

Running header: STUDENTS OF COLOR AND ONLINE COMMUNICATION

**ONLINE LEARNING: INVESTIGATING THE IMPACT OF ASYNCHRONOUS
AND SYNCHRONOUS COMMUNICATION, ON STUDENTS OF COLOR**

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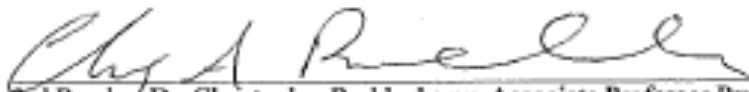
ONLINE LEARNING: INVESTIGATING THE IMPACT OF ASYNCHRONOUS
AND SYNCHRONOUS COMMUNICATION, ON STUDENTS OF COLOR

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ABSTRACT

The main focus of this research is to understand how the use of communication technology impacts students of color performance in online gateway courses. The analysis for this research study is part of a larger, ongoing study of online students of color at the institution. The archival data was obtained from Introductory to Business and Introductory to Psychology courses taught by instructors trained in the use of text messaging and web synchronous communication tools. Both quantitative and qualitative methods were used to analyze data for this study. The quantitative analysis was conducted on data collected from Introductory to Business and Introductory to Psychology classes that were enhanced with asynchronous communication (text messaging) and synchronous communication (webinars) tools. For the qualitative analysis, the researcher conducted individual one on one interviews. The interview participants were high achieving students of color who earned a final grade of A in Business 110 or Psychology 150. Chi-square analysis was used to assess the impact that the use of text-messaging and web synchronous communication tools has on student success. The statistical results indicate asynchronous communication (text-messaging) has a stronger impact on students of color than synchronous communication (webinars).

Keywords: achievement gap, asynchronous communication, distance education, students of color, synchronous communication, text messaging

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DEDICATION

I dedicate this capstone project to several special individuals in my life. First - my mom (Ms. Dorothy Jackson). My mom is the greatest and I thank her for everything she has instilled in me. During this journey, my mom transitioned to be with our Heavenly Father. Mom, I miss you and I love you; thank you for being my number one fan.

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CHAPTER ONE INTRODUCTION

Context

The achievement gap between students of color and white students is a constant issue in higher education (Harper, 2014). Robertson (2008) notes, “By the year 2019, whites will be twice as likely as African-American and three times as likely as Hispanics to hold a college degree” (p. 36). Harper (2014) points out that this has been an ongoing issue for decades. Supporters of the Brown versus the Board of Education decision did not expect students of color would still be faced with such dismal success rates in education (Newman, Wood, & Harris, 2015). The number of students of color in higher education has increased significantly because of the landmark decision; however, access does not equal success.

Scholars have indicated continual low rates of completion can lead to limited financial resources over the course of a lifetime and can contribute to higher rates of poverty (Museus, 2014). Ultimately low success rates impact society at large leading to:

- lower tax revenues,
- more individuals leading a life of crime, and
- minimum civic participation in society (Museus, 2014).

Museus (2014) argues that for students of color, underachieving is a major concern and must be dealt with. “Understanding how to maximize success among racially diverse college student populations should be of paramount importance to postsecondary education researchers, policymakers, and practitioners” (p. 190).

The literature defines students of color as:

- African-Americans,

- Asian-Americans,
- American Indian,
- Alaskan Native,
- Hispanic (Latino), and
- Pacific Islanders (Museus, 2014).

Traditionally, Asian-American students perform at a higher level in post-secondary education; in fact, sixty four percent of Asian-American freshman earn a bachelor's degree within six years of entering college (McGlynn, 2008). This is a statistic that is better than white students (McGlynn, 2008). The primary focus group of this study will include African-American and Hispanics; as much of the achievement gap research is conducted on this population (Musues, 2014).

Statement of the Problem

The increasing disparities between students of color and non-students of color exist in online education (Salvo, Shelton, & Welch, 2017). A closer look at the achievement gap in online education is vital, as online education becomes a larger part of the educational process. In fact, seventy five percent of community colleges offer distance education courses (Jaggars, 2011). In 2013, nearly two million students at two-year institutions enrolled in distance education courses (Allen & Seaman, 2015).

Despite the rapid growth in online learning, there is limited research on students of color in an online environment (Yeboah & Smith, 2016). Nonetheless, the studies that have explored students of color have found one common denominator and that is minimal success (Xu & Jaggars, 2011, 2014). African Americans, Hispanics, and underprepared students, for example, perform significantly worse in online courses than in traditional

courses (Xu & Jaggars, 2011, 2014). Technology issues and lack of structure are barriers, which impede students of color from succeeding (Jaggars, 2011). Isolation is another major barrier for students of color, thus, causing students of color to fall short of their academic goals (Jaggars & Xu, 2010).

Wake Technical Community College (WTCC), a member institution in the North Carolina Community College System (NCCCS), is the largest producer of online programming in the NCCCS. Ryan, Senior Vice President of WTCC, indicates that the college is constantly exploring avenues to improve the success rate of students of color (B. Ryan, personal communication, December 19, 2017). Dr. Kai Wang, WTCC Chief Online Officer, adds, “Our data shows students taking online classes are less likely to remain enrolled and less likely to graduate, this is especially true for African-American students, specifically 18-22 years old and part-time” (K. Wang, personal communication, July 25, 2017).

The literature points out the need for institutions of higher education, particularly community colleges, to explore strategies for improving the success rate of students of color as these institutions serve a significant amount of individuals from underserved communities, such as African-Americans and Hispanics students (Ward, Siegel, & Davenport, 2012). The research also reveals the lack of student teacher communication is a major barrier that impedes students of color from reaching their academic goals (Museus, 2014).

Purpose of Study

The main focus of this research is to understand how the use of communication technology impacts the performance of students of color in online gateway courses.

Communication is an integral part of the teacher-student relationship (Small & Dowell, 2012). Studies have shown students are more interested in communicating with instructors than their fellow peers (Small & Dowell, 2012). Communication is critical in an online environment especially since the student may never come to campus (Betts, 2009). Faculty-student communication is particularly vital for students of color in an online environment (Yeboah & Smith, 2016). A study conducted by Yeboah and Smith (2016) revealed students noted the lack of accessibility to instructors impacted their academic achievement.

In terms of communication, online learning has some inherent disadvantages such as visual and vocal cues (Betts, 2009). In online learning, communication is an area of which both students and educators understand there is a need for improvement (Small & Dowell, 2012). Betts' (2009) study argues it is essential that institutions provide communication training for online instructors. As part of the training, colleges need to provide faculty members with a list of tools that support effective communication (Betts, 2009). Betts notes it is critical for online instructors to diversify the types of communication, for example by using synchronous technology programs such as Adobe Connect. "It is important faculty integrate diverse communication strategies into online courses to engage and connect students as active participants" (Betts, 2009, p. 12).

Poor online communication equals a lack of social presence (Kear, Chetwynd, & Jefferis, 2014). Often, online learning can use a significant amount of discussion forums that can lead to impersonality and disengagement. Furthermore, students feelings of isolation and disengagement can have tremendous influence on the learning process and

may lead to students withdrawing from online courses (Kear, Chetwynd, & Jefferis, 2014).

Asynchronous and Synchronous Communication

In distance education, two forms of communication are heavily relied upon: asynchronous and synchronous (Hrastinkski, 2008). Asynchronous occurs when instructors play the role of the facilitator and primarily use online tools such as email and discussion forums (Watts, 2016). Synchronous communication is real time video and audio that has the capability to provide students instant feedback.

Asynchronous

During the early days of distance education instructors primarily used asynchronous forms of communication (Hrastinkski, 2008). Studies have shown asynchronous interaction plays a major factor in why students enroll in online courses (Watts, 2016). One of the benefits of asynchronous communication is that it allows students to balance their day-to-day responsibilities, like work and family obligations (Hrastinkski, 2008).

Synchronous

With the constant evolution of technology, virtual learning is starting to embed forms of synchronous communication (Hrastinkski, 2008). There are advantages to synchronous education. Synchronous communication provides real-time interaction between the student and teacher and the student and their classmates. Some scholars believe synchronous interactions can assist with students' feelings of isolation (Hrastinkski, 2008). Synchronous communication provides students the opportunity to engage with their instructors and peers, much like in a seated environment (Watts, 2016).

Transactional Distance

One theory to explain the relationship between communication and student performance is transitional distance. Moore defines his theory as a psychological and communication gap that exists in distance education. Moore argues distance students must interact with faculty, peers, and the content to reduce the transitional distance (Watts, 2016). It is quite possible that increases in transitional distance have a more profound effect on students of color than on white students. Meanwhile, forms of asynchronous and synchronous communication are approaches that seek to promote engagement in the learning process, which in turn could reduce transitional distance (Watts, 2016).

The literature emphasizes the importance of continued research examining the impact of asynchronous and synchronous communication in an online environment. This research will add to the literature by providing key stakeholders insight on which forms of communication are effective for students of color. At the time of this study, limited research existed which explored asynchronous and synchronous communication and its impact on students of color in an online environment.

Research Questions

To understand this phenomenon, the following questions were explored.

1. Which communication tool type (synchronous or asynchronous) has a stronger impact on the success of students of color?
2. How does the impact of these communication tools on students of color success compare with the impact these tools have on non-students of color?

3. What are students of color perceptions of utilizing a combination of text messaging and web synchronous technology to support their online learning?

Limitations of Study

Several limitations to this study should be noted. First, the study examined one community college, thus the sample size is narrow. Small sample sizes prevented comparisons of individual ethnicities or comparisons of gender. Furthermore, the investigation of additional two-year institutions would have allowed for more diverse responses. Second, the research only investigated a single semester (Spring 2017). Exploring a longer time frame could have allowed the opportunity to analyze trends.

The study is also absent of faculty interviews, which would enhance the qualitative data. Faculty feedback would allow the researcher to see the results from a different lens. Moreover, this is not an experimental study; thus, analyzing secondary data only provides correlational relationships (C. Roddenberry, personal communication, December 12, 2017). Experimental data have shown that minority performance in classes utilizing these forms of communication improves students of color success (C. Roddenberry, personal communication, December 12, 2017). The data from this study cannot draw a causal link between the use of individual approaches and students' success. The study can only conclude students who chose the approach did better; however, it might be likely that better students chose a particular approach because they wanted to succeed. Nonetheless, the data from this study is useful because it gives educators insight on how to effectively communicate with students of color in an online environment.

Summary

Students of color are the focus of this investigation because administrators are deeply concerned with their success rate in education (Jaggars & Xu, 2010). For instance, the largest community college in North Carolina, which is the location of this research, reports students of color are not performing at a high level in distance courses (K. Wang, personal communication, July 25, 2017). In one case, only 22 percent of the students of color enrolled in an online Introduction to Business course received a grade of A, B, or C (K. Wang, personal communication, July 25, 2017). Granted, the aforementioned statistics are from one course and one semester; however, it is alarming statistics like these that are causing students of color to fall short of their academic dreams (Jaggars, 2011).

To decrease this achievement gap between students of color and non-students of color, it is imperative to start at the first place where students of color begin to fall behind, the gateway course. The purpose of this research is to understand the factors that improve the success rate of students of color in these courses. The findings from this study will assist administrators, educators, and policy makers to better understand the forms of communication that will impact students of color in an online environment.

CHAPTER TWO LITERATURE REVIEW

Introduction

Enrollment in distance education is constantly growing; in fact, some believe online learning will become the main form of postsecondary education (Ashong & Commander, 2012). As a result of the tremendous growth of distance education, the research is plentiful. Some of the research that is available includes comparing the success rate of online versus seated students (Kaupp, 2012; Cavanaugh & Jacquemin, 2015). Additionally, studies have examined influences that cause students to withdraw from online courses (Jaggars, 2011). Despite the abundance of distance education literature on various topics, the research is sparse pertaining to students of color, particularly in online education, especially on the community college level (Ashong & Commander, 2012). The investigator notes the dearth of literature pertaining to students of color in online learning was a major factor for pursuing this study.

For the purpose of this study, students of color will be defined as African-American (Black) and Latino/a (Hispanic) students. In this study, Asians are not classified as students of color; traditionally, Asian-American students perform at a high level in post-secondary education. In fact, sixty four percent of Asian-American freshman earn a bachelor's degree within six years of entering college, a statistic that is better than white students (McGlynn, 2008).

Research suggests the enrollment of African-American and Hispanics continue to rise in higher education. According to Samuel and Scott (2014) since the year 2000 Hispanic enrollment has increased 118%. Furthermore, Iloh and Toldson (2013) contend African-American students are enrolling in record numbers at for-profit institutions and

community colleges. Indeed, African-Americans and Latino/a are the largest minority groups on community college campuses (Samuel & Scott, 2014). The location of this study reported during the 2015-2016 academic year, African-American and Hispanics were the largest minority population on campus. The literature indicates both groups have poor completion rates compared to other ethnicities, such as Whites and Asians (Greene, Marti, & McClenney, 2008; Samuel & Scott, 2014). Further, Greene, Marti, and McClenney (2008) argue the following point: “African-American and Latinos exhibit greater academic risk than their white counterparts” (p. 513). The researcher notes in addition to sparse literature on students of color in distance education, poor academic performance by students of color is another key factor for embarking upon this study.

Context

The goal of this chapter is to set the foundation for this study by taking an extensive look at the literature, as it relates to the following research questions.

1. Which communication tool type (synchronous or asynchronous) has a stronger impact on the success of students of color?
2. How does the impact of these communication tools on students of color success compare with the impact these tools have on non-students of color?
3. What are students of color perceptions of utilizing a combination of text messaging and web synchronous technology to support their online learning?

The first section of this chapter explores the achievement gap between students of color and non-students of color. Next, the chapter highlights barriers that impact student success for students of color, specifically probing the deficit approach. Furthermore, the literature review will disaggregate students of color, explicitly looking at various

populations, such as Black males and females, and review issues they encounter in higher education.

After investigating the issues students of color face, the literature review turns to the theoretical framework of this study and explores the Anti-Deficit Framework, which is a counter argument to simply focusing on the plights of students of color.

Additionally, this chapter will take an expansive look into distance education, distinctively exploring both the benefits and barriers of this exploding educational phenomenon. The literature review culminates by investigating the major components of this study: asynchronous and synchronous communication.

Achievement Gap

One of the long standing issues in education has been the “Achievement Gap” (Pitre, 2014; McGlynn, 2008). In fact, The Assessment of Educational Progress, overseen by the U.S. Department of Education, has reported achievement gaps since the 1960’s (Pitre, 2014). The National Center for Educational Statistics defines the educational achievement gap simply, “The achievement gap occurs when one group of students outperforms another group, and the difference in the average scores for the two groups is statistically significant” (Pitre, 2014, p. 210). In an article titled “Improving African American Student Outcomes”, Pitre (2014) notes the disparity is traditionally between whites and non-whites. Furthermore, the gap is often seen in standardized test results, grade point averages, and college admission data.

The achievement gap is prevalent in all sectors of education, such as kindergarten through 12th grade. Pitre (2014) reveals the reading level of Black fourth graders and high school seniors trail that of their White counterparts. The achievement gap is also

prevalent in higher education. In her article, “Closing the Gap”, McGlynn (2008) discloses 60 percent of White and Asian freshman will earn a bachelors degree within six years. Meanwhile, only 40 percent of students of color will earn their bachelor’s degree during that same time span. Furthermore, White students are more likely to obtain a bachelor’s degree by the age of 29 than students of color (Pitre, 2014).

There are a variety of issues that cause students of color to underperform. For instance, Robertson (2008) argues instructors have a profound role in students of color not succeeding in the classroom, “Teachers have been found to have lower expectations for their students of color than for their white and Asian students, believing students of color are low achievers” (p. 35). Meanwhile, some scholars argue all the culpability is not the blame of the instructor or even the institution. In fact, Robertson (2008) suggests low performance by minorities at times is the responsibility of the student. Some students of color, for example, believe they are not going to succeed in the classroom, as result they do not fully apply themselves.

Students of Color in Higher Education

Black Students

Black students are increasingly enrolling in higher education, specifically in for-profits institutions and community colleges (Lloh & Toldson, 2013). In fact, the California Community College System and for-profit institutions account for 70 percent of black students enrolled in postsecondary education. Traditionally, the California Community College System and for-profit institutions are known for serving students of color, low-income students, and students that graduated from poorly funded high schools.

Lloh and Toldson (2013) contend the influx of African American students over the last twenty-five years has been cited for sustaining the black-white enrollment gaps.

Studies have shown some black students lack the academic ability to attend four-year institutions right out of high school; therefore, community colleges see an influx of black students on their campus. Moreover, of all black males who attend higher education 41 percent enroll at a community college (Fisher, 2015). Financial challenges are deemed a significant factor for why black students attend community colleges. The literature notes higher education is experiencing a tremendous growth of black students attending colleges; however, retention and graduation rates are very low (Lloh & Toldson, 2013). Low graduation and retention rates are a major concern for policy makers. Lloh and Toldson (2013) argue studies need to move past just focusing on providing access to black students, instead more focus should be placed on the inequalities that students face.

Black males. Black males are a population that continues to struggle in higher education (Harper & Harris, 2012), thus the reason for the endless amount of literature revolving around black males. Harper (2014) notes more has been written about black males than any other population. From 1997 to 2012, eleven books and over sixty peer-reviewed articles were published discussing black males (Harper, 2014).

A major factor for the countless literature is due to low retention, persistence, and graduation rates (Newman, Wood, & Harris, 2015). Black males, for instance, are unlikely to graduate with a bachelor's degree within six years of their start date. Furthermore, black males are considered the lowest performing individuals on a college campus (Harper & Harris, 2012). The literature contends there are many factors, such as

institutional climate, which prevent black males from reaching their academic goals (Newman, Wood, & Harris, 2015). Moreover, black males experience deep racism and negative stereotypes from peers and instructors (Newman, Wood, & Harris, 2015). One topic that is examined in the literature and is deemed an issue for black males is the stereotype threat theory, when white students believe admission standards are reduced to allow people of color to be admitted to college (Fisher, 2015). Scholars argue this is one major reason that persistence and graduation rates are dismal (Newman, Wood, & Harris, 2015).

In recent years, the literature has begun to examine black males who are successful in a higher education setting. This way of thinking is called the Anti-Deficit approach. This philosophy is discussed in greater detail later in the chapter.

Black females. The number of black female students attending postsecondary institutions is on the rise (Farmer, Hilton, & Reneau, 2016). While institutions are seeing a large amount of black females on their campuses, colleges are challenged with retaining and graduating these individuals. The 2009 United States Census Bureau revealed one in five black women older than the age of 25 hold undergraduate degrees (20.7%) compared to one in two Asian Americans (49.2%), and one in three White American women (31.9%) (Farmer, Hilton, & Reneau, 2016). Farmer, Hilton, and Reneau (2016) contend more research needs to be conducted on black females because of their underachievement in higher education. The struggles that black females encounter are similar to black males. These struggles included, but are not limited to:

- low self-esteem,
- low social expectations, and

- low levels of parental support (Farmer, Hilton, & Reneau, 2016).

Meanwhile, policy makers are holding institutions accountable; consequently, they want to see better results not only for black females but all students (Farmer, Hilton, & Reneau, 2016).

Latino's in Higher Education

Hispanic students represent the largest non-White ethnic group in higher education (Ponjuan & Hernandez, 2016). The literature notes a significant amount of Hispanics who pursue higher education enroll at a community college (Ponjuan & Hernandez, 2016). Ponjuan and Hernandez (2016) contend 52% of Hispanics who pursue higher education attend two-year institutions. Research has shown community colleges are the gateway to educational opportunities for many Latino/a students (Ponjuan & Hernandez, 2016). Despite the influx of Hispanics enrolling in community colleges, Hispanics are earning fewer associate degrees compared to their White and Black counterparts (Ponjuan & Hernandez, 2016). Specifically, Latino males are struggling in higher education (Ponjuan & Hernandez, 2016). During the time frame of 2008 - 2013, a paltry 15.8% of Latino males earned an associates degree compared to 63.8% White males over that same time frame (Ponjuan & Hernandez, 2016).

The literature notes Latino students are confronted with a variety of unique issues. For example, men are expected to manage the day-to-day operations of the family, such as assisting with children and providing the bulk of the financial support (Ponjuan & Hernandez, 2016). Often, these obligations interfere with students attending school full-time or attending school at all. Scholars have recognized that in the Latino community masculinity is important; consequently, that can become a barrier to their success. For

instance, Latino males are known for avoiding asking for help; in their culture asking for help is a sign of weakness (Ponjuan & Hernandez, 2016).

Similar to Black students, Latino males need to have a sense of belonging to be successful in education (Ponjuan & Hernandez, 2016). Studies have shown that some faculty members believe that Latino males are disengaged with the educational process; thus, students feel uncomfortable in educational settings. Scholars have found male students of color perceive instructors as unpleasant and uncaring. Meanwhile, Latino males are no different than other students, as they also like to be treated fairly and given one on one attention at times (Ponjuan & Hernandez, 2016).

Key stakeholders believe the time is now to integrate measures that will assist Hispanics, African-American, and other students of color to succeed in education. Former president Barack Obama supports initiatives, such as “My Brother’s Keeper” an alliance program, to develop strategies that will assist students of color. Scholars argue that educators need to develop innovative instructional methods to help students of color reach their academic goals, which is another reason this research is important (Ponjuan & Hernandez, 2016).

Online Education

Benefits

In recent years, higher education institutions have experienced a tremendous influx in the number of students taking online courses. “The growth from 1.6 million students taking at least one online course in fall 2002 to the 6.1 million for fall 2010 translates into a compound annual growth rate of 18.3 percent for this time period” (Allen & Seaman, 2011, p. 11). Meanwhile, the institution examined for this study has

experienced tremendous growth in online education; in fact, at the time of this study, the college served more distance education students than traditional face-to-face students (K. Wang, personal communication, February 13, 2018).

Wang, Chief Online Officer, notes a significant amount of the growth is due to the benefits that distance education provides students (K. Wang, personal communication, July 25, 2017). Online education, for example, affords students the opportunity to avoid driving to a physical campus, which is extremely conducive to individuals that have limited financial resources and have family obligations (Kaupp, 2012). In a study examining the impact of the achievement gap between Latinos and White students, one student indicated avoiding a commute to campus impacts his finances tremendously, “For me to go back and forth it cost me somewhere around \$3-\$5 depending on the car that I’m driving” (Kaupp, 2012, p. 13). Perhaps, the most intriguing benefit for students is studying on their own time (Jaggars, 2011). Lastly, distance learning provides access to underserved individuals who traditionally would not have the opportunity to receive higher education (Travers, 2016).

The research notes a significant amount of the growth in distance education is taking place in public two-year colleges (Salvo, Shelton, & Welch, 2017). Wang, suggests distance education assists with a major function of the community college, which is to provide access to the community it serves; thus, the reason community colleges are making a big push to increase their online offerings (K. Wang, personal communication, August 5, 2017). In fact, most college administrators have identified online education as a critical part of the institutions long-term strategic plan (Allen & Seaman, 2011).

Online offerings are very appealing to a segment of students who frequently enroll at two-year colleges (Xu & Jaggars, 2013). Distance education courses provide the flexibility needed to thrive in all areas of their life (Parsad & Lewis, 2008). Often community colleges have an abundant amount of non-traditional students enrolled, which are typically individuals who have work and family responsibilities (Parsad & Lewis, 2008; Xu & Jaggars, 2013).

Issues

Distance education provides many benefits to students; however, colleges are finding this form of education impedes student success (Kaupp, 2012). Travers (2016), for instance, notes the completion rates in online courses compared to seated courses is dismal. Furthermore, research suggests one of the major challenges with students enrolled in online courses is students are not completing and persisting (Xu & Jaggars, 2011). A study completed on the state of Washington's community and technical colleges concluded that students who take online courses are more likely to fail or withdraw from online courses compared to traditional face-to-face courses (Millard, 2012). Indeed, unprepared students who withdraw are likely to never return to college to complete the course (Jaggars, 2011). Moreover, the same study determined all populations of online students are less likely to return to school in subsequent terms, if they withdraw from a course (Millard, 2012). Jaggars (2011) notes withdrawals of online courses are a major issue for community colleges.

There are various causes for poor performance in distance education. For instance, technology is a major challenge for students. According to Jaggars (2011), technology issues are often frustrating to students, especially when taking an exam or

turning in homework. Students are having issues navigating learning management systems or experience network problems, such as slow connectivity (Jaggars, 2011). Similarly, literature suggests lack of structure as a basis for shortage of success in online learning. As previously implied, one of the benefits of distance education is flexibility; however, allowing students to work at their own pace can be detrimental. For example, students can procrastinate and fall behind on assignments (Jaggars, 2011). Lastly, social distance and isolation is considered an origin for weak performance in distance courses (Millard, 2012). In a qualitative study of online students the following was conveyed, “Many students felt lost in cyberspace without any personal connection to the instructor or other students” (El Mansour & Mupinga, 2007, p. 247). Jaggars (2011) argues it is imperative for instructors to engage and provide timely feedback throughout an online course.

Community colleges are in the midst of turbulent times; in fact, enrollment is declining and funding continues to decrease (Cohen, Brawer, & Kisker, 2014). Consequently, community colleges are constantly seeking solutions to improve enrollment and revenue (Cohen, Brawer, & Kisker, 2014). Expanding distance education is one answer institutions are exploring to assist with both enrollment and revenue declines, “If utilized properly, online education can bring efficiencies to community colleges, allowing them to teach more students with fewer resources” (Castillo, 2013, p. 40).

African-Americans in Online Education

The number of African-American students taking online courses is on the rise (Ashong & Commander, 2012). Despite the increase, the research focused on African-

Americans and students of color is very limited (Ashong & Commander, 2012). Some scholars have noted the online achievement gap between Whites and African-American students is even larger than in seated courses (Xu & Jaggars, 2014). One of the benefits of distance education is access; however, Arroyo (2010) argues it could have a devastating impact on African-American students. “Contrary to those who tout online education as the great leveler in higher education with the promise of granting access to one and all, what we actually have is the recipe for a widened achievement gap” (Arroyo, 2010, p. 38). One study concluded Latina/Latino students prefer to take face-to-face courses and consider online programming as an alternative (Ashong & Commander, 2012).

Ashong and Commander (2012) co-authored one of the few articles that focuses on students of color in distance education. The two authors explored African-Americans in distance learning for a variety of reasons. First, the authors believe as online programming continues to grow it is vital to give African-American students a voice because their voice is often silent in research (Ashong & Commander, 2012). Secondly, the two authors wanted to add to the shortage of online literature focused on African-Americans (Ashong & Commander, 2012). Ashong and Commander’s study examines African-Americans’ attitudes toward online learning. The study involves students completing a survey, which allowed students to rate their online experience in several categories.

Ashong and Commander’s (2012) research examines one area that is relevant to the current study and that is African-Americans’ perceptions of asynchronicity, which is the same as asynchronous. According to Watts (2016), asynchronous communication is

defined as “Communication occurring through the use of email, discussion boards and other forms of text media, such as text messaging” (p. 24).

Meanwhile, the results from Ashong and Commander’s (2012) study point to African-Americans having a less positive perception of asynchronous methods, “It is possible that the opportunities for reflective thinking and the convenience afforded by asynchronous modes are more appealing to White students” (p. 106). This particular study will expand upon the Ashong and Commander’s research by exploring both asynchronous and synchronous communication modes.

Additionally, the current study is a mixed methods study; thus, the research will include qualitative data. Scholars point out that collecting both numerical and text data concurrently or sequentially helps you understand the research problem better (Tashakkori & Teddlie, 2010). Moreover, Creswell argues using a mixed-methods approach is greater than conducting a research study that uses a quantitative or qualitative approach singularly (Creswell & Creswell, 2017). Therefore, the study interviewed students of color and gain their perspective on asynchronous and synchronous interactions, an element that was vacant from Ashong and Commander’s (2012) research.

Ashong and Commander’s (2012) study concludes that African-Americans have a negative attitude toward distance education. In fact, the study indicates African-American students do not like using computers for educational purposes. Face-to-face communication with peers, something that is common in the traditional classroom, is missing and is one reason African American students have a negative perception of distance learning. Furthermore, African-American students conveyed they like having verbal interactions with the instructor, an element often missing in distance education

(Ashong & Commander, 2012). The aforementioned statement is a critical reason this current study is vital to institutions.

Theoretical Framework

Harper's (2015) Anti-Deficit Framework provides the theoretical framework for this study. Harper argues the best way to improve the academic performance of students of color is to focus on the Anti-Deficit Framework. Harper serves as the Provost Professor in the Rossier School of Education at the University of Southern California. Harper is the author of over 100 peer reviewed journal articles and other academic publications. Furthermore, Harper is considered as the most prominent academe producing Anti-Deficit Framework literature on Black males in higher education (Fisher, 2015).

Harper (2015) advocates the Anti-Deficit approach is unique because it only focuses on the opinions of high achieving students of color. Harper contends the best way to improve the academic performance of students of color is to understand how these individuals arrive at success. Harper postulates to expand the literature researchers should avoid focusing on the inefficacies of students of color. Moreover, Harper (2009) argues deficit thinking contributes to the negative outlook of black males in society and in research; furthermore, he reasons the deficit approach is impacting the way men of color are treated in education.

Granted, some scholars argue the deficit approach is necessary; however, scholars such as Harper suggest it is only one piece of the puzzle (Goings, 2016). Furthermore, Harper concludes the missing piece of the puzzle is the voice of the successful student of color. Harper (2015) believes in the following: "The Anti-Deficit approach identifies

policies, and structures, as well as individual, familial, cultural, and communal resources that help Black men succeed educationally” (p. 142). Lastly, Harper (2015) indicates the literature is saturated, professing what students of color are lacking; thus, the literature needs to take a fresh approach at solving the issues students of color face in education.

The Anti-Deficit Framework has uncovered several elements that lead to success for students of color, such as experiencing positive relationships with faculty. Specifically, Black males are looking for instructors who engage with them in a supportive manner (Newman, Wood, & Harris, 2015). Furthermore, the literature suggests there is an association with African-American students’ interaction with faculty, their self-perception of academic ability, intellectual self-confidence, and grade point average. Studies have shown African-American students are more concerned with the qualities their professors’ possess, like approachability, encouraging, and understanding. Additionally, students of color in higher education thrive when they have a sense of belonging (Newman, Wood, & Harris, 2015). It is information that is articulated in this paragraph that makes this particular study of great importance.

Meaningful communication is an approach that leads to student success for students of color (Ashong & Commander, 2012). Students of color have indicated effective communication is absent in distance learning. Thus, pointing to the lack of communication as a major aspect causing students of color to underachieve in distance courses.

Transactional Distance

Moore argues Transactional Distance is the cause for ineffective online communication (Watts, 2016). Transactional Distance is a theory based on the premise

students experience a psychological and communication gap in the online environment (Watts, 2016). Furthermore, the theory contends it is imperative instructors have effective communication because students gain from the teacher, who is the content expert (Watts, 2016). Additionally, strong relationships with faculty develop academic skills, leadership capacity, and educational aspirations all of which can lead to a sense of belonging (Newman, Wood, & Harris, 2015). Therefore, it is paramount educators develop solutions that reduce transactional distance. Two forms of online interactions that have proven to reduce transactional distance are asynchronous and synchronous communication (Watts, 2016).

Asynchronous and Synchronous Communication

Distance learning presents several barriers to student success; however, studies have shown the lack of one on one interaction, both with instructors and classmates, as a major issue (Watts, 2016). As a result of this particular deficiency, researchers are constantly seeking strategies for improving communication. Asynchronous and synchronous are two forms of interactions that have proven to improve student experiences in online learning (Watts, 2016). Watts engaged in a deep dive of the literature of both asynchronous and synchronous interaction in distance education courses.

Asynchronous communication. Since the advent of distance education, asynchronous communication has been the most common form of interaction (Watts, 2016). According to Watts (2016), asynchronous communication is defined as “Communication occurring through the use of email and discussion boards, with the instructor playing a larger role as facilitator between students” (p. 25). The research

indicates a new form of asynchronous interaction that instructors are beginning to use is pre-recorded videos. The pre-recorded video gives students the opportunity to view educational material anytime and anyplace. Flexibility is a major benefit of distance education and asynchronous interactions are a significant reason why online learning provides ubiquitous learning. Educators like the concept of using asynchronous interaction because it allows students to engage in creating deep and meaningful responses to class material, such as discussion boards (Watts, 2016).

In a study comparing asynchronous and synchronous learning environments with pharmacy students, it was proven that the asynchronous approach met their needs. Students noted the asynchronous approach provided them the necessary opportunities to learn the material, thus they were satisfied with the course (Watts, 2016). In a separate study, the authors examined the use of asynchronous videos to determine immediacy and closeness. The study concluded students were fulfilled with the interactions the videos provided with the instructors. Additionally, students communicated the asynchronous approach provided in the course was desirable and they felt instructors cared about them. In terms of the faculty, they concluded the pre-recorded videos gave students the opportunity to deeply reflect in their assignments before submitting (Watts, 2016).

Asynchronous interactions are a form of communication that leads to greater learning outcomes, specifically if emails and discussion boards are used (Watts, 2016). Additionally, studies have concluded courses that use asynchronous communication tools the students felt they had the opportunity to dive deeper in content discussions.

Text messaging. Text messaging is a form of asynchronous communication educators are beginning to use for instructional purposes (Jones, Edwards, & Reid, 2009).

Throughout the literature, text messaging is also referred as Short Message Service (SMS). One may believe that SMS is a passing fad; however, experts argue this type of communication will continue to grow. Therefore, educators and policy makers believe SMS is a tool that is worth investigating for educational purposes. Jones, Edwards, and Reid (2009) argue SMS brings a significant amount of value to the classroom experience. Jones, Edwards, and Reid (2009) conducted a study using SMS with first year college students and their tutors. The findings suggest students enjoyed having the opportunity to communicate via SMS with their tutors. For instance, the students felt SMS assisted them tremendously with time management, such as reminding them about study tasks and deadlines. In fact, when asked about self-initiated reminders compared to reminders sent by the tutors the students felt it served as a motivator for them to study (Jones, Edwards, & Reid, 2009).

In Jones, Edwards, and Reid's (2009) study, students noted that the use of SMS improved the communication. The study further revealed the tutors felt SMS was beneficial; for example, data revealed attendance improved and the tutors saw improved work from low achieving students.

The literature has uncovered negative aspects to SMS in the educational environment (Jones, Edwards, & Reid, 2009). Students have argued that educational text can interfere with their personal space. Additionally, students point out instructor led text can be pointless and superficial. One of the challenges for instructors is developing meaningful text in 160 words or less. Peer to peer texting is a challenge, as students cannot understand the texting lingo (Jones, Edwards, & Reid, 2009). An additional

barrier influencing student success in online courses is the social disconnect between the instructor and the student (Allen & Seaman, 2011).

Synchronous Communication

Technology is constantly evolving day by day. Watts (2016) believes because of the evolution in technology, distance learning is evolving. Synchronous interaction is starting to infiltrate the distance learning environment, with the advent of tools like Skype. The literature is beginning to examine the pros and cons of this new approach to communication. Some studies have shown that students like the instant feedback they are able to acquire from faculty. In addition, the literature asserts students enjoy the ability to interact and see their classmates, plus they feel more engaged in the course (Watts, 2016).

Often flexibility is taken away when synchronous communication is used and that is a major concern for some students (Watts, 2016). Watts notes synchronous communication is a challenge for students that have outside the classroom obligations, such as work and family. One more issue with synchronous communication is the technology; the literature argues that not all students are proficient with using various types of learning platforms. Students have suggested that when using synchronous tools, adequate training is needed before the course begins. In addition, students believe providing the necessary technical support throughout the course is vital (Watts, 2016).

Synchronous enhancing participation. Hrastinski's (2008) study investigated whether synchronous communication could enhance online discussion. Specifically, the study examined two types of discussion: text (asynchronous) and chat (synchronous). During the course of the semester, students participated in several small group

synchronous chat based discussions. Additionally, the participants engaged in asynchronous text-based discussion forums. The study revealed that synchronous communication has the potential of enhancing online discussion (Hrastinski, 2008). The participants felt when communicating via the chat it was very similar to talking to someone face to face. The study disclosed synchronous communication used as a compliment to asynchronous could enhance the interaction of discussion in online learning. Results of the study indicate that the use of synchronous communication can be used to increase motivation and personal participation (Hrastinski, 2008).

Synchronous effectiveness. One of the common approaches to teaching Library Information Science (LIS) is embedding seminars in the instruction. According to Farooq and Matteson (2016), this approach gives students the opportunity to engage in practical issues and the ability to share ideas. Online programming is continuing to grow in higher education; thus, more LIS programs are adding online programming. Consequently, practitioners are strategizing how to effectively simulate seminars in a virtual environment. One approach LIS faculty members are using is implementing synchronous technology (Farroq & Matteson, 2016). Farroq and Matteson conducted a qualitative study exploring the effectiveness of a synchronous online seminar using “Google Hangout.”

The participants in the study were LIS students enrolled in a seminar-style course. The study revealed mostly positive thoughts of using a synchronous approach to conducting a seminar online. Some of the students felt they were able to learn a significant amount of information utilizing a synchronous approach (Farroq & Matteson, 2016). According to one student, Google Hangout personalized the learning experience,

“The experience is starting to feel much more personal to me than a classroom or discussion board” (Farroq & Matteson, 2016, p. 276). Faculty members felt the engagement of the students was increased through the social interaction. Some challenges did occur using the synchronous approach. For instance, some students experienced a slow Internet connection, thus, impacting the overall viewing experience with lagging sound and video. In addition, students had issues logging into their Gmail account; consequently, students could not start a Google Hangout session. Despite some of the technology issues, overall students felt that using the synchronous approach is very similar to the face-to-face seminars they have participated in before (Farroq & Matteson, 2016).

Synchronous virtual classroom. One of the limitations with distance education is the lack of interaction; interaction can come in many forms, such as instructor to student, peer to peer, and student to content (McBrien, Jones, & Cheng, 2009). Implementing virtual classrooms is one strategy colleges are beginning to explore to assist with the lack of interaction. Virtual classrooms give instructors the opportunity to have meaningful dialogue and students the opportunity to communicate from a distance. Elluminate Live, Centra, and Interwise are some of the different brand names with which institutions are experimenting. In a study completed by McBrien, Jones, and Cheng (2009), students expressed positive experiences with the virtual classroom. Students noted on the surveys they like the ability to give PowerPoint presentations. The students further revealed they enjoyed the ability to instant message classmates and transmit videos.

Students in the study shared technical difficulties are a major concern with virtual classrooms (McBrien, Jones, & Cheng, 2009). Some of the issues that were expressed include difficulties with logging into the software and poor microphone quality. Students also expressed the virtual classroom provided too many tools; therefore, it made the learning experience overwhelming. One student shared, “So many things at once: PowerPoint, people talking on the mike and people typing messages. It was like CNN” (McBrien, Jones, & Cheng, 2009, p. 11). Some students shared they preferred being in a brick and mortar classroom experiencing face-to-face interaction.

Comparison of Asynchronous and Synchronous

In one study the author compared asynchronous environments and synchronous web conferencing environments (Sklyar, 2009). The participants were pre-service general education and special education students enrolled in two sections of a special education inclusion course (Sklyar, 2009). The two courses utilized both asynchronous and synchronous components throughout the semester. Students received text-based asynchronous assignments one week, such as Word and PowerPoint material. The following week students would engage in real-time synchronous web conferencing lectures utilizing Elluminate Live software (Sklyar, 2009). The software provided numerous interactive components, like two-way audio, break-out rooms, and application sharing. The research goal was to answer the following questions:

- Are there differences in performance between students accessing content presented in a synchronous interactive web conferencing lecture format compared to students that access content in an asynchronous text-based format?

- Would students prefer to take an online course that uses synchronous interactive web conferencing lectures or asynchronous text-based lectures?
- Do students perceive an increased level of technology skills taking an online course? (Sklyar, 2009).

The results suggest students prefer to take an online course that uses synchronous web conferencing lectures as opposed to text based asynchronous lectures. Additionally, the results point out students performed better on quizzes when the material was taught by synchronous methods. For the final question, students felt their computer skills improved, as a result of being in an online course (Sklyar, 2009). Results of the study pointed out that asynchronous lectures are effective for delivering instruction.

Researchers are continually exploring how both synchronous and asynchronous communication methods impact outcomes, such as perceived learning, grades, and satisfaction with learning experience (Watts, 2016). One study examining graduate students' final project grades when utilizing synchronous communication concluded students collaborated more and achieved a higher final project grade. In a separate study, which also examined graduate students, the investigators explored whether synchronous or asynchronous communication impacted students' final grades; using statistical analysis to examine the data, the researchers concluded the use of synchronous communication resulted in students achieving a higher final grade (Watts, 2016). The same study indicated synchronous communication led to more collaboration with classmates. Furthermore, studies have shown synchronous interactions provide students with an improved learning experience, decreases the cognitive load and lessening ambiguity.

Student Perceptions of Asynchronous and Synchronous Tools

The research notes there are various forms of asynchronous and synchronous tools available for instructors to use, such as Adobe Connect and Google Hangout (Parenti, 2013). Parenti examined students' perceptions of several asynchronous and synchronous tools and perceived attainment of academic outcomes. The study concluded that students enjoyed both forms of communication tools; however, the synchronous tools were noted as the top. Students pointed out the synchronous tools gave them the feeling of being in class, despite being in separate locations (Parenti, 2013). Instructors used "Class Time" a video conferencing solution powered by Adobe Connect Pro. The software allows instructors to connect with students via audio and video. Students noted having the ability to experience immediacy of feedback both from their peers and the instructor allowed them to clearly understand the class material (Parenti, 2013).

The study concluded Class Time was the top synchronous tool followed by "Chat Pod." Similar to instant messaging, this software allowed students to interact with their peers and instructor during live video conferencing sessions. One student pointed out the use of Chat Pod created an academic setting, much like in a seated classroom (Parenti, 2013). Chat Pod provided various opportunities for students to engage with their classmates and the instructor, an element that is needed in distance education. "The more learners perceive interaction with others, the higher the e-learning satisfaction" (Parenti, 2013, p. 13).

The top asynchronous tool was email. Parenti (2013) notes email is an essential tool that allows communication to continue outside of the classroom. In the early days of distance learning, email was the primary tool used for communicating with students

virtually. Despite the advancement of new innovative technology, email continues to prove beneficial to student success in online learning. One student pointed out email allowed him the opportunity to gain and deliver information throughout the course (Parenti, 2013). In this study, Adobe Connect, Chat Pod, and email were identified as the top tools, in terms of asynchronous and synchronous communication that assisted students with reaching their academic outcomes. More importantly, Parenti (2013) drives home the point that students who do not have sufficient contact with instructors and peers are less satisfied with their online learning experience.

Summary

In this chapter, the researcher wanted to tell the story of pertinent literature that pertains to the following research questions.

1. Which communication tool type (synchronous or asynchronous) has a stronger impact on the success of students of color?
2. How does the impact of these communication tools on students of color success compare with the impact these tools have on non-students of color.
3. What are students of color perceptions of utilizing a combination of text messaging, and web synchronous technology to support their online learning?

Meanwhile, the literature review introduces the reader to the continued struggles of students of color, a battle their white counterparts have seemingly avoided (McGlynn 2008). An abundance of the literature argues students of color are not succeeding for a multitude of reasons, such as underperforming high schools or family dynamics (Newman, Wood, & Harris, 2015). However, the theoretical framework of this study takes a different slant called the Anti-Deficit approach, exploring the successes of

students of color, which is the direction Harper (2015) argues is the next step in propelling students of color in higher education.

Additionally, this chapter extensively examines students of color in distance education. As noted earlier in the chapter, online learning provides access to populations that normally would not have the opportunity to participate in education; consequently, distance education has the opportunity of widening the achievement gap amongst students of color and their white counterparts (Arroyo, 2010; Xu & Jaggars, 2014).

One of the challenges students of color face in distance learning is transactional distance (Ashong & Commander, 2012). A key tenant of transactional distance is the lack of communication in online learning. The research suggests students of color feel isolated, thus causing low performance in distance education. Two forms of communication that potentially could reduce transactional distance and improve communication are asynchronous and synchronous communication (Watts, 2016). As noted earlier, this study seeks to determine which of these forms of communication has a larger impact on students of color.

CHAPTER THREE METHODOLOGY

The achievement gap between students of color and white students is a constant issue in higher education (Harper, 2014). The increasing disparities between students of color and non-students of color also exist in online education (Salvo, Shelton, & Welch, 2017). The main focus of this research is to understand how the use of communication technology impacts students of color performance in online gateway courses. To understand this phenomenon, the following research questions were explored.

1. Which communication tool type (synchronous or asynchronous) has a stronger impact on the success of students of color?
2. How does the impact of these communication tools on students of color success compare with the impact these tools have on non-students of color?
3. What are students of color perceptions of utilizing a combination of text messaging and web synchronous technology to support their online learning?

Research Design

This study took place in 2017 at a large community college located in the southeastern region of the United States. During 2015-2016 academic year, the college reported an unduplicated headcount enrollment of 29,050 curriculum students (WTCC 2017). Furthermore, 2015-2016 marked the fourth consecutive year the college had the largest annual curriculum full time equivalency in its system. The institution serves a significant amount of online students. During the 2016-2017 academic year, the institution reported 16,350 curriculum online students (WTCC, 2017). The college's Senior Vice President reported the online campus population was larger than any of the college's traditional seated campuses (S. Ryan, personal communication, March 8, 2018).

The college is a part of a fifty-eight community college system; during the 2016-2017 academic year, the college offered the most online programming in its system (WTCC, 2017).

The analysis for this research study is part of a larger, ongoing study of online students of color at the institution. The purpose of the college's study is to improve the success of students of color in high demand, online courses through a redesign geared to increase teaching, social, and cognitive presence. The investigator for this study serves as a co-principal investigator for the larger study. The investigator has two primary roles:

- assisting treatment instructors with creating engaging educational videos, and
- serving as a project manager.

In his role as a project manager, the researcher works with an outside technology firm to build two video production studios. The treatment instructors use the two studios to create innovative videos to support their online instruction.

The data for this study was collected from the college's data analyst. All data was secured in a locked filing cabinet in the researcher's office. Outside the data analyst, the investigator is the only individual with access to the data. The dataset that was analyzed for this study is from spring 2017. The archival data was obtained from ten online Introductory to Business and Introductory to Psychology courses taught by seven instructors trained in the use of text messaging and web synchronous communication tools.

Quantitative analysis was conducted on the archival data collected from the ten Introductory to Business and Introductory to Psychology online classes that were enhanced with asynchronous communication (text messaging) and synchronous (Adobe

Connect) tools. The quantitative analysis was used to assess the effectiveness of these tools for impacting the success of students of color. Students' success for this study was defined as students earning an A, B, or C; as grades below C, traditionally cannot be transferred to four-year institutions. Students of color for this project are non-Asian minorities, specifically Black and Hispanic students.

Population. Statistical analysis was conducted on two hundred and fifty nine students. For the qualitative analysis, the researcher conducted individual one on one interviews, which included a total of six students. Studies have shown that interviews are valuable for collecting qualitative data (Rubin & Rubin, 2011). Additionally research suggests interviews provide rich and detailed qualitative data for understanding participants' experiences (Rubin & Rubin, 2011).

The interview participants were high achieving students of color who earned a final grade of A in Business 110 or Psychology 150. The goal of the qualitative analysis was to discover how text messaging and web-conferencing technology impacted their success in the course. Selecting high achieving students of color follows Harper's (2015) approach called the Anti-Deficit Framework. Unlike other approaches, the Anti-Deficit Framework only focuses on the voices of successful students of color. Harper (2015) points out the literature is saturated with information focused on the deficiencies of students of color and argues the best way to improve the academic performance of students of color is to understand how high achieving students of color arrive at success. The interviews occurred via a conference phone, over multiple days.

With the permission of the college's Institutional Review Board (Appendix A), the investigator was able to obtain emails and phone numbers for students of color that

were in the Business 110 and Psychology 150 data set. Once the aforementioned information was received via the college's data analyst, it was secured in a lock filing cabinet to which only the investigator has access. The investigator created a document soliciting participation for the study. The researcher disseminated the document via email. During the development of the study, the investigator interviewed Dr. Roddenberry, an experienced educational researcher. Dr. Roddenberry's professional and academic background includes over twenty years of research experience. Moreover, he has published several articles that utilized qualitative research. "Personally, I believe the investigator should send out the email; only you can sale the importance of your research" (C. Roddenberry, personal communication, March 8, 2018). Two separate emails were sent to potential students imploring their assistance for the study. The emails assured the students that participating in the study would not impact their status at the institution or any college they are currently attending.

As noted previously, the study employed a mixed-methods approach examining both qualitative and quantitative data (Creswell & Plano-Clark, 2011). Collecting both numerical and text data concurrently or sequentially helps one understand the research problem better (Tashakkori & Teddlie, 2010). Creswell and Creswell (2017) argue using a mixed-methods approach is greater than conducting a research study that uses a quantitative or qualitative approach singularly.

Instrumentation

Research Question One

Which communication tool type (synchronous or asynchronous) has a stronger impact on the success of students of color?

Null and Alternative Hypothesis.

H₀ Asynchronous communication does not have a stronger impact than synchronous communication on students of color.

H_a Asynchronous communication does have a stronger impact than synchronous communication on students of color.

Instrumentation. Archival quantitative data were obtained from ten online Introductory to Business and Introductory to Psychology courses taught by seven instructors trained in the use of text messaging and web synchronous communication tools. The original data was collected and coded by the instructors. The instructors maintained a spreadsheet indicating students who attended a webinar session and students who opted-in to receive text messaging. Additionally, instructors kept records of the student's final grade. The instructors retained the aforementioned information for both non-students of color and students of color. The data from all seven instructors were collected and compiled into one spreadsheet by the data analyst. This research study is part of a larger, ongoing study of online students of color at the institution. The purpose of the college's study is to improve the success of students of color in high demand online courses through redesign to increase teaching, social, and cognitive presence.

Explanation. Research Question One is important because studies have shown communication is a major issue in distance learning (Kear, Chetwynd, & Jefferis, 2014). Often, students of color feel a sense of isolation; thus, the students do not feel a sense of belonging. Students of color who do not feel like they belong, at times struggle in the classroom (Jaggars & Xu, 2010). Furthermore, to ensure transparency and eliminate any potential bias the investigator worked with several experienced researchers, such as Dr.

Roddenberry to develop the question. Dr. Roddenberry is a published author with over twenty years in educational research.

Variables. In this study, the comparison variable is the ethnicity of the student (Students of Color vs. Non-Students of Color). The two communication-type variables are whether students opt into receiving text-messages (yes or no) and whether students attend any instructor led webinar events (yes or no). The outcome variable is whether students of color pass Introduction to Business or Introduction to Psychology with a “C” or better.

Procedure. The data was analyzed through the use of the Statistical Package for Social Sciences (IBM SPSS Statistics Base GradPack 25 for Windows). Chi-square analysis was used to assess the impact that the use of text-messaging and web synchronous communication tools has on student success.

Research Question Two

How does the impact of these communication tools on students of color success compare with the impact these tools have on non-students of color?

Null and Alternative Hypothesis.

H₀ Asynchronous communication and synchronous communication does not have a stronger impact on students of color than non-students of color.

H_a Asynchronous communication and synchronous communication does have a stronger impact on students of color than non-students of color.

Instrumentation. Archival quantitative data was obtained from ten online Introductory to Business and Introductory to Psychology courses taught by seven instructors trained in the use of text messaging and web synchronous communication tools. The original data was collected and coded by the instructors. The instructors maintained a spreadsheet indicating students who attended a webinar session and students who opted-in to receive text messaging. Also, instructors kept records of the student's final grade. Furthermore, the instructors retained the aforementioned information for both non-students of color and students of color. The data from all seven instructors were collected and compiled into one spreadsheet by the data analyst. This research study is part of a larger, ongoing study of online students of color at the institution. The purpose of the college's study is to improve the success of students of color in high demand online courses through redesign to increase teaching, social, and cognitive presence.

Explanation. Research Question Two is vital because it is critical for educators to seek solutions that meet the needs of all students. Community colleges are in the midst of turbulent times; consequently, it is critical that institutions are efficient with resources, such as procuring technologies that are proven to assist with academic success (Cohen, Brawer, & Kisker, 2014). To ensure transparency and eliminate any potential bias the investigator worked with several experienced researchers, such as Dr. Roddenberry, to develop this question.

Variables. In this study, the comparison variable is the ethnicity of the student (Students of Color vs. Non-Students of Color). The two communication-type variables are whether students opt into receiving text-messages (yes or no) and whether students attend any instructor led webinar events (yes or no). The outcome variable is whether

students of color pass Introduction to Business or Introduction to Psychology with a “C” or better.

Procedure. The data was analyzed through the use of the Statistical Package for Social Sciences (IBM SPSS Statistics Base GradPack 25 for Windows). Chi-square analysis was used to assess how the effects of these tools had on students of color success compared with the impact these tools have on non-students of color.

Research Question Three

What are students of color perceptions of utilizing a combination of text messaging and web synchronous technology to support their online learning?

Instrumentation. To answer Research Question Three, qualitative data was collected through one on one interviews, which the researcher held with high achieving students of color.

Explanation. Studies have pointed out interviews help researchers to access the thoughts and feelings of research participants (Turner, 2010). As noted above the interviews consisted of high achieving students of color, which follows Harper’s (2015) approach called the Anti-Deficit Framework. Unlike other approaches, the Anti-Deficit Framework only focuses on the voices of successful students of color. Further, Harper (2015) points out the literature is saturated with information focused on the deficiencies of students of color; he argues the best way to improve the academic performance of students of color is to understand how high achieving students of color arrive at success. Therefore, the students selected for the interviews earned a final grade of A.

Procedure. Studies have shown ensuring credibility, reliability, and validity of qualitative data is paramount to research (Noble & Smith, 2015). Consequently, the

investigator followed several measures to ensure the collection and interpretation of the data accurately reflected the purpose of the study; more importantly, the data analysis correctly portrays the responses of the participants. The interview sessions were analyzed using a thematic content analysis approach (Çalik & Sözbilir, 2014). Content analysis allows one to select, extract pertinent information, and develop themes (Çalik & Sözbilir, 2014).

Nobel and Smith (2015) note it is vital for data to demonstrate consistency and transparency; therefore, all the interviews were audio recorded. The investigator used a small digital recorder for each session. Dilshad and Latif (2013) contend utilizing an audio recorder allows one to capture rich sources of data. In the sessions, the recorder clearly picked up audio from the investigator and the participants. Additionally, a recording application on an iPad was used in case technical difficulties occurred with the digital recorder. A third party professionally transcribed the audio files. The transcription service used has no affiliation with the college, investigator, participants, or the study.

To ensure transparency the investigator invited a third party representative to assist with the interviews. The individual was not compensated; moreover, the person did not have any allegiance to the college, investigator, participants or the study. The representative was selected due to her experience taking meeting notes and her ability to operate the audio recorders. During the sessions, the representative started and stopped the recording devices and took field notes. Sutton and Austin (2015) believe field notes are essential to qualitative data, "Field notes can provide important context to the interpretation of audio-taped data and can help remind the researcher of situational

factors that may be important during the data analysis” (p. 227). In fact, research suggests that data analysis begin immediately after a session (Dilshad & Latif, 2013). Thus, the investigator and the representative began listening to the audio recording after each session. Further, the representative and investigator individually listened and compared the transcripts to the audio recording to ensure for accuracy an approach that is commonly used when analyzing qualitative data (Sutton & Austin, 2015).

The third party representative compared the transcription to the audio files. Both individuals coded the data separately. Coding the data allowed the researcher to identify topics, issues, similarities, and differences (Sutton & Austin, 2015). The investigator collaborated with several experienced researchers who have specialized in both quantitative and qualitative data collection and analysis. During this process, all parties worked to triangulate the data. Nobel and Smith (2015) believe working with outside researchers helps to reduce bias.

Summary

This study employed a mixed-methods approach examining both qualitative and quantitative data (Creswell & Plano Clark, 2011). Scholars believe that collecting both numerical and text data concurrently or sequentially helps one understand the research problem better (Tashakkori & Teddlie, 2010). Using a quantitative approach the study analyzed secondary data from ongoing research taking place at the institution. The study included gathering qualitative data from interviews. Participants in this study were online students taking Business 110 or Psychology 150 who were taught by seven instructors utilizing both text messaging and web conferencing technology. To ensure the reliability and validity of the data several measures were put in place, such as audio

recording the interviews and using reputable statistical software to analyze the quantitative data.

CHAPTER FOUR RESULTS

The main focus of this research was to understand how the use of communication technology impacts students of color performance in online gateway courses. To understand this phenomenon, the investigator conducted a mixed-methods approach. Creswell argues using a mixed-methods approach is greater than conducting a research study that uses a quantitative or qualitative approach singularly (Creswell & Creswell, 2017).

Statistical analysis was conducted on data from two hundred and fifty nine students. The dataset analyzed for this study was from spring 2017. The archival data was obtained from ten online Introductory to Business and Introductory to Psychology courses taught by seven instructors trained in the use of text messaging and web synchronous communication tools. The original data was collected and coded by the instructors. The instructors kept a spreadsheet indicating students who attended a webinar session and students who opted-in to receive text messaging. For the qualitative analysis, the researcher conducted individual one on one interviews with six students. Studies have shown that interviews are valuable for collecting qualitative data (Rubin & Rubin, 2011). Additionally research suggests interviews provide rich and detailed qualitative data for understanding participants' experiences (Rubin & Rubin, 2011).

In the subsequent sections, the investigator reveals the final results from the mixed methods study. The first two research questions addressed provide results for the quantitative findings. Next, a qualitative approach is used to answer Research Question Three.

Data Overview and Results

Archival data was used from a larger, ongoing study at the college. The original data was collected and coded by the instructors. Participants in the study were enrolled in online sections of Business 110 or Psychology 150 during the spring 2017 academic year. The instructors kept a spreadsheet indicating students who attended a webinar session and students who opted in to receive text messaging. In terms of the qualitative data, the investigator individually interviewed six high achieving students of color to gain their thoughts and perspectives toward web synchronous technology and asynchronous technology (text messaging). In this study, high achieving are students that earn a final grade of A in the course.

Research Question One

Which communication tool type (synchronous or asynchronous) has a stronger impact on the success of students of color?

Description of data. Archival data was used from a larger, ongoing study at the college. The original data was collected and coded by the instructors. A total of two hundred fifty nine students are included in the analysis; furthermore, this group consisted of students of color and non-students of color. The instructors kept a spreadsheet indicating students who attended an Adobe Connect session and students who opted-in to receive text messaging. A chi-square analysis was used to assess the impact that the use of text-messaging and web synchronous communication tools had on student success. In this study, successes are students earning a grade of A, B, or C. Traditionally, grades below a C will not transfer to four-year universities or colleges.

Results. The chi-square test for successful students of color and synchronous technology (webinar) was not statistically significant .062, $p > .05$ level (Table 4.2); therefore, there is no relationship between successful students of color and synchronous technology (webinar).

The chi-square test for successful students of color and asynchronous technology was statistically significant at .005, $p < .05$ level (Table 4.1); therefore, there is an association between text messaging and successful students of color. Moreover, to answer Research Question One, asynchronous technology (text messaging) has a stronger impact than synchronous technology (webinar) (Table 4.1). Thus, the null hypothesis is rejected and the alternate hypothesis is accepted.

Table 4.1

*Students of Color and The Use of Asynchronous Communication
(Text Messaging)*

	Success	Non-Success	Total
Yes	40 71%	16 29%	56
No	37 47%	41 53%	78
Total	77	57	134

Note: $X^2 = 7.677$, $df = 1$, p value = 0.006. Chi-squared critical value = 0.006 for $p < .05$. Phi = .239.

Table 4.2

Students of Color and The Use of Synchronous Communication (Webinar)

	Success	Non-Success	Total
Yes	33 60%	22 40%	55
No	44 56%	35 44%	79
Total	77	57	134

Note: $X^2 = .246$, $df = 1$, p value = 0.620. Chi-squared critical value = 0.620 for $p > .05$. Phi = .043.

Null and Alternative Hypothesis. The null (Ho) and alternative (Ha) hypotheses may be written as follows:

- Ho Asynchronous communication (Text Messaging) does not have a stronger impact than Synchronous communication (Webinars) on students of color.
- Ha Asynchronous communication (Text Messaging) does have a stronger impact than Synchronous communication (Webinars) on students of color.

Research Question Two

How does the impact of these communication tools on students of color success compare with the impact these tools have on non-students of color?

Description of data. Archival data was used from a larger ongoing study at the college. The original data was collected and coded by the instructors. A total of two hundred fifty nine students were included in the analysis this group consisted of students of color and non-students of color. The instructors kept a spreadsheet indicating students who attended an Adobe Connect session and students who opted-in to receive text

messaging. Chi-square analysis was used to assess how the effects of these tools had on students of color success compared with the impact these tools have on non-students of color. In this study, successes are students earning a grade of A, B, or C.

Results. The chi-square test for non-students of color and asynchronous technology (text messaging) was not statistically significant .233, $p > .05$ level (Table 4.3). The chi-square test for students of color an asynchronous technology (text-messaging) was significant .006, $p < .05$ level.

The chi-square test for non-students of color and synchronous technology (webinar) was not statistically significant .179, $p > .05$ level (Table 4.4). The chi-square test for students of color and synchronous technology was not statistically significant .620, $p > .05$ level (Table 4.2). Thus, the null hypothesis is rejected and the alternate hypothesis is accepted.

Table 4.3

*Non-Students of Color and The Use of Asynchronous Communication
(Text Messaging)*

	Success	Non-Success	Total
Yes	49 74%	17 26%	66
No	38 64%	21 36%	59
Total	87	38	125

Note: $X^2 = 1.424$, $df = 1$, p value = 0.233. Chi-squared critical value = 0.233 for $p > .05$. Phi = .107

Table 4.4

Non-Students of Color and The Use of Synchronous Communication (Webinar)

	Success	Non-Success	Total
Yes	48 75%	16 25%	64
No	39 64%	22 36%	61
Total	87	38	125

Note: $X^2 = 1.807$, $df = 1$, p value = 0.179. Chi-squared critical value = 0.179 for $p > .05$. Phi = .120.

Null and Alternative Hypothesis. The null (H_0) and alternative (H_a) hypotheses may be written as follows:

- H_0 Asynchronous communication does not have a stronger impact on students of color than non-students of color. Synchronous communication does have a stronger impact on students of color than non-students of color.
- H_a Asynchronous communication does have a stronger impact on students of color than non-students of color. Synchronous communication does not have a stronger impact on students of color than non-students of color.

Research Question Three

What are students of color perceptions of utilizing a combination of text messaging and web synchronous technology to support their online learning?

Description of data. The researcher used the Anti-Deficit Framework to answer Research Question Three. Unlike other approaches, the Anti-Deficit Framework only focuses on the voices of successful students of color (Harper, 2015). Further, Harper points out the literature are saturated with information focused on the deficiencies

of students of color (Harper, 2015). Harper argues the best way to improve the academic performance of students of color is to understand how high achieving students of color arrive at success (Harper, 2015).

The Business 110 and Psychology 150 instructors reported a total of twenty four students who earned a grade of A. The investigator reached out to each student multiple times through email and phone calls; however, only six students responded to the request to participate in the study.

The one on one interviews occurred over several weeks. To ensure quality of the conversations, the investigator interviewed the participants using the college's Voice Over Internet Protocol (VOIP) phone. The college uses VOIP phones to conduct both internal and external conference calls. Moreover, Nobel and Smith (2015) note it is vital for data to demonstrate consistency and transparency; therefore, all the interviews were audio recorded.

Each interview was recorded using an audio recording device. Additionally, serving as back-up devices, two iPads were used to record the conversations. Dilshad and Latif (2013) contend utilizing an audio recorder allows you to capture rich sources of data. The interviews varied in length ranging from nine minutes to twenty-two minutes.

Once the interviews were complete, the investigator and a third party representative analyzed each audio recording. The third party representative assisted taking field notes and operating the recording devices. Furthermore, immediately after the interviews, the audio recordings were uploaded to third party transcription services. The third party vendor transcribed the audio recording and returned them back to the investigator within twenty four hours. The investigator emailed the participants their

transcript to confirm their statements were accurate.

Meanwhile, the third party representative who assisted with taking field notes worked collaboratively with the researcher to code and select themes from the transcripts. Initially the two individuals worked separately before uniting to compare notes. Ultimately, the researcher and the representative agreed on seventeen broad codes. The codes were based on their responses and their relevance to Research Question Three. Coding data is significant because it allows the researcher to identify topics, issues, similarities, and differences (Sutton & Austin, 2015).

Some of the codes identified were: “Texting, Webinars, Cannot Remember, Ideas, and Flexibility” just to name a few. The codes were key terms used from the participants in the interviews. Following the creation of the codes, the investigator and researcher listened to the audio recordings and re-read the transcripts many times to develop themes from the codes. The themes were created from developing categories from each code. For instance, the theme “Ease of Use” was created from the code “Technology Usage.”

Results. Additional interview themes are revealed in this section.

Reminders. In the one on one conversation with each student it was made clear the participants enjoyed receiving text messages, as it pertained to their courses. The instructors sent out a variety of text messages, such as announcements, class expectations, due dates, and reminders. When asked which type of text message was the most beneficial, one hundred percent of the participants responded, the reminder text, thus, the theme “Reminders.”

The students felt the reminder text kept them abreast of what was going on in the class. One participant had the following to say, “The text messages were very helpful. I

had a general idea of what the due dates were, but sometimes they slipped up on me and I forgot, and he would give us a reminder ahead of the deadline” (Participant A, personal communication, March 31, 2018).

Traditionally community colleges have diverse campuses, with students coming from different countries, having varied levels of education and an assortment of backgrounds. The six students interviewed are representative of this diversity. For instance, the participant ages ranged from eighteen to thirty four years old. As evident by this study, some participants were Black and Hispanic. One individual was a veteran seeking to obtain his associate in business administration, while a significant amount of the other students were working parents.

Individuals in the workforce, specifically, enjoyed the luxury of receiving text-messages. Participant B, a working mother of a two year old and a seven year old, appreciated text reminders, “We got texts from the teacher letting us know when assignments were due or announcement and things like that, which was really convenient because most of the time I had my phone in my hand or somewhere near me” (Participant B, personal communication, March 31, 2018). One student suggested the reminder text-messages helped him significantly in the course, “Well, it was really helpful because if I didn’t write it down or if I didn’t put it in my phone, and we received a text from the instructor, it reminded me that it had to be done” (Participant F, personal communication, April 4, 2018).

The majority of the students acknowledged the webinars were beneficial as well. Participant B made the following comment, “I actually really enjoyed the Adobe Connect; I had never seen it before I had taken this class” (Participant B, personal

communication, March 31, 2018). Students noted the webinars traditionally took place once a week during the semester. Furthermore, the participants commented the Adobe Connect sessions allowed them to hear reminder updates about upcoming assignments, such as homework and quizzes, “In my Business 110 class, he did webinars every week and he would explain how our week was going to go and what was due” (Participant F, personal communication, April 4, 2018).

Ease of use. In the conversations, one by one students professed the simplicity of using these tools. Participant B acknowledged the same text-messaging tool was used at her child’s school, “It was pretty easy to use, just download it to the phone and you could receive or send text messages. It was pretty user friendly” (Participant B, personal communication, March 31, 2018). Also, students had the opportunity to sign up for text via the computer, “The instructor provided a link and the link sent us to a website where we simply entered our phone numbers and that allowed us to start receiving messages from the instructor. It was very easy” (Participant E, personal communication, April 3, 2018).

The investigator heard the same remarks from the participants, as it pertained to the webinars. The military participant pointed out he used the technology while overseas and had no complications throughout the semester, “It is learner friendly, very user friendly. You can have minimal computer skills, log on and learn the system relatively quickly. Personally, I think that’s what is most effective about the webinars is its simplicity” (Participant D, personal communication, March 31, 2018).

Convenient. The researcher and the third party representative felt the convenience of the tools was articulated on many occasions throughout the interviews. In

fact, two students enjoyed how convenient the Adobe Connect sessions were on their mobile devices, “I had an app on my phone, so anywhere I was I could actually watch the class, which was really cool” (Participant B, personal communication, March 31, 2018).

One particular student seeking to obtain two associate degrees noted he used his mobile device on multiple occasions leaving work,

A few times, I was able to use my smartphone prior to getting home. I would connect my smartphone to my vehicle’s bluetooth and I could interact during the webinar while traveling home from work. I thought that was very interesting.

(Participant D, personal communication, March 31, 2018)

Participant C also enjoyed the flexibility of the webinars,

I was moving at the time of this class and I was not able to login at home, so sometimes I went to Starbucks to sign on. That was very beneficial because I was able to keep up with information in the class. (Participant C, personal communication, March 31, 2018)

Additionally, students conveyed the use of the text messaging was convenient to their academic success, “The use of the text feature was definitely convenient because I always have my phone in my hand or near me” (Participant B, personal communication, March 31, 2018). One student, who indicated he has transferred to a four-year institution, made the following statement, “It was nice having the ability to check the messages on my own leisure and I could save the text for future reference” (Participant A, personal communication, March 31, 2018). Furthermore, one participant articulated he liked the length of the information that was delivered, “It was kind of concise, short, and sweet” (Participant E, personal communication, April 3, 2018).

Barriers. The tools did provide some challenges for students. Some students suggested with their busy schedules some texts were over looked, “Initially I would look at the text on my phone; but then, if I was doing something at the time, I would forget that I received a text from the instructor” (Participant C, personal communication, March 31, 2017). Another participant articulated the following barrier with text-messaging: “Sometimes I did get a lot of messages at once” (Participant B, personal communication, March 31, 2018).

Meanwhile, one major barrier with the webinars discussed was the times the instructors conducted the session. Frequently the instructors held the online classes at inconvenient times, “For me I work full time and most of the webinars were at twelve noon or two o’clock and I couldn’t just log on while at work to do a webinar” (Participant D, personal communication, March 31, 2017). Some instructors held their sessions in the late evening; however, the webinars did not have the same effect,

I can recall though, on a number of occasions for the evening webinars, it was usually just either myself and the instructor or at least one or two other people. So I didn’t get that full webinar experience that other students were able to have. (Participant D, personal communication, March 31, 2018)

The webinars presented another challenged too, as some students had difficulty connecting to the sessions, “A few times I had trouble signing on. Most of the time I was at work when she did the Adobe Connect sessions and the Internet signals were terrible” (Participant B, personal communication, March 31, 2018). For those students who were able to log on one of the challenges was interacting during the webinar, “Sometimes students would be rambling on and it would be hard to have your voice heard”

(Participant C, personal communication, March, 31, 2018). The same student added: “Since the webinars were live and not recorded, she could not go back and rewind the session after they started, thus she missed out on information because of connectivity issues” (Participant B, personal communication, March 31, 2018). Lastly, one student made the decision not to attempt the webinars because of his perception: “It just seemed too complicated. In comparison to signing up for the text, it definitely seemed more complicated. It just wasn’t as easily available” (Participant E, personal communication, April 3, 2018).

Content delivery. In the midst of the conversations, participants were highly satisfied by the relevance of the information shared. Participant B noted she valued her time because she is a mother of two and works full-time; therefore, it was vital that the webinars met her need:

The instructor actually did lectures through the Adobe Connect and you could ask questions while she was teaching. You could actually see your teacher, so you got that personal experience that you normally wouldn’t get when taking an online class. I really enjoyed it. (Participant B, personal communication, March 31, 2018)

Participant B added the webinar structure felt like she was in class, “The instructor did PowerPoints just as she would in a regular class, and there was nothing lost in translation as she explained the material and we even had the chance to ask questions and she easily responded” (personal communication, March 31, 2018).

Participant D, a former teacher, contends he would use the Adobe software in his classes because of the instructor’s ability to deliver relevant information, “It impacted me

a lot. Just that reiteration of the chapters and that opportunity to ask those questions directly to the instructor really helped me. I am pretty sure it helped me get a good grade in the class” (Participant D, personal communication, March 31, 2018).

Participant C was a huge fan of the webinars; in fact, she often watches video streams of her church services, “We normally had the sessions on either Tuesday or Wednesday and it was nice to see and hear the special guest that talked about various business topics” (Participant C, personal communication, March 31, 2018). The same student adds she is exploring using webinar tools to give seminars for her personal business (Participant C, personal communication, March 31, 2018). Several students pointed they were happy with how instructors delivered content via text-messages: “I think the instructor did a good job of sending out pertinent information rather than just bombarding people’s phones with random text messages” (Participant E, personal communication, April 3, 2018).

Communication/Interaction. The words communication and interaction were spoken numerous times in the interviews. Therefore, the investigator and the third party representative created one theme called communication and interaction. The Adobe Connect software has a number of features, such as live video streaming and instant messaging, just to name a few. The participants felt the features allowed them to interact well with the class, “It helped, to hear other people’s opinions and thoughts” (Participant C, personal communication, March 31, 2018).

Participant F remarked the webinars were useful to collaborate with his classmates, “It was a good way to communicate with classmates because the instructor would allow us to work together to answer some of our questions during the webinar

sessions” (Participant F, personal communication, April 4, 2018). Additionally, Participant F stated he liked the fact students could post their questions to the instructor or fellow classmates via the instant message feature (personal communication, April 4, 2018). In addition, students believed the interaction with the instructor was vital to their success, “The webinars were useful because we could talk with the instructor instantly and send him messages and he would answer right back” (Participant F, personal communication, April 4, 2018). Yet another student echoed that sentiment,

It definitely made it faster to ask questions and communicate with the instructor.

It created a real life open line of communication between the instructor and me while she was lecturing and it was a whole lot faster than doing an email.

(Participant B, personal communication, March 31, 2018)

Participant A has taken numerous online courses felt it was a great way to work with classmates,

Being able to see and make a connection, like, this is who this is. It helps you remember people. It helps you kind of feel more comfortable knowing that you were not just commenting on a discussion board, but actual talking to people.

(Participant A, personal communication, March 31, 2018)

Triangulation

In triangulating the quantitative and qualitative information, the data reveals the findings are very similar. The quantitative data findings show that asynchronous communication has a stronger impact on students of color. The qualitative data compliments those findings, as established through the positive themes discovered from the one on one interviews. For instance, one hundred percent of the students articulated

the “Reminders” were instrumental in their success in the course, “The text messages were very helpful. I had a general idea of what the due dates were, but sometimes they slipped up on me and I forgot, and he would give us a reminder ahead of the deadline” (Participant A, personal communication, March 31, 2018).

Granted, the quantitative data indicated synchronous technology did not have as strong of an impact as asynchronous technology; however, the qualitative results indicate the synchronous webinars were instrumental in academic success. In fact, as noted in the “Communication/Interaction” theme students marveled at the ability to collaborate within the webinar, “It impacted me a lot. Just that reiteration of the chapters and that opportunity to ask those questions directly to the instructor really helped me. I am pretty sure it helped me get a good grade in the class” (Participant D, personal communication, March 31, 2018).

In Research Question Two, the tools were compared individually to students of color and non-students of color. Once again the findings reveal there is a strong relationship between students of color and text messaging. The individual interviews held with the six students validate that discovery, as students benefited from asynchronous communication, “It was nice having the ability to check the messages at my own leisure and I could save the text for future reference” (Participant A, personal communication, March 31, 2018). Meanwhile, the quantitative results show there is no association between non-students of color in either text messaging or webinars. In this particular study, the investigator only interviewed students of color; therefore, the voices of non-students of color are not heard. Consequently, the researcher cannot compare their thoughts with the quantitative data.

Summary

In conclusion, the mixed-methods approach to this study reveals there is a relationship between students of color and asynchronous communication. The chi-square analysis indicates such by revealing asynchronous communication (text-messaging) has a greater impact than synchronous communication (webinars) on student success. The quantitative data reveals there is no relationship between students of color and synchronous communication; however, the qualitative data suggest the use of synchronous communication technology is beneficial to student success. In fact, many of the students contribute the use of the webinars to them getting an “A.” The two tools present some challenges to student success, such as timing of the webinars and technical difficulties; yet, one hundred percent of the students articulated they found the technologies useful and would recommend their use in other online courses.

CHAPTER FIVE INTRODUCTION

Throughout this manuscript, the author has discussed one major issue in education. It is the problem educators have unseemly been unable to solve; the achievement gap between non-students of color and students of color, specifically in higher education (Harper, 2014). In fact, Robertson (2008) notes, “By the year 2019, whites will be twice as likely as African-American and three times as likely as Hispanics to hold a college degree” (p. 36).

For decades the focus has been to improve the achievement gap in traditional seated classroom instruction. However, the tremendous growth institutions are experiencing with distance learning, educators are observing a gap in success outcomes between non-students of color and students of color: “African Americans, Hispanics, and underprepared students, for example, perform significantly worse in online courses than in traditional courses (Xu & Jaggars, 2011, 2014). Consequently, a closer look at the achievement gap in online education is vital, as online education becomes a larger part of the educational process.

In this final chapter, the author discusses his thoughts on the final results. Moreover, the investigator shares his views on how the results potentially can revolutionize distance learning for students of color. Also, the chapter reveals implementations for future research. Lastly, the researcher provides recommendations for the institution.

Discussion

Research Question One

The study's first question seeks to discover if synchronous communication tools (webinars) or asynchronous communication tools (text messaging) have a stronger impact on the success of students of color. The quantitative data, in Chapter Four, reveals asynchronous communication tools are statistically significant; thus, the use of asynchronous technology (text messaging) has a stronger impact on minority student success. In this study, students volunteered to receive text-messages throughout the semester. In fact, a total of fifty-six students of color opted-in to receive text-messages and out of the fifty-six students, forty students were successful. The author contends students who allow faculty to send academic text-messages have a greater opportunity of meeting their academic goals.

Ultimately text-messages provided an opportunity for the students to stay engaged in an online atmosphere. During the course, instructors sent text-messages that alerted students to upcoming quizzes and test. Additionally, students received messages reminding them of assignment due dates. The researcher believes this form of asynchronous communication promotes student success; thus, instructors must find innovative strategies for incorporating text messaging in an online environment. The researcher agrees with the approach of allowing students to volunteer; however, it is essential faculty find creative ways for encouraging students to opt-in to receiving text - messages.

The quantitative data revealed the use of synchronous technology (webinars) was not statistically significant; therefore, webinars were not associated with minority

success. The author strongly believes one major factor attributed to the aforementioned findings. In this research, students were not required to attend the webinars.

Consequently, it is possible students did not obtain the full benefits associated with the synchronous technology. In fact, one participant indicated he attended one webinar and it did not meet his needs (Participant A, March 31, 2018). Each webinar had a different focus; therefore, it is possible other students had an identical experience as Participant A. For instance, perhaps a student wanted to talk with the instructor; however, the student was forced to listen to a guest speaker on that particular webinar. Additionally, students potentially missed out engaging with other classmates, as that opportunity did not exist in every webinar. In fact, scholars contend not having the opportunity to collaborate with fellow classmates is considered a major issue in distance education (Watts, 2016).

Despite the study's inability to statistically quantify an association with synchronous communication and minority success, the investigator argues the following point. Fifty-five students of color attended a webinar and thirty three achieved academic success. Granted, the research was unable to prove the webinars impacted student success; however, based on the above-mentioned data the author strongly believes the webinars do play a significant role in minority success.

Research Question Two

Research Question Two sought to discover how the impact of these communication tools on students of color success compare with the impact these tools have on non-students of color success. As noted above, the data reveals asynchronous communication is statistically significant; therefore, text messaging has an impact on students of color. Potentially, this finding proves students of color need text messaging

to be successful in distance learning courses. Studies have shown the lack of one on one interaction with the instructor is a barrier for students of color (Watts, 2016). Text messaging allows students to engage with instructors and not feel a sense of isolation. Conversely, the results can be interpreted, as non-students of color do not require text messaging to achieve success in online courses. Additionally, it is quite possible, traditional online communication, such as email is sufficient for non-students of color.

Meanwhile, the data reveals synchronous communication was not statistically significant for either non-students of color or students of color. Granted, the quantitative data reveals the webinars neither have an impact on either population; however, the data simultaneously reveals students of color and non-students of color that attend webinars are successful. Therefore, the author believes webinars are a tool that benefits both non-students of color and students of color.

Research Question Three

Research Question Three sought to discover students' perceptions of using both asynchronous and synchronous technology. First, examining the asynchronous approach, it is clear students thoroughly enjoyed receiving text messages from their instructors. In fact, one hundred percent of the participants interviewed commented text messaging was instrumental in their success. The author contends text messaging proved to be related to student success, because of its ability to assist with time management. Student after student remarked how beneficial it was to receive a reminder text. Throughout the semester, instructors sent text messages keeping students abreast of various assignments: "The text messages were very helpful. I had a general idea of what the due dates were, but sometimes they slipped up on me and I forgot, and he would give us a reminder ahead

of the deadline” (Participant A, personal communication, March 31, 2018). Furthermore, the reminder text-messages were extremely advantageous to students with non-academic responsibilities. The investigator points out every student that was interviewed noted they had outside obligations, such as working part-time or full-time. Additionally, several participants indicated they worked and were parents. The researcher contends text-messages delivered to these individuals undoubtedly assisted with their academic success.

Granted, the quantitative data indicated, synchronous technology did not have as strong of an impact as asynchronous technology; however, the qualitative results indicate the synchronous webinars were instrumental in academic success. Each student interviewed acknowledged how impactful the session were:

It definitely made it faster to ask questions and communicate with the instructor.

It created a real life open line of communication between the instructor and me while she was lecturing, and it was a whole lot faster than doing an email.

(Participant B, personal communication, March 31, 2018)

Implications for Future Research

Distance education enrollment is on the rise and scholars believe it will continue to increase (Nash, 2015). Consequently, it is imperative for institutions to work toward developing strategies that will improve student success. Even with the abundance of distance education literature on various topics, the research is sparse pertaining to students of color, particularly in online education, especially on the community college level (Ashong & Commander, 2012). The scant research available on students of color suggests some students enrolled in online courses are not meeting their academic goals;

hence, the importance for continued research in online education pertaining to students of color.

Asynchronous Communication

This study has proven the use of text messaging is a tool that can be used to enhance the teaching and learning experience for minority students. In this study, instructors only sent one-way text messages; consequently, students did not have the opportunity to respond. In the future, exploration of “Two-Way Text Messaging” between the student and the instructor possibly could lead to increased interactions. Scholars have argued a barrier for students of color is isolation (Jaggars & Xu, 2010). Two-Way text messaging conceivably could minimize the loneliness students experience.

Moreover, studies should explore different forms of text messages and determine which type of text-message has the greatest impact on students of color. Instructors from this study primarily delivered text messages providing updates, such as assignment due dates, and reminders. Lastly, research is needed to investigate student-to-student text messaging and its impact on academic success for students of color. In fact, one student commented he frequently texted his classmates to assist with class projects (Participant D, personal communication, March 31, 2018).

Synchronous Communication

The quantitative results revealed webinars statistically did not have an impact on students of color; however, one hundred percent of the students interviewed noted the webinars were instrumental in their success. A future study could examine the performance of minority students when webinars are mandatory to attend. In this study, students of color voluntarily attended the webinars. Further research can explore a fully

online hybrid approach and its impact on minority success. For instance, in a sixteen-week semester, require students to attend eight webinars; meanwhile, the remainder of the semester students would follow a traditional online approach. Students would login the learning management system, at their convenience, to complete the required assignments.

Moreover, continued research is needed to analyze the different tools webinars offer and their impact on students of color. For instance, which webinar features provide an enhanced learning experience, is it instant messaging, the group-break out rooms, the screen sharing, or is it another feature? Additionally, the same study can examine if one of the above-mentioned features have a greater impact on minorities that are enrolled in their first online course. It is quite possible, minorities that are new to distance learning can benefit from synchronous communication.

Triangulation

Studies have shown African Americans, Hispanics, and underprepared students perform significantly worse in online courses than in traditional courses (Xu & Jaggars, 2011, 2014). Therefore, it is critical that educators and other key stakeholders continue to explore technologies that will improve academic success for these individuals.

One barrier impeding student success is communication. Communication is critical in an online environment especially since the student may never come to campus (Betts, 2009). Likewise, faculty-student communication is particularly vital for students of color in an online environment (Yeboah & Smith, 2016). A study conducted by Yeboah and Smith (2016) revealed students noted lack of accessibility to the instructor

impacted their academic achievement. The aforementioned information is critical as to why the results from this study are paramount.

In this research, the investigator analyzed two approaches to online communication: asynchronous and synchronous. In the courses analyzed, faculty members communicated with students via text-messaging (asynchronous) and webinar technology (synchronous). Studies have indicated the importance of varying communication methods: “It is important faculty integrate diverse communication strategies into online courses to engage and connect students as active participants” (Betts, 2009, p. 12).

As mentioned above, the quantitative results revealed there is a strong relationship between text messaging and academic success for students of color. Furthermore, students in the one on one interviews unequivocally agreed text messaging was instrumental in their success. In fact, students commented text messaging allowed for learning to happen on their own time. Flexibility was also a major factor for student enjoyment, especially since all the students either worked part-time or full-time. Additionally, some of the participants balanced parenthood and academics. The literature indicates one of the benefits of asynchronous communication is that it permits students to balance their day-to-day responsibilities (Hrastinkski, 2008).

Research shows students believe text messaging can assist tremendously with time management, such as reminding them about study tasks and deadlines. Indeed in one study, when asked about self-initiated reminders compared to reminders sent by the tutors the students felt it served as a motivator for them to study (Jones, Edwards, & Reid, 2009). The aforementioned remarks compare favorably to statements articulated in

this study: “Well it was really helpful because if I didn’t write it down or if I didn’t put it in my phone, and we received a text from the instructor, it reminded me that it had to be done” (Participant F, personal communication, April 4, 2018). The students felt the reminder text kept them abreast of what was going on in the class. One participant made the following assertion:

We got texts from the teacher letting us know when assignments were due or an announcement and things like that, which was really convenient because most of the time I had my phone in my hand or somewhere near me. (Participant B, personal communication, March 31, 2018)

Social distance and isolation are considered origins for weak performance in distance courses (Millard, 2012). In a qualitative study of online students the following was conveyed, “Many students felt lost in cyberspace without any personal connection to the instructor or other students” (El Mansour & Mupinga, 2007, p. 247). Furthermore, Jaggars (2011) argues it is imperative for instructors to engage and provide timely feedback throughout an online course. The qualitative results from this study show students felt the synchronous communication improved the interaction, “The webinars were useful because we could talk with the instructor instantly and send him messages and he would answer right back” (Participant F, personal communication, April 4, 2018). Participant B echoed that sentiment,

It definitely made it faster to ask questions and communicate with the instructor. It created a real life open line of communication between the instructor and me while she was lecturing, and it was a whole lot faster than doing an email. (Participant B, personal communication, March 31, 2018)

The researcher contends the results from this study compare favorably with the literature.

Limitations of Study

Several limitations to this study should be noted. First, the study examined one community college, thus the sample size is narrow. Small sample sizes prevent comparisons of individual ethnicities or comparisons of gender. Furthermore, the investigation of additional two-year institutions would allow for more diverse responses. Secondly, the research only investigated a single semester (Spring 2017); exploring a longer time frame would allow the opportunity to analyze trends.

The study is also absent of faculty interviews, which would enhance the qualitative data. Faculty feedback would allow the researcher to explore the results from a different lens. Moreover, this is not an experimental study; thus, analyzing secondary data only provides correlational relationships (C. Roddenberry, personal communication, December 12, 2017). Experimental data have shown that minority performance in classes utilizing these forms of communication improves students of color success. (C. Roddenberry, personal communication, December 12, 2017).

The data from this study cannot draw a causal link between the use of individual approaches and students' success. The study can only conclude students who chose the approach did better; however, it might be likely that better students chose a particular approach because they wanted to succeed. The qualitative section only represented the voices of six students who earned a grade of "A." Additionally, non-students of color were not interviewed to gain their perspectives on the use of asynchronous and synchronous communication tools. Despite the limitations from this research, the data

from this study is useful because it gives educators insight on how to effectively communicate with students of color in an online environment.

Recommendations

The results from this study show the use of asynchronous technology was associated with minority success. As a result, it is recommended the institution continue to use text messaging in Business 110 and Psychology 150. In Chapter Two, it was discussed faculty-student communication is particularly vital for students of color in an online environment (Yeboah & Smith, 2016). In fact, a study conducted by Yeboah and Smith (2016) revealed students noted lack of accessibility to the instructor impacted their academic achievement. In this study, students unanimously agreed the text-messages contributed to their academic achievement.

The researcher believes it is imperative the college continues to develop strategies to seamlessly use text messaging in the classroom. The institution may consider offering professional development opportunities on using text messaging in an online environment. For instance, the researcher considers it is vital for instructors to understand the appropriate number of text-messages to send. The author points out for text-messaging to succeed students must not be overwhelmed with the number of text messages received in a day or a week. Furthermore, the training can assist faculty with understanding what an effective text message is. One participant commented he was relieved the instructor did not send superficial text messages (Participant E, personal communication, April 3, 2018).

The author suggests the college explore using text messaging in other gateway courses, such as Computer Information Technology (CIS). At this institution, CIS has

been identified as a high enrolled and low success rate course. It is quite possible; text-messages could improve the outcomes of minority students taking CIS in an online environment. Moreover, administrators from the college have noted students of color are underperforming in several types of introductory courses (K. Wang, personal communication, July 25, 2017). Additionally, the college may consider using text messaging in developmental courses, since students matriculate from developmental education straight to gateway courses. Offering text messaging to students in developmental courses potentially could lead to better success rates. Much like gateway courses, the college is constantly seeking avenues for improving outcome for students enrolled in developmental programs.

In terms of webinars, it is recommended the college continue to use this form of synchronous communication. The qualitative data proved distance students enjoyed the webinars. In fact, several students commented the webinars were a quicker way to communicate with the instructor instead of waiting on emails. In addition, one student noted the webinars were helpful with homework: “I would do my homework while in the session and if I had an issue I would just ask the instructor for assistance” (Participant F, personal communication, April 4, 2018). It is statements like the one above, as to why the researcher believes the college should explore using webinars in a variety of entry level distance education courses.

The institution may consider using the webinar technology to hold office hours with students of color. Chapter Two pointed out students feeling a sense of isolation and disengagement can have tremendous influence on the learning process and may lead to students withdrawing from online courses (Kear, Chetwynd, & Jefferis, 2014). Thus, the

one on one webinar session, potentially could prevent students of color from dropping online courses.

The college provides tutorial services for traditional seated curriculum students; it is recommended the college use the synchronous technology to provide tutorial services for students of color in these online courses. In addition, the researcher notes the college should seek avenues for allowing the students to use the webinars for student to student interaction, much like the group study rooms the college provides at the on campus libraries.

The researcher believes continual training is needed for both students and instructors. In fact, some students stated on several occasions they experienced technical difficulties; thus, being delayed logging in or totally missing a webinar session all together. The investigator believes training on how to handle technical difficulties would be beneficial to the student experience. Additionally, training instructors on how to effectively assist students with technology issues is paramount.

The investigator notes one idea is making available a document that guides students on dealing with technical difficulties. One participant in the study commented no information was made available on how to handle issues with technology (Participant B, personal communication, March 31, 2018). Meanwhile, the college may consider utilizing webinars to support at risk students. According to Thomas Rankin, Business 110 instructor, at risk is defined as students that are repeating the course (personal communication, March 8, 2018). Rankin adds, the Business Department is constantly developing strategies to reduce the number of at risk students taking online business courses (Personal Communication, March 8, 2018). Lastly, it is recommended the

college seek mobile learning initiatives. Throughout this study, students noted the significance of learning via their mobile device.

The Future of Distance Education

Granted, studies have shown students enjoy the flexibility distance learning offers. However, research needs to investigate live online learning using webinar technology. Live online learning is similar to instruction in a seated environment; however, all classes are held via a webinar. Throughout the interviews students appreciated the opportunity to interact with both the instructor and classmates. The investigator contends live online learning offers advantages to inexperienced distant learners and individuals seeking to replicate face-to-face learning. Furthermore, live online learning can be a win-win for institutions, as student success improves and colleges reduce the overhead cost for brick and mortar buildings.

Summary

The use of text messaging and webinar software has the potential to revolutionize distance learning for students of color. The results from this study have shown both tools can personalize the learning experience. Text messaging, for instance, assists students with time management, which is a critical issue for distance education. Instructors can provide relevant information to students that can be easily accessible from a student's computer or mobile device. Meanwhile, webinars provide students the opportunity to connect visually with the instructor, a benefit that is not common in distance education. In addition, webinars allow students to have face-to-face interaction with other students, which is a custom in a seated environment. Moreover, the face-to-face interaction eliminates the social isolation that is often experienced by students of color. In

conclusion, for distance learning to continue to evolve it is vital educators uncover all facets of technology and seek innovative strategies to promote student success; thus making this study valuable to online learning.

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APPENDICES

APPENDIX A

Wingate University RESEARCH REVIEW BOARD APPLICATION

THIS COVER SHEET MUST BE ACCOMPANIED BY THE WINGATE GENERAL RRB PROPOSAL.
Send The Completed Application And All Supporting Documents To: RRB@wingate.edu
Wingate RRB Documents can be accessed on MyGate under the "Academics" tab.

Today's Date: 12/15/17		Anticipated Project Completion Date: 7/2018	
Investigator (Applicant) Name: Carlos McCormick	Applicant Phone: 919-623-3327	Applicant Email: ca.mccormick@wingate.edu	
Names Of Other Investigators AND Faculty Advisor/Project Chair: There are no other investigators/ Faculty advisor- Dr. Chris Roddenberry/Project Chair- Dr. John McKay			
Project Title: Online learning: Investigating the impact of asynchronous and synchronous communication, on students of color, in gateway courses at a community college.			
General Purpose of the Research: The purpose of this capstone project is to understand the factors that improve the success rate of students of color in online gateway courses. Furthermore, the main focus of this research is to understand how the use of communication technology impacts students of color performance in online gateway courses.			
Describe How You Will Obtain Data AND Attach Copies of Surveys, Questions, Drawings, Photographs, Narratives, or Other Items Used In Data Collection: The study will employ a mixed-methods approach examining both qualitative and quantitative data. Quantitative analysis will be conducted on archival data collected from ten online classes enhanced with synchronous and asynchronous communication tools. A qualitative analysis will be conducted on interviews from selected high achieving students of color.			
Describe How Subjects Will Be Recruited AND Attach Consent Form(s): Quantitative analyses will be conducted on archival data gathered during the fall 2017 semester from introductory business and psychology classes using the enhanced communication tools. For the interviews participants will be recruited via email and telephone calls.			
Will Any Subjects Be Less Than 18 Years Old? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <i>If Yes, also complete and attach the Investigator Checklist for Research Involving Children</i>			
Are The Subjects Students At Wingate University? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Are Any Subjects Incarcerated, Institutionalized, Pregnant, Or Wards Of The State? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Will The Proposed Research Involve Deception Of The Subjects? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <i>(If Yes, Describe In Proposal)</i>	
Describe Any Participation Incentives Offered (class credit, gift card, food, etc.): Students participating in the study will not receive compensation or any type of incentive.			
Describe How Data Will Secured During and After The Project And Measures Undertaken To Ensure Confidentiality Of Data: The data will be stored on the college's secured server. Once the data is downloaded, it will be deleted. Individual student identities will never be associated with the data that is collected.			
CERTIFICATION: <i>In making this application, I certify that I have read and understand the Wingate University Policy for Research Projects Involving Human and Animal Subjects and I intend to comply with the letter and spirit of the university policy. I agree that changes in the protocol will be submitted to the RRB for approval prior to changes being put into practice, that adverse outcomes, unexpected events, or research subject complaints will be reported within 48 hours to the RRB, and that research records for non-exempt projects will be secured and kept for at least 3 years after completion, closure, or cancellation of the research.</i>			
Applicant's Signature OR Typed Name And University ID Number: Carlos McCormick ID- 107123203			
Wingate University Research Review Board:	<input type="checkbox"/> Full Review	<input type="checkbox"/> Exempt	<input checked="" type="checkbox"/> Expedited
This Project Has Been:	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Deferred	<input type="checkbox"/> Disapproved
RRB Comments:			
 Signature Of RRB Chair: APPROVED 18 December 2017			

APPENDIX B



Notification of IRB Approval

December 14, 2017

Mr. Carlos McCormick
Media Production and Learning Support Services
cmccormick@waketech.edu

Project Title: Online Learning: Investigation the Impact of Asynchronous and Synchronous
Communication on Students of Color in Gateway Courses at a Community College
Proposal #: 20171203

Dear Mr. McCormick:

As Chair of Wake Technical Community College's Institutional Review Board (IRB), I have reviewed the "Exempt Protocol Summary Form" for the research project indicated above.

Finding: I find that the research described in the attached documents falls under federally approved Category of Exemption #4 and, therefore, does NOT require formal review by Wake Tech's Institutional Review Board (IRB).

"Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified directly or through identifiers linked to the subjects."

This project does not require further review provided the research is conducted as described AND the principal investigator adheres to the following responsibilities: (1) submits any additions or changes in procedure to Wake Tech's IRB for approval; (2) communicates to the IRB chair any problems connected with the use of human subjects; (3) retains informed consent documents for three (3) years.

Research proposals are only granted approval for a one-year period, according to OHRP Federal guidelines. If research extends beyond a period of one year, and the research procedures have not changed, then the researcher shall request an extension by emailing the IRB Chair. If research extends beyond a period of one year, and the research procedures have changed, then the researcher must submit a new proposal. Please keep Chris Roddenberry informed about your research progress.

Sincerely,

A handwritten signature in blue ink that reads "Bryan A. Ryan".

Bryan A. Ryan
Senior Vice President, Effectiveness & Innovation Services &
Chair, Wake Tech Institutional Review Board

cc: Chris Roddenberry, Associate Professor, Psychology, Wake Tech

APPENDIX C

Research Participation Consent

I am conducting a study regarding how successful students of color communicate in online introductory courses. You were selected as a possible participant because you obtained a final grade of “A or B” in either Introduction to Business or Introduction to Psychology. Please read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Mr. Carlos McCormick a doctoral candidate at Wingate University. Mr. McCormick’s advisor is Dr. Chris Roddenberry, Associate Professor Psychology, from Wake Technical Community College.

Background Information: The purpose of this study is to understand how the use of communication technology impacts students of color performance in online gateway courses.

Procedures: If you agree to be in this study, I will ask you to participate in an interview session. The interview will be held over the phone between Mr. McCormick and the participant. The interview will last less than one hour. In addition, the researcher may contact you, on a subsequent day, via a phone call for clarity on your responses. The interviews will be digitally recorded by Mr. McCormick.

Risks and Benefits of Being in the Study: There are no risks from participating in this study. The direct benefits for participating are that you will help shape the course of online instruction here at Wake Technical Community College. Also, the data obtained will be used to improve the success rate of students of color in online introductory courses.

Confidentiality: Your responses during this interview will be kept in a locked file cabinet in Mr. McCormick’s office, and your name will never be associated with your responses. The data will be destroyed once the project is complete. The data will be used for educational purposes.

Voluntary Nature of the Study: Your participation in this study is entirely voluntary. Your decision whether or not to participate will not affect your current or future relations with any cooperating institutions or Wingate University. If you decide to participate, you are free to withdraw at any time without penalty.

Contacts and Questions: My name is Carlos McCormick. You may ask any questions you have now. If you have questions later, you may contact me at 919-623-3327 or Dr. Chris

Roddenberry at 919-866-5184. You may also contact the chairperson of the Wingate University Research Review Board at rrb@wingate.edu or at 704-233-8187 with any questions or concerns.

If you would like a copy of this form for your records, please let me know. Statement of Consent: I have read the above information. My questions have been answered to my satisfaction. I consent to participate in the study.

Signature of Study Participant	Participant's Phone number	Date
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Signature/Researcher/Date

APPENDIX D**Interview Protocol**

Project: Exploring Students of Color thoughts of using text messaging and Adobe

Time of Interview:

Date:

Start Time:

End Time:

Location:

Facilitator: Carlos McCormick

Participants:

Introduction: Greetings, my name is Carlos McCormick and I will be the facilitator for this session. Also, joining me is Ms. Rasheeda McAllister; she will assist me with taking notes and operating the audio devices.

Description of Study: The purpose of this interview is to understand how the use of text-messaging and Adobe Connect impacts students of color performance in online gateway courses.

For this study, I am collecting both quantitative (Statistical Numbers) and qualitative data (Student Conversations). The information collected from this research study will be used to complete my final school project. Most importantly, the results from this study will go toward improving the success rate of students of color in distance education.

Before we begin our session, you will be given a consent form to read. The consent form outlines the study in detail. Also, it assures your identity is kept private. Once the document is read, individuals that agree to participate will sign the form and return to Mr. McCormick. Individuals that decide not to participate will not have to sign the document.

During the hour long session, a total of 10 to 15 questions pertaining to the study will be asked. To ensure the accuracy of our conversation, the entire session will be recorded. An audio recorder will be used as the primary audio device. Additionally, two iPads will be used as recorders to serve as backups devices.

Following the completion of the session each participant will be mailed a \$10.00 Gift Card, in appreciation for your participation.

Before we begin the session, I want to answer any questions that you may have.

If there are no questions, we will begin our conversation.

Questions

The first several questions will pertain to only text-messaging.

1. How did you use text messaging in your class?
2. How helpful was the use of text messaging in your course?
3. Discuss aspects of text messaging that you did not like?
4. How did the use of text messaging impact the communication between you and the instructor?
5. In what ways, did the use of text-messaging improve or deter your interactions with your classmates?
6. Do you believe text-messaging should be used in all online classes? If so, why?

Adobe Connect Questions

7. Describe how Adobe Connect was used in your class?
8. How helpful was the use of Adobe Connect?
9. What were some of the challenges with using Adobe Connect?
10. How did the use of text messaging impact the communication between you and the instructor?
11. In what ways, did the use of Adobe Connect improve or deter your interactions with your classmates?
12. Do you believe Adobe Connect should be used in all online classes? If so, why?

Which technology was more helpful Adobe Connect or Text Messaging and why

This concludes the questions that we have. Do any of you have anything that you would like to add to the discussion?

I want to thank you for your participation. The information provided will go a long way in improving how distance education is taught.

APPENDIX E**Technology Usage Frequency Comparison**

Frequency for Students of Color and Non-Students of Color		
	<u>Frequency</u>	<u>Percent</u>
No Technology Usage	87	33.6
Adobe Only	50	19.3
Text Only	53	20.5
Adobe and Text	69	26.6
Total	259	100.0
