcher examined the following nine academic core courses, 12 sections of which were fully online and 21 sections of which were web-enhanced face-to-face: (a) College Algebra, (b) Composition I, (c) United States History I, (d) Spanish I, (e) Spanish II, (f) Introductory Sociology, (g) Art Appreciation, (h) Texas Government, and (i) Principles of Macroeconomics.

### **Population of Study**

The researcher sent invitations to participate in this study to 281 students taking fully online courses and 645 students taking web-enhanced face-to-face courses. The total number of returned surveys of the *Chico Rubric for Online Instruction* (2009) included 168 for the web-enhanced face-to-face and 106 for the fully online courses. All participants were enrolled in one of the 12 fully online and 21 web-enhanced face-to-face core academic course sections in the spring 2015 semester. In each of the nine courses in this study, the same instructor taught both the fully online and web-enhanced sections using the same materials and resources.

According to the Texas State Technical College 2013 Annual Report, the number of students enrolled in 2013 was 5,911, with 52% identifying as male and 48% female (TSTC, 2014). Of the students enrolled, 89% identified as Hispanic while the other 11% consisted of various other ethnicities. Additionally, 46% of enrolled students were first generation college students and 53% were under Pell Grant financial status. The participants in this study were pursuing an Associates of Applied Science degree or a Certificate of Completion program. Table 1 shows the demographics composition of research participants in this study.

Table 1

*Demographic Characteristics of Participants (N=274)*

Characteristics	Number	Percentage
Gender		
Males	90	33
Females	184	67
Modalities		
Web-enhanced face-to-face	168	61
Fully Online	106	39
Semesters in College		
1 to 2 semesters	90	33
3 to 4 semesters	77	28
5 plus semesters	107	39

**Informed Consent and Confidentiality**

Following the approval of the Institutional Review Board at the University of Texas Rio Grande Valley and at Texas State Technical College, the Office of Research and Effectiveness at Texas State Technical College sent out a consent form to participants of this study (see Appendix A). The Office of Research and Effectiveness provided the forms electronically. Once the participants completed the surveys, the Office of Research and Effectiveness at Texas State Technical College collected the data. The Office of Research and Effectiveness forwarded the results for each participant electronically in a secure data file to the researcher for analysis.

**Instrumentation**

The Committee for Online Instruction at Chico State University created the *Chico Rubric for Online Instruction* (2009), an instrument designed to evaluate quality in online course design. The *Chico Rubric* also addresses the development process for fully online and web-enhanced

face-to-face courses. Calderon, Ginsberg, and Ciabocchi (2012) utilized the *Chico Rubric* to assess the quality of web-enhanced learning environments and found that it yielded excellent reliability. Over 90 colleges and universities including California State Los Angeles, Humboldt State University, and California State University Chico have used the rubric. In addition, Krause, Dias, and Schedler (2015) argued that the *Chico Rubric* “demonstrates quality in online instruction” (para. 9) and that the rubric can be used to design or evaluate either fully online or web-enhanced courses.

There are six categories in the *Chico Rubric*, which include:

1. Learner support and resources
2. Online organization and design
3. Instructional design and delivery
4. Assessment and evaluation of student learning
5. Innovative teaching with technology
6. Faculty use of student feedback.

Each category contains descriptors and students can score each category according to three levels of achievement. For statistical computations, these three levels of achievement assigned the score values of: 1 – baseline, 2 – effective, and 3 – exemplary. As shown in Appendix B, student participants evaluating the quality of the 12 fully online and 21 web-enhanced face-to-face academic core course sections that were part of this study completed the *Chico Rubric*.

### **Data Collection**

Near the end of the spring 2015 semester, the Office of Research and Effectiveness of the college where the study was conducted sent student participants an internet link via email for



accessing the *Chico Rubric* to evaluate their courses. The Office of Research and Effectiveness then invited students to submit the completed scored rubric to an electronic database. The survey included questions about student I.D., number of semesters completed by the student, gender, and which courses they were evaluating. In addition, the Office of Research and Effectiveness asked the participants to complete an open-ended question--*Which learning environment (fully online or web-enhanced face to face) do you think is better?* The Office of Research and Effectiveness informed the students that their participation was voluntary and that the results of the data remained anonymous. In addition, the researcher collected official end-of-course evaluation data, as well as the end-of-course grades for the 33 core course sections in the study for comparative analysis as described below.

### **Data Analysis**

The researcher used convenience sampling to collect data; randomization and matching were not possible because students self-enrolled in their courses. The researcher conducted statistical analyses for each of the three sources of data separately, although the discussion holistically combines all three sources.

### **Chico Rubric for Online Instruction (2009)**

The independent variable was course delivery mode with two levels: web-enhanced face-to-face and fully online. The dependent variable was the mean of mean scores from the rubric, which includes seven calculations: the mean of total rubric mean scores for each survey, and mean scores for each of the six categories across surveys. The researcher used the Mann-Whitney U test to compare the total mean of mean score of web-enhanced face-to-face versus fully online course evaluation scores provided by students through the *Chico Rubric*. Fraenkel and Wallen

(2003) defined the Mann-Whitney U test as “a non-parametric inferential statistic used to determine whether two uncorrelated groups differ significantly” (p. 4). Given the small sample size of this study, the Mann-Whitney U was a more suitable test than other tests available.

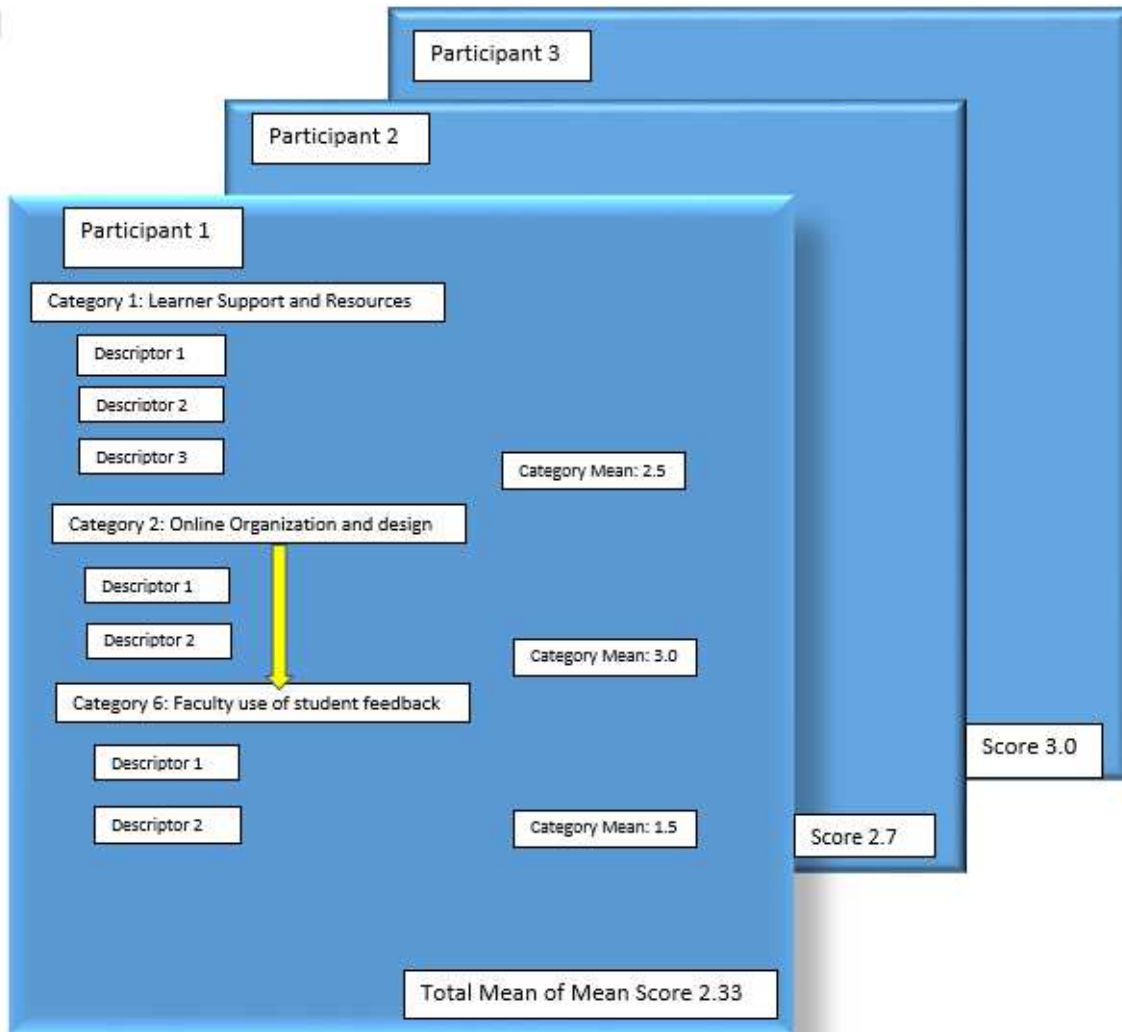


Figure 2. A graphic demonstration of how the researcher calculated means for the Chico Rubric survey.

For each of the two course delivery modes, the researcher used the Mann-Whitney U test to compare the mean scores individually for each of the six categories of the *Chico Rubric*. As demonstrated graphically in Figure 2, the mean score for each course mode was calculated by

taking the total mean of each of the six categories of the *Chico Rubric* for all the participants in the fully online learning environment (N=168) and in a web-enhanced face-to-face learning environment (N=108).

The researcher used Spearman's Rank-Order Correlation to compare the total mean of mean scores from the *Chico Rubric* to the number of college semesters completed by participants up to the spring of 2015. Computation of the data encompassed all of the evaluated courses together for each delivery mode, and the researcher did not analyze any course individually.

### **End-of-Course Evaluations**

The researcher used a nonparametric binomial test to compare the differences in perceptions between the end-of-course evaluations survey and the two instruction modalities of delivery: web-enhanced face-to-face and fully online. The researcher conducted a binomial test analysis for one of the two questions that an independent third party company contracted to conduct the end-of-course surveys reported to the college.

### **Final Course Grades**

The researcher utilized the Mann-Whitney U test to examine the relationship of the mean score of end-of-course grades to the modalities of the courses: fully online versus web-enhanced face-to-face. The researcher also performed a chi-square test to examine the relationship between grades and the two modalities.

The study was conducted in a college where end-of-course grades are reported using letter grades of A, B, C, D, or F and the collection of numeric grades was not possible. For the purpose of this study, the researcher assigned the following numbers to represent end of course grades at each level: 4=A, 3=B, 2=C, 1=D, and 0=F.

Finally, the researcher performed a Spearman's rank-order correlation to determine the strength of the relationship between final course grades and the mean of total mean rubric scores. The researcher did not perform a correlation analysis for total end-of-course evaluation scores because the evaluation is an anonymous instrument.

### **Summary**

This chapter described the research methodologies that the researcher utilized in this study. The researcher also discusses research design, population of study, informed consent and confidentiality, instrumentation, data collection, and data analyses in this chapter. The following chapter describes the results that the researcher obtained from the data that he collected.

## CHAPTER IV

### RESULTS

#### **Introduction**

To compare students' perceptions about quality of fully online college courses versus web-enhanced face-to-face college courses, this study addressed the following research questions:

1. Is there a statistically significant difference between course quality, based on the evaluations of students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses as measured by the *Chico Rubric for Online Instruction* (2009)?
2. Is there a statistically significant difference between perceptions of the quality of course design of students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses as measured by end-of-course evaluations?
3. Is there a statistically significant difference between the academic achievement of students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses as measured by end-of-course grades?

This chapter addresses these research questions and discusses the results that were obtained when the research hypotheses were tested using a causal-comparative research design. The results are reported in tabular, graphics, and narrative form.

The independent variable was course delivery mode with two levels: web-enhanced face-to-face and fully online. The dependent variables were course quality, as measured by the *Chico Rubric for Online Instruction* (2009); student perceptions, as measured by end-of-course evaluations; and academic achievement, as measured by the end-of-course grades.

## **Results Obtained for the Research Hypotheses**

### **Research Question One**

1. Is there a statistically significant difference between course quality, based on the evaluations of students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses as measured by the *Chico Rubric for Online Instruction* (2009)?

In this study, the Office of Research and Effectiveness sent the *Chico Rubric* to participants in 12 fully online courses and 21 web-enhanced face-to-face courses. The student participation response was 106 for fully online courses, and 168 for web-enhanced face-to-face courses. The researcher used the Mann-Whitney U test to compare the total mean score of web-enhanced face-to-face versus fully online course evaluation scores given by students through the *Chico Rubric*. The researcher then compared the two-course delivery modes using the total rubric scores, and the scores from each of the six analytic categories in the rubric.

**Total mean score.** The researcher used the Mann-Whitney U test to compare differences in the total mean scores of all six categories of the *Chico Rubric* between each of the two delivery modalities (web-enhanced face-to-face instruction and fully online classes). For this

study, the researcher used the term *mean of means* to indicate the mean of the combined six categories in the *Chico Rubric*. Table 2 shows the descriptive statistics for the two modalities (N=274 with M=2.5799 and SD=.49362). The data in Table 3 shows a comparison of mean ranks for the two modalities and indicates a mean rank of M=138.59 for modality delivery one (web-enhanced face-to-face) and a mean rank of M=135.78 for modality delivery two (fully online). As seen in Table 4, using an alpha level of 0.5, there was no statistically significant difference between the two delivery groups (U= 8721.500,  $p=.774$ )

Table 2

*Descriptive Statistics for the Two Modalities*

	N	Mean	Std. Deviation	Minimum	Maximum
Total Mean	274	2.5799	.49362	1.20	3.10
Delivery	274	1.39	.488	1	2

Table 3

*Comparison of Mean Ranks Between the Two Modalities*

Ranks		N	Mean Rank	Sum of Ranks
Total Mean	Delivery			
	Web-enhanced face-to-face	168	138.59	23282.50
	Fully Online	106	135.78	14392.50
	Total	274		

Table 4

*Mann-Whitney U Test Results*

Test Statistics	
Mann-Whitney U	8721.500
Wilcoxon W	14392.500
Z	-.287
Asymp. Sig. (2-tailed)	.774

Table 5

*Comparison of the Mean Scores of Each of the Six Categories for the Chico Rubric for Online**Instruction*

Category	Delivery	N	Mean Rank	Test Statistics	
Category 1 Learner Support and Resources	Face-to-Face	168	128.89	Mann-Whitney U	7458.000
	Fully Online	106	151.14	Z	-2.332
	Total	274		Asymp. Sig	0.020
Category 2 Online Organization and Design	Face-to-Face	168	136.52	Mann-Whitney U	8739.000
	Fully Online	106	139.06	Z	-0.267
	Total	274		Asymp. Sig	0.789
Category 3 Instructional Design and Delivery	Face-to-Face	168	136.20	Mann-Whitney U	8685.500
	Fully Online	106	139.56	Z	-0.354
	Total	274		Asymp. Sig	0.723
Category 4 Assessment and Evaluation of	Face-to-Face	168	143.73	Mann-Whitney U	7857.500
	Fully Online	106	127.63	Z	-1.689
	Total	274		Asymp. Sig	0.091
Category 5 Innovative Teaching with Technology	Face-to-Face	168	137.11	Mann-Whitney U	8838.000
	Fully Online	106	138.12	Z	-0.107
	Total	274		Asymp. Sig	0.915
Category 6 Faculty Use of Student Feedback	Face-to-Face	168	144.38	Mann-Whitney U	7749.000
	Fully Online	106	126.60	Z	-1.878
	Total	274		Asymp. Sig	0.060



To explore if any of the categories of the *Chico Rubric* had an overall effect on the results, the researcher analyzed each of the categories separately. The researcher compared the data from each of the six categories of the *Chico Rubric* in each of the two instructional modalities. As illustrated in Table 5, that there was a significant difference between the web-enhanced face-to-face (M=128.89) and fully online course (M=151.14) mean ranks for Category One (Learner Support and Resources) ( $p = .02$ ). The analysis for the remaining five categories showed no statistically significant difference between the means of the two instructional modalities.

**The number of semesters enrolled in college courses.** The researcher conducted a correlational analysis to examine the relationship between the mean of total mean scores from the *Chico Rubric* to the number of college semesters completed by participants. For the purpose of this study, the researcher used a scale to represent the number of semesters as follows: 1= one-two semesters, 2= three-four semesters, 3= five plus semesters. Table 6 shows a  $p=.035$  value, which indicates a statistically significant difference.

Table 6

*Correlations Between Total Mean Score on the Chico Rubric and Number of Semesters Enrolled*

Spearman's Rank-Order Correlation		
	<u>Semesters in College</u>	<u>Total Mean</u>
Correlation Coefficient	1.000	-.127*
Sig. (2-tailed)	-1.27*	.035
N	274	274

## Research Question Two

2. Is there a statistically significant difference between perceptions of the quality of course design of students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses as measured by end-of-course evaluations?

To explore the differences in perceptions of students of the quality of course design in both modalities, the researcher examined the end-of-course evaluations data from the 33 courses at the end of the Spring 2015 semester. A third party contracted by the college distributed an electronic link to participants to access end-of-course evaluations and participation was both anonymous and voluntary. The contracted company collected and provided the data from these evaluations to the college. The researcher used a nonparametric binomial test to evaluate these data. For students that responded *yes* to the first question of the end-of-course evaluation - *Was this course challenging?* - the researcher used the traditional web-enhanced face-to-face courses as the test proportion of the analysis. The second question - *Would you recommend this instructor?* - did not have relevance to the study and was not analyzed since this question focused on the instructor.

Table 7 shows the descriptive statistics for the question: *Was this course challenging?* (N=79, M=1.0506, and SD=.22065) as well as the results of the binomial test, which indicate an observed proportion of .949397 compared to the test proportion of .92000. Results of the binomial test show that there is no statistically significant difference between students that answered *yes* to the question: *Was this course challenging?* in the web-enhanced face-to-face courses compared to students in the fully online courses ( $p = .233$ ).

Table 7

*Comparison of the Differences in Students' Perceptions for the Question: Was this course challenging?*

Descriptive Statistics								
	<u>N</u>	<u>Mean</u>	<u>Std. Deviation</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Percentiles</u>		
Challenging_Yes	79	1.0506	.22065	1.00	2.00	25th	50th	75th
						1.0000	1.0000	1.0000
Binomial Test								
		<u>Category</u>	<u>N</u>	<u>Observed Prop.</u>	<u>Test Prop.</u>	<u>Exact Sig. (1-tailed)</u>		
Challenging_Yes	Yes	1.00	75	.949367	.920000	.233		
	No	2.00	4	.050633				
	Total		79	1.000000				

### Research Question Three

3. Is there a statistically significant difference between the academic achievement of students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses as measured by end-of-course grades?

This study compared the difference between the academic achievements of students enrolled in the two modalities. The researcher conducted the study at a college where end-of-course grades are reported using letter grades that represent the following: A= excellent performance (4.0), B= above performance (3.0), C= minimum performance (2.0), D= below performance (1.0) and F= failure to meet performance (0.0). According to the grading policy of the college where the study was conducted, numeric grades are not reported ([gradingsystem.tstc.edu](http://gradingsystem.tstc.edu)).

The researcher performed an analysis of the data using the Mann-Whitney U test to examine the relationship between grades and the modality of the course. The analysis indicated a

mean rank of  $M=138.16$  for delivery modality one (web-enhanced face-to-face) compared to the mean rank of  $M=136.45$  for delivery modality two (fully online). The information in Table 8 indicates the Mann-Whitney test showed no statistically significant difference between final grades in the two modalities ( $U=8792.500$ ,  $p=.857$ ).

Table 8

*Comparison of Student Final Grades Between the Two Modalities*

Ranks				
	Delivery	N	Mean Rank	Sum of Ranks
Grade	Web-enhanced face-to-face	168	138.16	23211.50
	Fully Online	106	136.45	14463.50
	Total		274	
Test Statistics <sup>a</sup>				
	Grade			
Mann-Whitney U	8792.500			
Wilcoxon W	14463.500			
Z	-.181			
Asymp. Sig. (2-tailed)	.857			

Of the largest number of assigned grades, 100 were at level three (B) with 69 (69.0 %) B's assigned for modality one (web-enhanced face-to-face), and 31 (31.0%) for modality two (fully online). The number of assigned grades at level zero (F) was higher for students enrolled in delivery modality two (fully online) with a total of 29 (61.7 %) compared to 16 (38.3%) for students enrolled in delivery modality one (web-enhanced face-to-face). The number of assigned grades at level four (A) was nearly equal, with 23 (47.9%) for web-enhanced face-to-face courses and 25 (52.1%) for students enrolled in the fully online course.

Finally, the researcher performed a correlation analysis to ascertain the strength of the relationship between final course grades and the mean of total mean scores. Table 9 indicates

that there was no statistically significant difference between grades and the mean of total mean scores ( $p=.979$ ).

Table 9

*Correlations Between Final Course Grades and Mean Scores*

		Grade	Total_Mean_Mean
Spearman's Rank- Order Correlation	Grade	Correlation Coefficient	1.000
		Sig. (2-tailed)	.002
		N	.979
Total_Mean_Mean	Grade	Correlation Coefficient	.002
		Sig. (2-tailed)	.979
		N	274
			274

**Summary**

This chapter presented the results obtained from the analyses used to test the hypotheses outlined in this study. The next chapter (Chapter V) presents the conclusions, interpretations, and implications suggested by those results.

## CHAPTER V

### CONCLUSIONS, INTERPRETATIONS, AND IMPLICATIONS

#### **Introduction**

The purpose of this study was to compare students' perceptions about the quality of fully online college courses versus web-enhanced face-to-face college courses. The preceding chapter provided the results of the analyses of the data collected for this study. This chapter provides a description of the conclusions and interpretations drawn from the results presented in the previous chapter.

#### **Conclusions and Interpretations**

##### **Research Question One**

1. Is there a statistically significant difference between course quality, based on the evaluations of students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses as measured by the *Chico Rubric for Online Instruction* (2009)?

In order to determine students' perceptions of the quality of course design, the researcher asked participants to evaluate their courses using the *Chico Rubric for Online Instruction* (2009). All participants were enrolled in one of 33 sections in either a fully online or the web-enhanced face-to-face course. There were three analyses conducted for this research question. First, the researcher compared the two course delivery modalities using the total rubric mean scores, which

are the combined scores of the six categories of the *Chico Rubric*. Second, the researcher conducted a comparison of each of the mean scores of the six categories for both fully online and web-enhanced face-to face course modalities. Finally, the researcher conducted a correlational analysis of the total mean score of the *Chico Rubric* and the number of college semesters completed by a student.

The findings in this study indicate that there is no statistically significant difference between the total mean scores of the *Chico Rubric* in both fully online and web-enhanced face-to-face courses. MacGregor (2001) examined classroom experiences in relation to perceived learning and satisfaction with the course design of both online and traditional face-to-face courses. The author matched online classes to traditional face-to-face classes taught by the same instructor and found that there were statistically significant differences in the mean scores between the traditional face-to-face and the online classes. Similarly, Ya Ni (2012) investigated learning effectiveness, course design, and instructors in a graduate program and found that there were differences between the two modalities of fully online and traditional face-to-face courses.

In addition to the comparison of total mean scores, the researcher compared each of the mean scores of the six categories for both fully online and web-enhanced face-to face course modalities. The results revealed that Category One of the *Chico Rubric*—Learner Support and Resources— was the one only of the six categories of the *Chico Rubric* in which a statistically significant difference in students' perception of course quality was found. Students who were enrolled in the fully online course scored Category One of the *Chico Rubric* higher (M=151.84) than the students who were enrolled in the web-enhanced face-to-face courses (M=128.89). Category One of the *Chico Rubric* includes three vitally important descriptors for success in fully

online instruction and web-enhanced courses: (a) the course contains extensive information about being an online learner and has links to campus resources; (b) the course provides course specific resources, contact information for instructor, department and program; and (c) the course offers access to a wide range of resources supporting course content.

As mentioned in Chapter II, Summers et al. (2005) suggested that course resources are important in both course satisfaction and academic achievement. McLoughlin and Marshall (2000) argued that learning resources support includes articulating student goals, fostering self-regulation, and supporting learner development of independent study strategies. The results of the current study indicated that the scores for Category One in the *Chico Rubric* showed a statistically significant difference between the two groups. Students that were in fully online courses had a higher mean score compared to their counterparts in the web-enhanced face-to-face courses, which is consistent with Boettcher and Conrad's (2010) conception of supportive online instruction as dialogue between learner and resources. They argue that best practices for online course design include encouraging students to make good use of internet resources and providing high-quality content such as online tutorials, simulations, and online supplementary materials.

The college where this study was conducted requires a process of review for fully online courses that assesses the structure of learner support mechanisms and resources in the course. The Online Learning Advisory Committee conducts these reviews to ensure the rigor and quality of online instruction (TSTC, 2014). The Committee rejects the development of these courses if they do not meet certain standards for components such as learner support mechanisms and resources. Consistent with the present study, Tham and Werner (2005) proposed that institutions



need a suitable structure to support online learning for both faculty and students, which includes committees to oversee strategic planning and ensure necessary support for online environments. The college where the study was conducted does not require the same review process for web-enhanced face-to-face courses as it does for online courses, and this may explain why participants in fully online courses scored the *Chico Rubric* Category One higher than participants in the web-enhanced face-to-face courses did.

Moreover, in the college where the present study was conducted, students are required to meet a pre-requisite prior to enrolling in fully online courses. The students are required to complete the Student Online Orientation (SOLO 0100) module with an 80% or better and can retake the course as many times as necessary. The purpose of the SOLO 0100 course is to increase student readiness and self-confidence in taking online courses. The course introduces online learning, tips for success in online course, and addresses technical requirements (TSTC, 2014). The SOLO 0100 course also familiarizes students with the college's learning management system (LMS) and procedures for online courses. The course focuses on assignments, quizzes, discussion boards, and surveys throughout the orientation. The Center for Community College Student Engagement (2014) proposed that orientation has a high-impact on student outcomes. Thus, by taking the pre-requisite course SOLO 0100, the participants in the fully online course were better prepared for online learning. This may also explain why they scored the *Chico Rubric* Category One higher than their counterparts in web-enhanced face-to-face courses did.

As previously mentioned, Steinbronn (2008) examined instructional methods, strategies, and resources used in both online and traditional face-to-face environments. According to the author, higher education institutions that assist faculty and students with accessing a variety of

course materials in an efficient manner have greater success. The college where the current study was conducted requires LMS training as part of a pre-requisite for students enrolled in fully online courses, while no formal LMS training is required for students enrolled in web-enhanced face-to-face courses. Therefore, study participants taking fully online courses were better prepared for the fully online learning environment compared to their counterparts in the web-enhanced face-to-face learning environment.

Although there was a statistically significant difference in the total mean scores in Category One (Learner Support and Resources) of the *Chico Rubric*, the other five categories indicated no statistically significant difference in mean scores between the two modes of instruction. However, further analysis of each of the five categories of the *Chico Rubric* revealed that the mean score of Category Four (Assessment and Evaluation of Student Learning) was higher for web-enhanced face-to-face courses (M=143.7) compared to the fully online course (M=139.0). In addition, the mean scores of Category Six (Faculty Use of Student Feedback) also indicated a higher mean score for the web-enhanced face-to-face course (M=144.38) compared to the fully online course (M=126.0). The results from the current study for Category Four (Assessment and Evaluation of Student Learning) and Category Six (Faculty Use of Student Feedback) were similar to those found by Gleason (2004). The Gleason (2004) study suggests that some of issues in online environments are poorly designed courses, communication difficulties, lack of program support, and difficulty with the technology. In addition, the mean scores of Category Two (Online Organization and Design), Category Three (Instructional Design and Delivery), and Category Five (Innovation Teaching with Technology) were nearly equal between the two modalities of fully online and web-enhanced face-to-face delivery.

For this study, a comparison was also done to determine if there was a relationship between student experience (as measured by the number of semesters students were enrolled in college) and student perceptions of course quality (as measured by the total mean score of the *Chico Rubric*). The researcher correlated the mean of total mean scores from the *Chico Rubric* using the Spearman's rank-order correlation analysis test. The correlational analysis results showed a statistically significant difference ( $p=.035$ ) for students who had been enrolled in college for more than five semesters compared to other students. Students who had been enrolled in college for more than five semesters scored the *Chico Rubric* higher than other students, indicating that more experienced students had a more positive perception of their fully online and web-enhanced courses than less experienced students did. This is consistent with the findings of Dobbs et al. (2009), who found that experience with online learning seemed to influence the older age groups more than the younger age groups.

Kuh et al. (2008) sought to determine the relationship between students' experience level as students and the students' behavior by comparing students' behavior in their advanced college years to preceding academic years. According to the authors, college students become more responsible and committed to their studies during the second year. In addition, Ali and Ajmi (2013) contended that course ratings in higher-level courses tend to be higher. This is similar to the current study in which students that had five or more semesters provided a higher score for *Chico Rubric*. Seok DaCosta, Kinsell, and Tung (2010) compared student perceptions of instructional design and content to students' educational experience, age, and gender. The authors found that there was a statically significant difference across educational levels in student perceptions of online course design, which is consistent with the current study. These

findings suggest that a student's perceptions of course design will change as the student takes more courses. Therefore, the number of years a student spends in fully online or web-enhanced face-to-face courses likely influences the student's perceptions of college course design.

In the current study, the Office of Research and Effectiveness asked participants to respond to the question: *In which learning environment (fully online or web-enhanced face-to-face) do you learn best in?* Of the 280 participants, 178 (64%) selected web-enhanced face-to-face environments, 24 (8%) selected fully online, and 78 (28%) students did not respond.

Included in the responses were the following statements:

1. I personally do better with face-to-face interaction because it makes it easier on me if I have questions on anything that we are covering as a class.
2. I learn best in a web-enhanced face-to-face environment because we have the chance to ask questions.
3. I have tried both types of learning environments and I would have to say honestly that a classroom, face to face, environment has helped me fully understand the information better.
4. I feel that I learn best in a hands on or face-to-face classroom.
5. Fully online because I can go at my own pace.
6. Fully online is great when done well.
7. Fully online depending on the teacher.

The fully online courses in the current study were asynchronous, and all communications between the instructor and students occurred via the LMS or through email. Researchers have found that students report low satisfaction with student-instructor interaction and instructor

support when communication is via electronic means, and that students prefer human interaction (Buckley, 2003; Johnson, Aragon, Shaik, & Palma-Rivas, 2000).

**Implications for Practice.** The findings of the current study have several implications in relation to student perceptions of course design. Participants perceived taking fully online courses as equal to taking web-enhanced face-to-face courses. However, the present study did not consider all fully online courses or all web-enhanced face-to-face courses, and it would thus be a mistake for the course developers in this institution to assume that all fully online and web-enhanced face-to-face courses are the same. Since this study focused on courses taught by eight instructors who were teaching both fully online and web-enhanced face-to-face sections, other fully online and web-enhanced face-to-face courses were not included. Therefore, readers should not generalize the results. Additionally, the results showed no statistically significant differences in the total mean score of the *Chico Rubric* and it was therefore important to analyze each of the six categories individually. Doing so revealed that students' perceptions of Category One (Learner Support and Resources) of the *Chico Rubric* is an important component in establishing effective online course learning environments.

Thus, it seems clear that a process of review for all course designs will strengthen the learning environments for both fully online and web-enhanced face-to-face courses. Although the findings of current study indicate that students taking fully online courses and web-enhanced face-to-face courses showed no statistically significant difference in the total mean score of the *Chico Rubric*, it would be premature to say that the learning in both modalities is equivalent.

Several solutions to increase satisfaction with online courses are possible. Boettcher and Conrad (2010) suggest 10 best practices for effective online teaching and learning environments.

Additionally, it is necessary to require a face-to-face meeting for fully online courses at the beginning of the semester and follow up meetings as necessary. These solutions would provide an opportunity for the instructor and students to resolve issues and misunderstandings of the course content. However, these options would reduce the flexibility of the students' schedule and would add the cost and inconvenience of traveling to campus. Another opportunity to improve the online learning experience in both fully online courses and web-enhance face-to-face courses at the college where the study was conducted would be to extend the review process of the Online Learning Advisory Committee to all courses and provide a prerequisite orientation course for both fully online and web-enhanced face-to-face courses.

The researcher conducted the current study at a two-year college where the majority of students are experiencing higher education for the first time. Therefore, the online education experience is a novice learning environment experience for these students and could explain statements of the participants such as "I learn best in face-to-face learning environments." In addition, other responses from students included "depends on the teacher," which reflects less on the modality of instruction and more on the learning style or teaching strategies. Tang (1997) found that treating students in a courteous and professional manner and appearing to be well prepared for class are the most important predictors of overall teaching effectiveness, which could explain statements such as "depends on the teachers" from the current study.

### **Research Question Two**

2. Is there a statistically significant difference between perceptions of the quality of course design of students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses as measured by end-of-course evaluations?

The college where the current study was conducted does not use a separate end-of-course survey instrument for online courses, and therefore the college used the same end-of-course evaluation instrument for both fully online and web-enhanced face-to-face courses. In order to evaluate differences in participants' perceptions of course quality between the two instructional modalities, the current researcher analyzed the data from end-of-course evaluations using a nonparametric binomial test. As illustrated in the previous chapter, there was no statistically significant difference in the results of the two-question end-of-course survey administered by the college where the study was conducted. This included the question relevant to this study where results showed that there was no statistically significant difference between students in web-enhanced face-to-face courses and those in fully online courses who answered *yes* to the question: *Was this course challenging?* ( $p=.233$ ).

Similar to the present study, Hauck (2006) investigated student perceptions of course quality by examining end-of-course evaluations and grades in online and traditional undergraduate courses. Hauck's findings were similar to the current study in that he did not find any statistically significant differences in the end-of-course evaluations between the fully online courses and the traditional face-to-face courses.

Nichols (2011) also asked students to assess their courses and instructors with an end-of-course evaluation. The evaluation focused on course design and professor efficacy. Nichols administered the same two-response end-of-course evaluation in both online courses and traditional face-to-face courses. For the prompt: *The design/organization of this course effectively facilitated my learning*, the author found that students in online courses assigned a slightly higher score compared to students in traditional face-to-face courses. However, for the

prompt: *I would highly recommend this professor to other students*—the author found that students in traditional face-to-face courses assigned a higher score than students in online courses.

The current study also had only two questions in the end-of-course survey, the questions were:

1. Was this course challenging?
2. Would you recommend this instructor?

The analysis of the first question in the end-of-course evaluation of the present study - *Was this course challenging?* - showed no statistically significant difference. The second question in the end-of-course evaluation of the present study - *Would you recommend this instructor?* - was not examined.

According Moskal (2001), the purpose of end-of-course surveys is to allow students to provide feedback and improve instruction in future courses. Moskal argued that assessment instruments may not always be relevant to the instructional needs and that poor evaluations of instructors may be explained by unmotivated students, heavy teaching loads, or an invalid instrument. According to the author, end-of-course evaluations may not be a true reflection of an instructor's ability to teach in an online environment. Moskal also suggested that end-of-course evaluations might reflect the teacher's popularity rather than their teaching ability. Thus, institutions of learning should use a more reliable instrument when evaluating student perceptions of course design between students enrolled in fully online courses and students in web-enhanced face-to-face courses.

**Implications for Practice.** The current study explored student perceptions of course design by analyzing end-of-course evaluations. However, a two-question end-of-course



evaluation may not be adequate to inform the needs of course instruction or allow students to provide adequate feedback to improve instruction. This could be a reason why the college where the study was conducted has changed the end-of-course evaluation instrument.

The college where the current study was conducted might consider adopting a separate end-of-course evaluation instrument designed specifically for online instruction. Achtmeier, Morris, and Finnegan (2003) contended that there is a need to redesign a specific evaluation instrument for fully online courses, and that the evaluation instrument for online course should use the Seven Principles of Good Practice in Undergraduate Education developed by Chickering and Gamson (1987) as a framework.

### **Research Question Three**

3. Is there a statistically significant difference between the academic achievement of students enrolled in web-enhanced face-to-face courses and students enrolled in fully online courses as measured by end-of-course grades?

The researcher used end-of course grades to determine the differences in academic achievement between students enrolled in web-enhanced face-to-face courses and students in fully online courses. The researcher performed an analysis of the data using the Mann-Whitney U test to compare the mean scores of grades of each of the two instructional modalities. In addition, the researcher conducted a correlation analysis to ascertain the strength of the relationship between final course grades and the mean of total mean scores of the *Chico Rubric for Online Instruction* (2009).

The data in the current study indicate that there was no statistically significant difference between grades and the modality of the course. However, students in web-enhanced face-to-face

courses achieved slightly higher grades than students in fully online courses did. Students with higher grades in a course tended to score the categories of the *Chico Rubric* somewhat higher for that course, regardless of the learning environment. This is consistent with prior research by Frantzen (2014), who found that course delivery design had no statistically significant difference on student outcomes, and the most significant effects on student outcome were past academic success and hours completed.

The results of a correlation analysis in the current study indicated that there was no statistically significant difference between end-of-course grades and the *mean of means* of the *Chico Rubric*. Therefore, the results indicate that students that rated their courses (fully online and web-enhance face-to-face) with the *Chico Rubric* showed no statistically significant difference in grades. Similar to findings by Hauck (2006), the present study investigated the relationship between grades and the modality of the course and found no statistically significant difference in the mean final course grade for the fully online and the web-enhanced fully online courses.

Although the current study indicated no statistically significant difference between the mean score of grades between the two modalities, the distribution of grades between the two modalities was different. The grade distribution of students that participated in the current study indicated that 13.6% of the students that participated in fully online courses received an A letter grade, while 27.3% of the students that participated in web-enhanced face-to-face courses received an A letter grade. However, the data from the current analysis of grades also indicated that 23.2% of students that participated in fully online courses received an F letter grade, while 27.3% of the students that participated in web-enhanced face-to-face received an F letter grade.

The grade distribution shows a few more students receiving a failing grade for the fully online courses compared to students in the web-enhanced face-to-face courses. Since course grades reflect an overall class performance, it is reasonable to expect that other factors, such as attendance, educational levels, and technical skills might influence student grades.

**Implications for Practice.** The current study used letter grades but numeric grades would have been preferred. Grades represent instructor feedback on student performance and are reflective of student learning. Grades serve as method of ranking and sorting students' performance rather than an aspect of effective course design.

Although there was no statically significant difference in grades between the two modalities in the current study, the findings were consistent with Xu and Jaggars' (2005) findings in which a larger amount of students received F letter grades in fully online courses compared to students in traditional face-to-face courses. Xu and Jaggars suggested that online courses require students to assume greater responsibility for their learning, and that a successful online student may need high levels of self-regulation. Allen and Seaman (2005) argued that "students need more discipline to succeed in an online course than in a face-to-face course" (p. 12). Additionally, Delialioglu and Yildirim (2007) contended that there are no accepted standards for web-enhanced instruction and that different institutions implement web-enhanced instruction in different ways. While the results in this study showed no statistically significant differences in the *mean of mean* scores for the *Chico Rubric*, the study yielded results that can improve online learning environments.

## Future Research

This study compared student achievement, perceptions, and evaluations of fully online and web-enhanced courses taken at a technical college in South Texas in order to determine if student achievement, perceptions, and evaluations of course design were more positive in one modality than in the other. It is important to continue to examine student achievement, perceptions, and evaluations of course design in fully online and web-enhanced face-to-face courses to determine which of the two modalities is superior. Based on the findings, the following are the recommendations for future studies:

1. Future research should expand on more reliable end-of-course survey results because the present study was limited to the two questions reported back to the institution under study by a third party contracted company. Consequently, the question in the end-of-course survey—*Was this course challenging?*—may not be the best question for addressing course quality, since there is no link between difficulty and quality of a course. However, this would not explain the perceptions of students toward fully online classes versus web-enhanced face-to-face classes since other factors also contribute to student perceptions.
2. Future research should also be conducted using numeric end-of-course grades instead of the letter grades since the span of each letter grade is very wide and might not accurately reflect true student achievement.
3. The sample size of student participants in fully online and web-enhanced face-to-face courses was small because of the limited sampling method. The researcher recommends that other researchers replicate the study with a larger sample size.

4. Upcoming studies should focus on a larger institution or a four-year college since the current study was limited to a two-year technical college.
5. This study was limited to 21 web-enhanced face-to-face courses and 12 fully online academic core courses common to all programs and the same instructors taught both course modalities using the same material and resources. Future studies should expand to include other online courses and web-enhanced face-to-face courses.
6. In this study, the researcher did not train participants to use the *Chico Rubric for Online Instruction* (2009). Future studies should include a set of formal or informal training instructions or videos in using rubrics for evaluating course design.
7. In the current study, Category One (Learner Resources and Support) of the *Chico Rubric for Online Instruction* (2009) revealed a statistically significant difference between the fully online course and the web-enhanced face-to-face course, which would suggest the need for further investigation of learner resources and support for both fully online and web-enhanced face-to-face courses. As previously mentioned, Bejarano (2008) stated, “Effective instructors understand the value of these resources and forms of support and as online courses become more popular, instructors are trying to find new ways to incorporate these resources and forms of support into their class” (para. 5).

Moving forward the following are additional recommendations based on the conclusions of this study. It would be a good practice for the college where the study was conducted to (a) use a model that adopts the online best teaching practices such as those advocated by the *Chico Rubric for Online Instruction* (2009); (b) provide faculty training and professional development to enhance fully online and web-enhanced face-to-face courses and (c) review all fully online and

web-enhanced face-to-face courses and ensure that the course design for these courses addresses appropriate online teaching pedagogy.

### **Summary**

As technology has improved, the delivery of online course instruction has changed significantly. Therefore, online instruction, whether fully online or web-enhanced face-to-face, has created opportunities and challenges for both the instructors and students. Allen and Seaman (2014) found that one-third of students in higher education are taking at least one online course, a number that continues to grow. Helms (2014) observed that there has been very little research comparing fully online classes to traditional face-to-face classes taught by the same instructor and using the same materials.

This study compared student achievement, perceptions, and evaluations of fully online and web-enhanced courses to determine if one modality was superior. The findings have several implications for student achievement, student perceptions, and course development. In developing fully online courses and web-enhanced face-to-face courses, developers should consider learner support and resources since these could create challenges for students in both learning environments. The college where the study was conducted has addressed the online learning environment by creating a process review for all online courses in which the Online Learning Advisory Committee reviews courses. The college has also created a pre-requisite course (SOLO 0100) for all students enrolling in online instruction. In addition, in recognition that an adequate end-of course survey could be a useful tool to provide feedback that can be utilized to design more effective learning environments, the college where this study was conducted has changed the two-question end-of-course survey to more reliable multiple question

survey. Although the researcher makes suggestions based on the finding in this study, one needs to be careful in generalizing the results in other contexts. Course designs in fully online and web-enhanced face-to-face courses may differ from one institution to another (Delialioglu & Yildirim, 2007). As institutions of higher education continue to improve access and become more familiar with the various learning environments, we hope to meet the challenges and opportunities that technology offers.

## REFERENCES

- Achtmeier, S., Morris, L., & Finnegan, C. (2003). Considerations for developing evaluations of online courses. *Journal of Asynchronous Learning*, 7(1), 1-13.
- Addison, W., Best, J., & Warrington, J. (2006). Students' perceptions of course difficulty and their rating of the instructor. *College Student Journal*, 40(2), 409-420.
- Aguirre, R., & Mitschke, D. (2011). Enhancing learning and learner satisfaction through the use of WebCT in social work education. *Social Work Education*, 30(7), 847-860.
- Akhavan, P., & Arefi, M. F. (2014). Developing a conceptual framework for evaluation of e-content of virtual courses: E-learning center of an Iranian university case study. *Interdisciplinary Journal of E-Skills and Lifelong Learning*, 10(1), 53-73.
- Ali, H. I., & Ajmi, A. A. (2013). Exploring non-instructional factors in student evaluations. *Higher Education Studies*, 3(5), 81.
- Aly, I. (2013). Performance in an online introductory course in a hybrid classroom setting. *The Canadian Journal of Higher Education*, 43(2), 85-95.
- Allen, I. E., & Seaman, J. (2005). *Growing by degrees—Online education in the United States*. Needham, MA: The Sloan Consortium.
- Allen, I. E., & Seaman, J. (2014) *Grade change: Tracking online learning in the United States*. Oakland, CA: Babson Survey Research Group. Retrieved from: <http://www.onlinelearningsurvey.com/reports/gradechange.pdf>
- Angiello, R. (2010). Study looks at online learning vs. traditional instruction. *Education Digest*, 76(2), 56-59.
- Aragon, S. (2003). *Facilitating learning in online environments*. San Francisco, CA: Jossey-Bass.
- Arnold, J., & Collopy, R. (2009). To blend or not to blend: Online and blended learning environments in undergraduate teacher education. *Issues in Teacher Education*, 18(2), 85-96.
- Banerjee, G. (2011). Blended environments: Learning effectiveness and student satisfaction at a small college in transition. *Journal of Asynchronous Learning Networks*, 15(1), 8-19.



- Bach, S., Hayes, P., & Smith, J. (2007). *Online learning and teaching in higher education*. Maidenhead, UK: Open University Press.
- Bataineh, A., Brooks, L., & Bassoppo-Moya, T. (2005). Implications of online teaching and learning. *International Journal of Instructional Media*, 32(3), 285-295.
- Bejarano, A. (2008). Face-to-face or online instruction? Face-to-Face is better. *Communication Current*, 3(3). Retrieved from <https://www.natcom.org/CommCurrentsArticle.aspx?id=884>
- Bernard, R., Abrami, P., Borokhovski, E., Wade, C., Tamim, R., Surkes, M., & Bethel, E. (2009). A meta-analysis of three types of interaction treatments in distance education. *Review of Educational Research*, 79(3), 1243-1289.
- Berryhill, A.H., & Durrington, V.A. (2006). The online course: The development and implementation of training and support. *Distance Learning*, 3(2), 51-61.
- Boettcher, J., & Conrad, R. (2010). *The online teaching survival guide: Simple and practical pedagogical tips*. San Francisco, CA: Jossey-Bass.
- Bollinger, D., & Martindale, T. (2014). Determining student satisfaction in online courses. *International Journal on E-Learning*, 61-67.
- Bonnel, W. (2008). Improving feedback to students in online courses. *Nursing Education Perspectives*, 29(5), 290-305.
- Buckley, K.M. (2003). Evaluation of classroom-based, web-enhanced, and web-based distance learning nutrition course for undergraduate nursing. *Journal of Nursing Education*, 42, 367-379.
- Calderon, O., Ginsberg, A., & Ciabocchi, L. (2012). Multidimensional assessment of pilot blended learning programs: Maximizing program effectiveness based on student and faculty feedback. *Journal of Asynchronous Learning*, 16(4), 23.
- California State University Chico (n.d.). *Background of Rubric for Online Instruction*. Retrieved from <http://www.csuchico.edu/celt/roi/history.shtml>
- California State University Chico (n.d.). *Exemplary online instruction*. Retrieved from <http://www.csuchico.edu/eoi/facultyrecognition/index.shtml>
- California State University Chico (2009). *Chico Rubric for Online Instruction*. Retrieved from <http://www.csuchico.edu/roi/>
- Cennamo, K., Ross, J., & Rogers, C. (2002). Evolution of a web-enhanced course: Incorporating strategies for self-regulation. *Educause Quarterly*, 25(1), 28-33. Retrieved from <http://net.educause.edu/ir/library/pdf/eqm0214.pdf>.

- Center for Community College Student Engagement. (2014). A matter of degrees: Practices to pathways (High-impact practices for community college student success). Austin, TX: The University of Texas at Austin, Program in Higher Education Leadership.
- Chickering, A., & Gamson, Z. (1987). Seven principles of good practice in undergraduate education. *The Wingspread Journal*, 9(2).
- Chao, T., Saj, T., & Tessier, F. (2006, January 6). Establishing a quality review for online courses. *Educause Review*. Retrieved from <http://er.educause.edu/articles/2006/1/establishing-a-quality-review-for-online-courses>
- Clark, R. E. (1983). Reconsidering research on learning from media. *Review of Educational Research*, 53(4), 445-459. Retrieved from [http://www.uky.edu/~gmswan3/609/Clark\\_1983.pdf](http://www.uky.edu/~gmswan3/609/Clark_1983.pdf)
- Cohen, E. (1999) Reconceptualizing information systems as a field of the transdiscipline informing science: From ugly duckling to swan. *Journal of Computing and Information Technology*, 7(3), 213-219. Retrieved from <http://inform.nu/WhatsIS.htm>
- Crews, T., & Butterfield, J. (2014). Data for flipped classroom design: Using student feedback to identify the best components from online and face-to-face classes. *Higher Education Studies*, 4(3), 38-48.
- Dee, F. L. (2007). The Power of course design to increase student engagement and learning. *Peer Review*, 9(1), 13-23.
- Delialioğlu, O., & Yildirim, Z. (2007). Students' perceptions on effective dimensions of interactive learning in a blended learning environment. *Educational Technology and Society*, 10(2), 133-146.
- Driscoll, A., Jicha, K., Hunt, A. N., Tichavsky, L., & Thompson, G. (2012). Can online courses deliver in-class results? A comparison of student performance and satisfaction in an online versus a face-to-face introductory sociology course. *Teaching Sociology*, 40(4), 312-331.
- Dobbs, R., Waid, C. A., & Del Carmen, A. (2009). Student Perceptions of online courses: The effects of online course experience. *The Quarterly Review of Distance Education*, 10(1), 9-26.
- Dreon, O. (2013). Applying the seven principles for good practice to the online classroom. Retrieved from <http://www.facultyfocus.com/articles/online-education/applying-the-seven-principles-for-good-practice-to-the-online-classroom/>
- Du, C., & Wu, J. (2014). The effect of human interactions on student performance and satisfaction of blended learning. *Academy of Educational Leadership Journal*, 18(3), 11-21.

- Dykman, C., & Davis, C. (2008). Online education forum-part three: A quality online educational experience. *Journal of Information Systems Education, 19*(3), 281-292.
- El Mansour, B., & Mupinga, D. (2007). Students' positive and negative experiences in hybrid and online classes. *College Student Journal, 41*(1), 242-248.
- Eom, S., & Wen, J. (2006). The determinants of students' perceived learning outcomes and satisfaction in university online education: An empirical investigation. *Decision Sciences Journal of Innovative Education, 4*(2), 215-234.
- Evans, A., & Lockeed, B. (2008). At a distance: An instructional design framework for distance education. *Distance Learning, 5*(3), 11-21.
- Fraenkel, J. R. & Wallen, N. E. (2003), *How to design and evaluate research in education*. New York, NY: McGraw Hill.
- Frantzen, D. (2014). Is technology a one-size-fit all solution to improving student performance? Comparison of online, hybrid and face-to-face courses. *Journal of Public Affairs Education, 20*(4), 565-578. Retrieved from <http://www.jstor.org/stable/24369838>
- Gee, P., & Reis, A. (2012). Blended course design: A synthesis of best practices. *Journal of Asynchronous Learning Networks, 16*(4), 7-22.
- Gleason, B. J. (2004). *Retention issues in online programs: A review of literature*. Paper presented at the Second AIMS International Conference on Management. Retrieved from <http://www.thinairlabs.com/papers/216.pdf>
- Guidry, K. (2015). Does course delivery method impact performance in subsequent courses? Evidence from a financial management course. *Journal of Business Education and Accreditation, 7*(2), 1-10.
- Hamman, K., Pollock, P., & Wilson, B. (2012). Assessing student perceptions of the benefits of discussion in small group, large class and online learning contexts. *College Teaching, 65*-74. doi: 10.2080/87567555.2011.633407
- Hauck, W. E. (2006). Online versus traditional face-to-face learning in a large introductory course. *Journal of Family and Consumer Sciences, 98*(4), 27-30.
- Hayward, L. (2004). Integrating web-enhanced instruction into a research methods course: Examination of student experiences and perceived learning. *Journal of Physical Therapy Education, 18*(2), 54-74.
- Helms, J. (2014). Comparing student performance in online and face-to-face delivery modalities. *Journal of Asynchronous Learning Network, 18*(1).

- Hurt, J. (2008). The advantages and disadvantages of teaching and learning on-line. *Delta Kappa Gamma Bulletin*, 74(4), 5-11.
- Jones, S. (2012). Reading between the lines of online course evaluations: Identifiable actions that improve student perceptions of teaching effectiveness and course value. *Journal of Asynchronous Learning Networks*, 16(1), 49-58.
- Johnson, S. D., Aragon, S. R., Shaik, N., & Palma-Rivas, N. (2000). Comparative analysis of learner satisfaction and learning outcomes in online and face-to-face learning environments. *Journal of Interactive Learning Research*, 11, 29-49.
- Khan, B. H. (2001, December 18). *A framework for e-learning*. Retrieved from <http://lomo.kyberia.net/diplomovka/webdownload/partial/elearningmag.com/E-Learning - A Framework for E-learning.pdf>
- Kelly, H., Ponton, M., & Rovai, A. (2007). A comparison of student evaluations of teaching online and face-to-face course. *Internet and Higher Education*, 10(1), 89-101.
- Krause, J., Diaz, L. P., & Schedler, C. (2015). Competency-based education: A framework for measuring quality courses. *Journal of Distance Learning Administration*, 18(1). Retrieved from [https://wesga.edu/~distance/ojdla/spring181/krause\\_dias\\_schedler181.html](https://wesga.edu/~distance/ojdla/spring181/krause_dias_schedler181.html).
- Kuh, G., Cruce, T., Shoup, R., Kinzie, J., & Gonyea, R. (2008). Unmasking the effects of student engagement on first year college grades and persistence. *Journal of Higher Education*, 79(5).
- Lao, T., & Gonzales, C. (2005). Understanding online learning through a qualitative description of professors and students' experiences. *Journal of Technology and Teacher Education*, 13(3), 459-469.
- Lever-Duffy, J., & McDonald, J. (2011). *Technology, teaching and you*. Teaching and learning with technology. Boston, MA: Allyn & Beacon
- Lowe, S. D. (1991). Expanding the taxonomy of adult learner orientations: The institutional orientation. *International Journal of Lifelong Education*, 10(1), 1-23.
- Ludwig, M., Bentz, A., & Fynewever, H. (2011). Your syllabus should set the stage for assessment for learning. *Journal of College Science Teaching*, 40(4), 20-31.
- MacGregor, C. (2001). A comparison of student perceptions in traditional and online classes. *Academic Exchange Quarterly*, 5(4), 143-143.
- Major, H., & Taylor, D. (2003). Teaching for learning: Design and delivery of community college courses. *College Community Enterprise*, 9(1), 63-70.

- Mayadas, F., & Miller, G. (2014, September 18). Definitions of e-learning courses and programs, version 1.1, developed for discussion within the online learning community. *Online Learning Consortium*. Retrieved from <http://onlinelearningconsortium.org/updated-e-learning-definitions/>
- McDaniel, S. (2004). Faculty attitude, preparation: The implications for courses. *Distance Education Report*, 8(19), 4-6.
- McLoughlin, C. & Marshall, L. (2000). Scaffolding: A model for learner support in an online teaching environment. In A. Herrmann & M. M. Kulski (Eds.), *Flexible futures in tertiary teaching*. Proceedings of the 9th Annual Teaching Learning Forum, 2-4 February 2000. Perth: Curtin University of Technology.  
<http://lsn.curtin.edu.au/tlf/tlf2000/mcloughlin2.html>
- Moskal, B. (2001). Student voices: Improving the quality of course evaluations. *Academic Quarterly Exchange*, 5(1), 72.
- Mupinga, D., Nora, R., & Yaw, D. (2006). The learning styles, expectations and needs of online students. *College Teaching*, 54(1), 185-189.
- Nicol, D. (2006, December). Increasing success in first year courses: Assessment re-design, self-regulation and learning technologies. In L. Markauskaite, P. Goodyear, & P. Reimann, (Eds.) *Proceedings of the 23rd Annual ASCILITE Conference* (pp. 589-598) Sydney, Australia: Sydney University Press .
- Nicol, D., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education*, 31(2), 199-218.
- Nichols, J. (2011). Comparing educational leadership course and professor evaluations in on-line and traditional instructional formats: What are the students saying? *College Student Journal*, 45(4), 862.
- O'Brien, C., Hartshorne, R., Beattie, J., & LuAnn, J. (2011). A comparison of large lecture, fully online and hybrid sections of introduction to special education. *Rural Special Education Quarterly*, 30(4), 19-29.
- Onay, Z. (1999). Building an internet-based learning environment in higher education: Learner Informing systems and the life cycle approach. *Informing Science*, 2(2), 45-52.
- Osguthorpe, R. T., & Graham, C. R. (2003). Blended learning environments. *Quarterly Review of Distance Education*, 4(3), 227-233.
- Palloff, R. M., & Pratt, K. (2007). *Building online learning communities: Effective strategies for the virtual classroom*, San Francisco CA, Jossey-Bass Inc Pub.

- Parker, D., & Germino, A. (2001) Inside online learning: Comparing conceptual and technique learning performance in place-based and aln formats. *5*(2), 64-77.
- Peterson, C. L., & Bond, N. (2004). Online compared to FTF teacher preparation for learning standards-based planning skills. *Journal of Research on Technology in Education*, *36*(4), 345–361.
- Picciano, A. (2002). Beyond student perceptions: Issues of interaction, presence and performance in an online course. *Journal of Asynchronous Learning Networks*, *6*(1), 21-39.
- Pina, A., & Bohn, L. (2013). Assessing online faculty more than student surveys and design rubrics. *The Quarterly Review of Distance Education*, *15*(3), 25-34.
- Pitler, H., Hubbell, E., Kuhn, M., & Malenoski, K. (2007). *Using technology with classroom instruction that works*. Denver, CO: Mid-Continental Research for Education and Learning.
- Porter, A., Pitterie, M., & Hayney, M. (2014). Comparison of online versus classroom delivery of an immunization elective course. *American Journal of Pharmaceutical Education*, *78*(5).
- Rees, D. (2011, August 13). ICARE model and course design. Retrieved from <https://instructionaldesignfusions.wordpress.com/tag/csu-chico-rubrics/>
- Reiser, R. A., & Dempsey, J. V. (2012). *Trends and issues in instructional design and technology* (3rd ed.). Boston, MA: Allyn & Bacon.
- Roach, V., & Lemasters, L. (2006). Satisfaction with online learning: A comparative descriptive study. *Journal of Interactive Online Learning*, *5*(3), 317-332.
- Rovinskyi, D. & Synytsya, K. (2004). Distance courses quality: A learner’s view. International Conference on Advanced Learning Technologies. Institute of Electrical and Electronics Engineers.
- Russell, M., Bebell, D., O’Dwyer, L. & O’Connor, K. (2003). *Teachers’ beliefs about and use of technology: Enhancing the use of technology for new and veteran teachers*. Boston, MA: Boston College, Technology and Assessment Study Collaborative.
- Russell, J. D., Sorge, D., & Brickner, D. (1994). Improving technology implementation in grades 5-12 with the ASSURE model. *T H E Journal*, *21*(9), 66.
- Sederberg, L. (2003). Rubric clearly describes exemplary online instruction. *Distance Education Report*, *7*(23), 5-5.

- Seok, S., DaCosta, B., Kinsell, C., & Tung, C. (2010). Comparison of instructors' and students' perceptions of the effectiveness of online courses. *Quarterly Review of Distance Education, 11*(1), 25-30.
- Sloan C. (2006). Survey of online learning. Retrieved from <http://onlinelearningconsortium.org/read/survey-reports/#>
- Steinbronn, P. E., & Merideth, E. M. (2008). Perceived utility of methods and instructional strategies used in online and face-to-face teaching environments. *Innovative Higher Education, 32*, 265-278. doi:10.1007/s10755-007-9058-4
- Stewart, B., Waight, C., Norwood, M., & Ezell, S. (2004). Formative and summative evaluation of online courses. *Quarterly Review of Distance Education, 5*(2), 101-110.
- Stowell, J., Addison, W., & Smith, J. (2012). Comparison of online and classroom-based student evaluations of instruction. *Assessment & Evaluation in Higher Education, 37*(4), 465-473.
- Sweat-Guy, R., & Wishart, C. (2008). A longitudinal analysis of the effects of instructional strategies on student performance in traditional and e-learning formats. *Issues in Informing Science and Information Technology, 5*, 149-165.
- Summers, J., Waigandt, A., & Whittaker, T. (2005). A comparison of student achievement and satisfaction in an online versus a traditional face to face statistics class. *Innovative Higher Education, 29*(3), 233-250. doi:10.1007/s10755-055-1938
- Tang, T. L. (1997). Teaching evaluation at a public institution of higher education: Factors related to the overall teaching. *Public Personnel Management, 26*(3), 379-389.
- Ternus, M. P., Palmer, K. L., & Faulk, D. L. (2007). Benchmarking quality in online teaching and learning: A rubric for course construction and evaluation. *The Journal of Effective Teaching, 7*(2), 51-67.
- Texas Higher Education Coordinating Board (2014). *Distance education policies procedures and forms*. Retrieved from <http://www.theceb.state.tx.us/index.cfm?objectid=A5A152AC-D29D-334F-872625E9E77B3B37>
- Texas State Technical College Harlingen (n.d.). *Our leadership philosophy*. President's Office Retrieved from <http://www.tstc.edu/harlingenpresident/ourleadershipphilosophy>.
- Texas State Technical College Harlingen (2014, January 1). *2013 annual report*. Retrieved from [http://issuu.com/tstcharlingen/docs/tstc\\_annual\\_report\\_2013sm?e=1060022/6777846#search](http://issuu.com/tstcharlingen/docs/tstc_annual_report_2013sm?e=1060022/6777846#search)
- Texas State Technical College Grading System. (2015, June 9). Retrieved August 1, 2015, from [www.tstc.edu/docs/doc.php?id=789](http://www.tstc.edu/docs/doc.php?id=789)

- Tham, C. M., & Werner, J. (2005). Designing and evaluating e-learning in higher education: A review and recommendation. *Journal of Leadership and Organizational Studies, 11*(2), 15-25.
- United States Department of Education. (2010). *Transforming America education learning powered by Technology National Education Plan 2010*. Retrieved from <https://www.ed.gov/sites/default/files/netp2010.pdf>.
- Urtel, M. G. (2008). Assessing academic performance between traditional and distance education course formats. *Educational Technology and Society, 11*(1), 322-331.
- Warren, L., & Holloman, H. (2005). Online instruction: Are the outcomes the same? *Journal of Instructional Psychology, 32*(2), 148-151.
- Wilson-Jones, L., & Caston, M. (2006). Attitudes of under-graduate education majors on web-enhanced and traditional instruction at Fayetteville State University. *Journal of Instructional Psychology, 33*(6), 144-152.
- Wingard, R. (2004). Classroom teaching changes in web-enhanced courses: A multi-institutional study. *Educause Quarterly, 27*(1), 26-35.
- Xu, D., & Jaggars, S. (2014). Performance gaps between online and face-to-face courses: Differences across types of students and academic subject areas. *Journal of Higher Education, 85*(5), 634-659.
- Ya Ni, A. (2012). Comparing the effectiveness of classroom and online learning: teaching research methods. *Journal of Public Affairs Education, 19*(2), 199-215.



## APPENDIX A

## APPENDIX A

### INFORMED CONSENT

**The Title of this Research Study is:** A Comparison of Student Learning Outcomes, Perceptions, and Course Evaluations in Web-Enhanced Face-to-Face and Fully Online Courses at a South Texas Technical College.

The purpose of the study is to compare learning outcomes, perceptions, and course evaluations of students enrolled in web-enhanced face-to-face courses and fully online courses at a technical college in South Texas in order to evaluate the two modalities of online instruction.

If you choose to participate in the study, you will be asked to log onto a secure website. You will spend approximately 15 minutes completing the Chico Rubric for Online Instruction (2009). You may refuse to participate and may withdraw from the study at any time. All responses will be kept confidential.

**Risks or Possible Discomforts Associated with the Study:** There are no anticipated risks associated with your participation in this study.

**Benefits of Participation:** Whereas participation in this study will have no direct personal benefit to the participants, it is hoped that the knowledge gained will serve to improve course design.

Your participation in this study is voluntary; you may discontinue your participation at any time without penalty. If for any reason you decide that you would like to discontinue your participation, simply log off the rubric website.

This study is being conducted through the use of a secure sever where all responses will be maintained. Everything reasonably possible will be done to keep your answers completely confidential.

For questions about the research itself, or to report any adverse effects during or following participation, contact the researcher, Jose Banda, at the following address: 2202 N. 13<sup>th</sup> Harlingen, Texas. Phone number 956-492-6422.

If you have any questions about your rights as a participant, or if you feel that your rights as a participant were not adequately met by the researcher, contact the Institutional Review Board: Tel: (956) 882-7731, e-mail: [research.compliance@utb.edu](mailto:research.compliance@utb.edu) One West University Blvd. BRHP 2.210. Brownsville, TX 78520.

**Signatures:** Because this is an internet-based research instrument, signatures are waived. Your consent is assumed by your completion of the rubric.

There is no payment for participation in this study.

Approximately 1446 students have been invited to participate in this research study.

## APPENDIX B

## APPENDIX B

### CHICO RUBRIC: USING STUDENT PERSPECTIVES

The Rubric is a tool that can be used to create or evaluate the design of a fully online or blended course. The rubric is designed to answer the question, "What does high-quality online instruction look like?" For the purpose of this study, the Chico Rubric is used from the students' perspective to evaluate their course.

#### **Student I.D.**

#### **Number of semesters you have completed at TSTC:**

#### **Gender**

- Male
- Female

#### **Which of the following courses did you take ONLINE during the fall of 2014 at TSTC?**

- U.S. History I (Hist. 1301)
- U.S. History II (Hist. 1302)
- Intermediate Algebra (DMTH 0200)
- Composition I (Engl. 1301)
- College Algebra (Math 1314)

- Beg. Spanish I (Span. 1311)
- Beg. Spanish II (Span. 1312)
- Intro Sociology (Soci 1301)
- Art Appreciation (Art 1391)
- Texas Government (Govt. 2306)
- Anatomy and Physiology (Bio. 2101)
- Principles of Macroeconomics (Econ. 2301)

**Which of the following courses did you take FACE TO FACE during the fall of 2014 at TSTC?**

- U.S. History I (Hist. 1301)
- U.S. History II (Hist. 1302)
- Intermediate Algebra (DMTH 0200)
- Composition I (Engl. 1301)
- College Algebra (Math 1314)
- Beg. Spanish (Span. 1311)
- Beg. Spanish II (Span. 1312)
- Intro Sociology (Soci 1301)
- Art Appreciation (Art 1301)
- Texas Government (Govt 2306)
- Anatomy and Physiology (Biol 2101)
- Principles of Macroeconomic (Econ 2301)

### Chico Rubric

RUBRIC DIRECTIONS: The rubric shown below has six (6) separate categories that contribute to a course's level of interaction and interactivity. For each of these six categories, select a description (Baseline, Effective, Exemplary), below it that applies best to your course. After reviewing the descriptors mark/rate the appropriate level in the rating column

## Category 1: Learner Support and Resources Descriptor 1

Baseline	Effective	Exemplary
Course contains limited information for online learner support and links to campus resources.	Course contains some information for online learner support and links to campus resources.	Course contains extensive information about being an online learner and links to campus resources.

### Category 1: Descriptor 1

Select the best descriptor that identifies your course.

- Baseline
- Effective
- Exemplary

## Category 1: Learner Support and Resources Descriptor 2

Baseline	Effective	Exemplary
Course provides limited course-specific resources, limited contact information for instructor, department and/or program.	Course provides some course-specific resources, some contact information for instructor, department and program.	Course provides a variety of course-specific resources, contact information for instructor, department and program.

### Category 1: Descriptor 2

Select the best descriptor that identifies your course.

- Baseline
- Effective
- Exemplary

### Category 1: Learner Support and Resources Descriptor 3

Baseline	Effective	Exemplary
Course offers access to a limited number of resources supporting course content.	Course offers access to some resources supporting course content.	Course offers access to a wide range of resources supporting course content.

### Category 1: Descriptor 3

Select the best descriptor that identifies your course.

- Baseline
- Effective
- Exemplary

### Category 2: Online Organization and Design Descriptor 1

Baseline	Effective	Exemplary
Much of the course is under construction, with some key components identified such as the syllabus.	Course is organized and navigable. Students can understand the key components and structure of the course.	Course is well-organized and easy to navigate. Students can clearly understand all components and structure of the course.

### Category 2: Descriptor 1

Select the best descriptor that identifies your course.

- Baseline
- Effective
- Exemplary



## Category 2: Online Organization and Design Descriptor 2

Baseline	Effective	Exemplary
Course syllabus is unclear about what is expected of students.	Course syllabus identifies and delineates the role the online environment will play in the course.	Course syllabus identifies and clearly delineates the role the online environment will play in the total course.

### Category 2: Descriptor 2

Select the best descriptor that identifies your course.

- Baseline
- Effective
- Exemplary

## Category 2: Online Organization and Design Descriptor 3

Baseline	Effective	Exemplary
Aesthetic design does not present and communicate course information clearly.	Aesthetic design presents and communicates course information clearly.	Aesthetic design presents and communicates course information clearly throughout the course.

### Category 2: Descriptor 3

Select the best descriptor that identifies your course.

- Baseline
- Effective
- Exemplary

## Category 2: Online Organization and Design Descriptor 4

Baseline	Effective	Exemplary
Web pages are inconsistent both visually and functionally.	Most web pages are visually and functionally consistent.	All web pages are visually and functionally consistent throughout the course.

### Category 2: Descriptor 4

Select the best descriptor that identifies your course.

- Baseline
- Effective
- Exemplary

## Category 2: Online Organization and Design Descriptor 5

Baseline	Effective	Exemplary
Accessibility issues are not addressed.	Accessibility issues are briefly addressed.	Accessibility issues are addressed throughout the course.

### Category 2: Descriptor 5

Select the best answer that identifies your course.

- Baseline
- Effective
- Exemplary

### Category 3: Instructional Design and Delivery Descriptor 1

Baseline	Effective	Exemplary
Course offers limited opportunity for interaction and communication student to student, student to instructor and student to content.	Course offers some opportunities for interaction and communication student to student, student to instructor and student to content.	Course offers ample opportunities for interaction and communication student to student, student to instructor and student to content.

### Category 3: Descriptor 1

Select the best answer that identifies your course.

- Baseline
- Effective
- Exemplary

### Category 3: Instructional Design and Delivery Descriptor 2

Baseline	Effective	Exemplary
Course goals are not clearly defined and do not align to learning objectives.	Course goals are defined but may not align to learning objectives.	Course goals are clearly defined and aligned to learning objectives.

### Category 3: Descriptor 2

Select the best answer that identifies your course.

- Baseline
- Effective
- Exemplary

### Category 3: Instructional Design and Delivery Descriptor 3

Baseline	Effective	Exemplary
Learning objectives are vague or incomplete and learning activities are absent or unclear.	Learning objectives are identified and learning activities are implied.	Learning objectives are identified and learning activities are clearly integrated.

### Category 3: Descriptor 3

Select the best answer that identifies your course.

- Baseline
- Effective
- Exemplary

### Category 3: Instructional Design and Delivery Descriptor 4

Baseline	Effective	Exemplary
Course provides few visual, textual, kinesthetic and/or auditory activities to enhance student learning.	Course provides some visual, textual, kinesthetic and/or auditory activities to enhance student learning.	Course provides multiple visual, textual, kinesthetic and/or auditory activities to enhance student learning.

### Category 3: Descriptor 4

Select the best answer that identifies your course.

- Baseline
- Effective
- Exemplary

### Category 3: Instructional Design and Delivery Descriptor 5

Baseline	Effective	Exemplary
Course provides limited or no activities to help students develop critical thinking and/or problem-solving skills.	Course provides some activities to help students develop critical thinking and/or problem-solving skills.	Course provides multiple activities that help students develop critical thinking and problem-solving skills.

### Category 3: Descriptor 5

Select the best answer that identifies your course.

- Baseline
- Effective
- Exemplary

### Category 3: Instructional Design and Delivery Descriptor 6

Baseline	Effective	Exemplary
Course provides limited or no activities to help students develop critical thinking and/or problem-solving skills.	Course provides some activities to help students develop critical thinking and/or problem-solving skills.	Course provides multiple activities that help students develop critical thinking and problem-solving skills.

### Category 3: Descriptor 6

Select the best answer that identifies your course.

- Baseline
- Effective
- Exemplary

### Category 4: Assessment and Evaluation of Student Learning Descriptor 1

Baseline	Effective	Exemplary
Course has limited activities to assess student readiness for course content and mode of delivery.	Course has some activities to assess student readiness for course content and mode of delivery.	Course has multiple timely and appropriate activities to assess student readiness for course content and mode of delivery.

### Category 4: Descriptor 1

Select the best answer that identifies your course.

- Baseline
- Effective
- Exemplary

### Category 4: Assessment and Evaluation of Student Learning Descriptor 2

Baseline	Effective	Exemplary
Learning objectives, instructional and assessment activities are not closely aligned.	Learning objectives, instructional and assessment activities are somewhat aligned.	Learning objectives, instructional and assessment activities are closely aligned.

### Category 4: Descriptor 2

Select the best answer that identifies your course.

- Baseline
- Effective
- Exemplary

### Category 4: Assessment and Evaluation of Student Learning Descriptor 3

Baseline	Effective	Exemplary
Assessment strategies are used to measure content knowledge, attitudes and skills.	Ongoing strategies are used to measure content knowledge, attitudes and skills.	Ongoing multiple assessment strategies are used to measure content knowledge, attitudes and skills.

### Category 4: Descriptor 3

Select the best answer that identifies your course.

- Baseline
- Effective
- Exemplary

### Category 4: Assessment and Evaluation of Student Learning Descriptor 4

Baseline	Effective	Exemplary
Opportunities for students to receive feedback about their own performance are infrequent and sporadic.	Opportunities for students to receive feedback about their own performance are provided.	Regular feedback about student performance is provided in a timely manner throughout the course.

### Category 4: Descriptor 4

Select the best answer that identifies your course

- Baseline
- Effective
- Exemplary

## Category 4: Assessment and Evaluation of Student Learning Descriptor 5

Baseline	Effective	Exemplary
Students' self-assessments and/or peer feedback opportunities are limited or do not exist.	Students' self-assessments and/or peer feedback opportunities exist.	Students' self-assessments and peer feedback opportunities exist throughout the course.

### Category 4: Descriptor 5

Select the best answer that identifies your course.

- Baseline
- Effective
- Exemplary

## Category 5: Innovative Teaching with Technology Descriptor 1

Baseline	Effective	Exemplary
Course uses limited technology tools to facilitate communication and learning.	Course uses some technology tools to facilitate communication and learning.	Course uses a variety of technology tools to appropriately facilitate communication and learning.

### Category 5: Descriptor 1

Select the best answer that identifies your course.

- Baseline
- Effective
- Exemplary



## Category 5: Innovative Teaching with Technology Descriptor 2

Baseline	Effective	Exemplary
New teaching methods are applied to enhance student learning.	New teaching methods are applied to innovatively enhance student learning.	New teaching methods are applied and innovatively enhance student learning, and interactively engage students.

### Category 5: Descriptor 2

Select the best answer that identifies your course.

- Baseline
- Effective
- Exemplary

## Category 5: Innovative Teaching with Technology Descriptor 3

Baseline	Effective	Exemplary
Multimedia elements and/or learning objects are limited or non-existent.	Multimedia elements and/or learning objects are used and are relevant to student learning.	A variety of multimedia elements and/or learning objects are used and are relevant to student learning throughout the course.

### Category 5: Descriptor 3

Select the best answer that identifies your course

- Baseline
- Effective
- Exemplary

### Category 5: Innovative Teaching with Technology Descriptor 3

Baseline	Effective	Exemplary
Course uses Internet access and engages students in the learning process.	Course optimizes Internet access and effectively engages students in the learning process.	Course optimizes Internet access and effectively engages students in the learning process in a variety of ways throughout the course.

### Category 5: Descriptor 3

Select the best answer that identifies your course.

- Baseline
- Effective
- Exemplary

### Category 6: Faculty Use of Student Feedback Descriptor 1

Baseline	Effective	Exemplary
Instructor offers limited opportunity for students to give feedback to faculty on course content.	Instructor offers some opportunities for students to give feedback on course content.	Instructor offers multiple opportunities for students to give feedback on course content.

### Category 6: Descriptor 1

Select the best answer that identifies your course.

- Baseline
- Effective
- Exemplary

## Category 6: Faculty Use of Student Feedback Descriptor 2

Baseline	Effective	Exemplary
Instructor offers limited opportunity for students to give feedback on ease of online technology in course.	Instructor offers some opportunities for students to give feedback on ease of online technology in course.	Instructor offers multiple opportunities for students to give feedback on ease of online technology in course.

## Category 6: Descriptor 2

Select the best answer that identifies your course.

- Baseline
- Effective
- Exemplary

## Category 6: Faculty Use of Student Feedback Descriptor 3

Baseline	Effective	Exemplary
Instructor uses student feedback at the end of the semester to help plan instruction and assessment of student learning for the next semester.	Instructor requests and uses student feedback a couple times during the semester to help plan instruction and assessment of student learning for the rest of the semester.	Instructor uses formal and informal student feedback in an ongoing basis to help plan instruction and assessment of student learning throughout the semester.

## Category 6: Descriptor 3

Select the best answer that identifies your course.

- Baseline
- Effective
- Exemplary

## BIOGRAPHICAL SKETCH

Jose A. Banda earned his Doctorate of Education degree at the University of Texas Rio Grande Valley in May 2019. He was born in Brownsville Texas and graduated from Homer Hanna High School in 1978. Jose attended the Pan American University where he earned a Bachelor's degree in Education. Jose began work as a History teacher at Memorial Middle School in the Harlingen Consolidated Independent School district in 1982. In 1991, Jose earned a Masters of Education degree in Counseling and began working as a counselor at Vernon Middle School. He continued his education and became an Assistant Principal at Vernon Middle School in 1999.

Dr. Banda currently works as an Assistant Principal in the Harlingen C.I.S.D. and as an adjunct professor at Texas State Technical College in Harlingen. Dr. Banda has been at Texas State Technical College for the last 16 years, where he teaches in the Teacher in Training Program. For any questions or comments you can contact Dr. Banda at:

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