Assessment and Support for Basic Computer Skills at Community College Hispanic Serving Institutions in California

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Assessment and Support for Basic Computer Skills at Community College Hispanic Serving Institutions in California

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Education in Higher Education

by

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Abstract

This cross-sectional survey study was conducted to determine if California community colleges designated as Hispanic Serving Institutions (HSIs) assess incoming students for basic computer skills, provide learning support for these skills, as well as assess the attitude of administrators towards basic computer skills of incoming students. Prior published research documented the false assumption in higher education incoming students are “digital natives”, capable of effectively using technology expected on college campuses; however, there was no research focused on community colleges designated as HSIs. The study adds to the body of literature about the assessment of and support for basic computer skills on college campuses.

For purposes of the study, “basic computer skills” were defined in five categories:

- The ability to use word processing software (most commonly Microsoft Word);
- The ability to use spreadsheet software to prepare charts and graphs (most commonly Microsoft Excel);
- The ability to use software for classroom presentations and speeches (most commonly Microsoft PowerPoint);
- The ability to navigate the Internet for research; and
- The capability of learning and participating in online classrooms using various platforms or software.

The participants in this study were administrators in key academic positions representing all 55 community colleges HSIs in the state. All participants in the study held an administrator position at the time of the study. Each participant was asked a series of nine survey research
questions, distributed via e-mail. All participants were asked the same questions and responses were electronically recorded and analyzed.

The survey determined the following:

1. Community college HSIs in California do not assess incoming students for basic computer skills.

2. Community college HSIs in California have varying academic support for basic computer skills.

3. Basic computer skills courses are not prerequisites for non-computer skill courses or programs.

4. Most California community college HSI administrators believe computer skills are basic college level skills.

5. However, most California community college HSI administrators are not concerned about the level of basic computer skills of the student body.

The responses from participants in the study emphasize the need for institutional change.
Acknowledgements

There have been so many people who believed in me; that in spite of life circumstances, I could finish this endeavor. I have been encouraged and inspired by the support I have received over the years. I would like to thank each person and acknowledge their contribution to my success.

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partner in crime, and I miss our shenanigans. Shawn: you taught me that a man can be anything he wants.

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To my wonderful daughters, Ella, Mia and Olivia, you may not remember the countless hours I was in classes, researching or teaching, but I hope you remember the emphasis on learning your mother and I worked to instill from birth. My sincerest desire is that my academic career and pursuits would inspire your own and remember: you can be whoever you want to be, and do whatever you want to do with your life. My only stipulations are that you treat others fairly, demonstrate kindness, and take pride in your work as you seek to better humanity.

My dear husband, Jason Blackford, entered my life in 2011. I was without an academic post. My doctoral dreams were on hold. I was a recently out gay man and my life had largely been turned upside down. Jason, you provided my life a fixed point on the compass. Your love is my true north. There are so many times I just wanted to give up. This has been so very, very challenging. When I was lost in my despair, frustrated with the process, tired of revisions and rewrites and redos, the solace I had just resting on your chest and falling asleep gave me a port in the proverbial storm to be safe and refocus.
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I would also like to thank all of the administrator participants in this study who volunteered their time to answer the survey questions. I was confident the administrators at my sister institutions would rise to the occasion, and that I would have a 100% response rate. My colleagues did not disappoint. Thank you all for supporting this future administrator.
Dedication

This manuscript is dedicated to my past, current and future students. All I have done, all that I do, and all I shall ever achieve in academia are because of YOU.
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Chapter 1

Introduction

Walk around a typical college campus and computing technology is everywhere. In the Student Center and Student Services buildings there are multiple computer kiosks. The library is no longer a building of quiet solitude, but a place of hushed, kinetic energy as fingers tap away on keyboards and tablets. Students and professors alike now carry a small computer disguised as a cell phone in the palm of their hands. College campuses today truly reflect the technology of our larger society.

Hartnell College is a Hispanic Serving Institution (HSI) located in Salinas, CA. The college serves 10,000 students annually with over 60% identifying as Latinx. Students are expected and required to use technology in their courses. For example, as part of the requirements for communication studies courses at Hartnell College, students must engage technology, particularly computers and computer programs, on a regular basis. Not only are student homework and reading comprehension quizzes accessible only in a digital, online format, but students are also required to compose papers and speeches in some type of word processing program. For any communication studies course, students are also required to design an original Prezi: a cloud-based presentation software becoming a standard in academia and the workplace.

Other disciplines on campus also require the use of computers and technology for day-to-day class functions. Whether it is online discussion boards, programs to create graphs or software to design original creations, students are expected to use technology proficiently and efficiently. Part of the basic pedagogical assumptions of faculty members is that students should know how to use computers to meet classroom requirements.
During various committee meetings, faculty members at Hartnell College have reported students having less and less knowledge of basic computer and technology skills in classes. At an Outcomes and Assessment meeting, one instructor told his story of being able to type 90 words a minute, but most of his students used alternating index fingers to sign into accounts in the classroom or take notes on a laptop during a lecture. At a faculty development workshop, another reported she had to explain basic computer skills to many students in her class. She said aloud, “Double-click the icon,” and received some blank, confused stares. When she said, “Minimize the window and open a new browser,” some students sheepishly asked if she could come to their computers and demonstrate what she meant. During a Communication Studies discipline meeting, one instructor reported that a student successfully accessed a Prezi presentation for his class. The instructor prompted, “It is now active on the keyboard. You can use the left and right arrow keys.” The student asked him to point out the keys he was talking about. Multiple faculty members in various meetings and workshops have even reported students using only their cell phones to attempt writing papers for class.

Hartnell College’s campus articulation officer attempted to bring more campus discussion to these observed trends. During a lively discussion of appropriate advisories and prerequisites for courses at a curriculum committee meeting, she offered her frustration teaching a section of COU 1 (Counseling 1), the student success seminar. This course, geared for first-time students at Hartnell College, introduces students to the skills needed to be successful as college students. However, no assessment of student computer skills is mandatory before students begin at the institution. She shared her experience of asking students the first day to log-in to individual computer accounts. Dismayed, she detailed how some students struggled to find the on button, much less use basic computer skills to navigate to the point where she wanted them to be for
purposes of the class. The result was almost an entire class wasted getting the students to the same starting point, not to mention subsequent class time spent educating her students about basic technology throughout the semester. Her narrative was telling the larger story of an issue on the Hartnell College campus: some students do not have basic computer skills.

During a meeting of Hartnell College’s Student Success Committee (formerly the Basic Skills Initiative Committee), one member started a conversation about basic computer skills, questioning why the college was not assessing these skills for students attending the college. The rationale seemed sound enough: computer skills have become a fundamental expectation in the classroom and the work place, making them a basic skill. A flurry of commentary erupted. Some members emphasized basic computer skills were not covered under the state definition of basic skills. In contrast, other committee members started sharing frustrations and examples from classes of students having sub-par computer skills. The chair of the committee indicated there were no required basic computer skills or technology assessments required of or provided to students as part of the regular college assessment process.

After my experience as my campus’ Student Success Committee and chair of the campus’ Outcomes and Assessment Committee, I became concerned that this was a pressing issue for our campus and our students. After many conversations, and after reflecting upon the experiences detailed previously, I began to search the literature to determine if this was a unique problem for California community colleges. As it turns out, two and four-year institutions are having similar discussions across the country (Forssman, 2014; Morrison, 2016).
Statement of the Problem

Hartnell College provides a convenient microcosm for determining the scope of the problem. There are three realities driving the lack of basic computer skills at Hartnell College. These include the expectation students must use pre-existing and emerging technologies, decreased skill sets of incoming students, and dwindling resources to help bridge the gap.

Hartnell College, like other institutions of higher education, is aware of the need to teach technology skills to its students. Local employers have regularly communicated to Hartnell the expectation that students should have a base set of computer literacy skills upon degree completion in order to use current technology and adapt to emerging technology. There is a broad-based assumption by employers nationwide that educational programs will teach students the necessary computer and technology skills to be effective in the workplace (Kozina, Dukic, & Dukic, 2012). This emphasis on technology is evident in one of Hartnell’s value statements: “We commit to effective utilization of human, physical, financial and technological resources.” (Hartnell College, 2018). With the exception of some advisories (mainly for online courses), however, there are no prerequisites or institutional requirements for students to have basic computer skills or a technology course before degree or certificate completion.

Furthermore, employers hiring Hartnell graduates assume a certain technology skill set, and the college in turn has assumed our students have technology skill sets prior to enrolling. For example, our career counselor encourages students to highlight computer skills on resumes in preparation for career fairs, indicating local employers want employees with computer competence. Both Hartnell College and employers assume all adult learners arrive at technology competence equally and equitably. However, when the Program for the International Assessment of Adult Competencies (PIAAC) conducted a Survey of Adult Skills in the United States that
included digital (technology) literacy, it determined that all adults must first go through stages of *digital inclusion* before reaching *digital literacy* (National Center for Education Statistics, 2015). The first stage, labeled *access*, is having the technology readily available for use. The second stage, *taste*, infers an adult learner must have an interest in learning new technology in order to advance towards literacy. The third stage is *readiness*, where an adult learner learns basic computer skills (such as keyboarding and mouse skills). Only after these three stages does an adult learner reach stage four, *digital literacy* (Reder, 2015). Hartnell College practices a *de facto* assumption all new students are at stage four, evident by a lack of assessment before students are admitted, and a lack of assessment upon graduation. However, per the PIACC study, only 83% of adults nationwide are at stage four, the digital literacy level. When additional research factoring in the barriers to digital literacy experienced by English Speakers of Other Languages is considered (Jacobs, Castek, Pizzolato, Reder, & Pendell, 2014) and that the majority of English as a Second Language (ESL) college students in California begin their education at community colleges (California Community Colleges Chancellor’s Office, 2016), an even greater percentage of adults lacking stage-four skills at HSI community colleges can be expected. This makes Hartell College, and other HSI community colleges, an appropriate starting point for inquiry and research.

This situation leads to the second issue, which is the belief that students are tech savvy and will adjust to any technology course requirements. Duke (2011) asserts that there is “…a great deal of rhetoric scattered throughout contemporary educational literature publications and news stories [that] describes today’s younger learners, born after 1980, as inherently tech-savvy.” (p. 8). Prensky (2001a) has coined this generation of students as *digital natives*: students who have grown up with and have been surrounded by technology (p. 1). Having access to
technology, however, does not mean a student is proficient at using technology (Bennett & Corrin, 2018; Schreurs, Quan-Hasse, and Martin, 2017). First-semester college students self-report high skills sets in spreadsheet, word processing, and presentation applications (DuFrene, Clipson, & Wilson, 2010). Research indicates, however, there are regular inconsistencies between a student’s perception of computer skills and his or her actual level of competence (Grant, Malloy, & Murphy, 2009; Hanson, Kilcoyne, Perez-Mira, Hanson, & Champion, 2011; Kilcoyne, McDonald, Hanson, Champion, Garland, & Maples, 2009). Furthermore, while many college students are adept at using a smartphone or tablet, these are not the common technology tools used in the classroom. As a result, when it comes to technology, students have to learn to “…leave their out-of-school identities behind and adopt solely academic identities in their place.” (Amicucci, 2014, p. 484). Prensky (2001) also coined the term digital immigrants to refer to technology users that “immigrate” into a culture of technology and have to learn to adapt to a “new world.” Just like immigrants to a foreign land, learning to “speak the language” of a new culture assumes all immigrants have access to the tools to adapt and learn the standards and nuances needed for assimilation (p. 3). However, Prensky assumed digital immigrants to be older users of technology. Very quickly, other researchers expanded the definition of the digital immigrant. Van Slyke (2003) stated, “A typical classroom is much more diverse, with students coming from a range of backgrounds. Many do not have computers at home, some have disabilities, and some are simply not interested in computers.” (p. 2). Recent research has also indicated that digital immigrants occur in any age or demographic group (Kirk, Chiagouris, Lala & Thomas, 2015).

Finally, the lack of resources to address these realities is the most pressing issue. Two key resources are missing from Hartnell College. First, there is a lack of student assessment to
determine computer and technology skills. Currently, any student registering for classes at Hartnell College is not given an assessment to determine skill deficiencies. Students entering first semester classes at Hartnell College have no guidance when it comes to computing technology and academic success.

Second, due to the lack of assessment, students are largely unaware of the few computer skills courses offered on campus. For a college that serves 10,000 students, the actual number of courses offered to help students increase computer competency is extremely limited. The director of the open access computer lab at Hartnell College was interviewed for this pilot study and reported that there are only four courses (listed in the Hartnell College catalog as BUS 100, 150.15, 150.25 and 200) in which students can enroll to increase digital literacy skills. Unfortunately, these courses rarely fill. For example, BUS 100, a self-paced course on basic computer applications that is open for any Hartnell student, only had 21 students register for the course in fall 2018, with 274 available seats across two sections and only 6 students registered for the possible 69 seats in Spring 2019. The low enrollment is further compounded by the fact there is no prerequisite requirement for digital literacy embedded in any degree program, which means credit for such classes must be earned on top of whatever degree requirements a student already faces. The subject has been reviewed in multiple settings on campus. Faculty members of all disciplines have expressed a concern, but no one has been willing to eliminate current degree requirements to make room for a basic computer skills prerequisite. The college does have a tutoring center where students can ask specific technology questions. However, as research indicates, even when a college or university has resources dedicated to increasing student computer and technology skills, if there is no outreach program, students who are already tech savvy take advantage of these courses instead of those students who need it the most (Goode,
Advertising of available computer skills courses on campus (flyers, pamphlets, signage, etc.) is almost non-existent. Even though our tutoring center on campus offers computer skills help, only one webpage on the Hartnell College website mentions this fact, and there is no other form of advertising around the campus.

Currently, computer skills are not legally defined as a “basic skill” per the California Code of Regulations, Title 5, 55502 (d) (Lazarick, 1997). As a result, remedial courses, workshops or endeavors addressing deficiencies in students not at the level of digital literacy are often only funded at the local level. Nationwide, according to Ward (2015), “…technological literacy is seldom referred to or considered in academic arguments as a stand-alone learning domain alongside the conventional domains of language literacy and numerical literacy.” (p. 18). This is despite the fact that computer skills are a fundamental skill for academic success (Crotty & Farren, 2013).

The Purpose of the Study

The purpose of this study is to assess the current level of basic computer skills assessment at community college Hispanic Serving Institutions (HSIs) in California and to determine if courses and supplemental instruction in basic computer skills are offered on these campuses. The study also seeks to assess the perceptions and the degree of concern administrators at these institutions have surrounding basic computer skills readiness of their students. This study will utilize a cross-sectional survey design as outlined by Creswell (2005, 2011, & 2014). A thorough review of current assessment and learning support practices of California community college HSIs is a necessary first step to determine what subsequent actions
and changes will be necessary. This study will seek to understand the scope of the problem and begin to provide solutions.

**Research Questions**

The central research questions that guides this study are:

1. What basic computer skills assessments do community college HSIs in California require of incoming students?
2. What basic computer skills courses do community college HSIs in California offer current students?
3. What basic computer skills tutoring do community college HSIs in California offer current students?
4. What basic computer skills do community college HSIs require as prerequisites for course enrollment?
5. What basic computer skills do community college HSIs require as prerequisites for degree programs?
6. What are the beliefs of community college HSIs concerning computer skills as a basic skill?
7. What are the perceptions of community college HSIs concerning basic computer skills on their campuses?

**Significance of the Study**

This study is significant on three levels. First, on the local level, student services on individual campuses can use the results to understand the scope of the problem and then use these data to allocate resources toward solutions. Student services administrators, researchers and
staff are aware of the problem, but solutions may have not been institutionalized effectively (Le Ber, J.M., Lombardo, N.T., & Wimmer, E., 2015).

Second, on the state level, the results of this study could provide a strong talking point for redefining basic skills. If deficiencies in assessment, basic computer skills courses and student support are documented for community college HSIs in California, this can lead to discussion, change and solutions by key policy makers, such as the Chancellor’s Office and elected officials.

Third, on the national level, this study can promote conversation and change at other community college Hispanic Serving Institutions needing to adopt and implement similar strategies to address the problem. Only 100 of the 270 Hispanic Serving Institutions in the U.S. are located in California (Hispanic Association of Colleges and Universities, 2015), making the results of the study a starting point for a larger national discussion. The Hispanic Association of Colleges and Universities has already been investing resources and time to determine means for enhancing student success. The results of this study will add to recent dialogue and research that has focused on promoting student success at Hispanic Serving Institutions and the programs that best meet student needs in the areas of digital literacy and technology skills (Arbelo-Marrero & Milacci, 2016; Garcia & Okhidoi, 2015).

**Definition of Terms:**

To ensure understanding of key terms used in the study, a review of the literature was conducted.

The following definitions were selected:

1. *Community college Hispanic Serving Institutions (HSIs):* Community colleges in California designated as an HSI by the U.S. Department of Education, whereby an
institution must show an enrollment of undergraduate full-time equivalent students that is at least 25 percent Hispanic students (U.S. Department of Education, 2018).

2. **Basic computer skills assessment:** Multi-question tool used to determine student level of proficiency (Wallace & Clariana, 2005).

3. **Incoming students:** Students (part-time or full-time) registering for the first time at a California community college HIS (California Community Colleges Chancellor’s Office, 2018).

4. **Basic computer skills courses:** Classes designed to help students reach proficiency in basic computing skills (California Community Colleges Chancellor’s Office, 2018).

5. **Current students:** Students enrolled in a California community college HSI (California Community Colleges Chancellor’s Office, 2018).

6. **Basic computer skills tutoring:** One-on-one or small group instruction to help students reach proficiency in basic computing skills (California Community Colleges Chancellor’s Office, 2018).

**Organization of the Study**

Chapter 2 reviews the literature that guided this research endeavor. The literature review is divided into three sections: expectations and misconceptions of student skills; factors driving expectations and lack of assessment/support; and finally, recommendations for solutions to this problem.

Chapter 3 describes the research methods selected for the study including the rationale for an active research design, participant selection, the data collection and data analysis techniques, and the steps taken to ensure the data collected will be reliable and valid.
Chapter 4 provides the presentation of data, including participant demographics, survey questions and responses, and analysis of results.

Chapter 5 compares and contrasts the findings of the current study with previous research, discusses limitations of the study and provides recommendations to key stakeholders.
Chapter 2
Review of the Literature

This chapter provides an overview of the literature related to computer and technology skills as related to the community college environment and issues of student learning and success. The following search key words were used to examine dissertations, dissertation abstracts, Education Resources Information Center (ERIC) documents, peer-reviewed research journal articles, books, governmental publications, database resources and Internet literature.

Keywords that resulted in successful searches were:

- Basic skills and college success;
- Computer skills and college success;
- Digital literacy and college success;
- College technology assessment;
- College computer skills assessment;
- Student success and technology skills;
- Student success and computer skills.

The review is limited to information published during the years of 2001-present. After a preliminary literature review, it became clear research in this area began appearing in 2001 and later. The review is divided into three sections. Section one provides an explanation of the expectations and misconceptions of student skills. Section two presents and discusses the factors driving expectations and lack of assessment/support. Section three reviews the literature for proposed solutions.
Part I: Expectations and Misconceptions of Student Skills

There are expectations from both institutions and stakeholders for students and graduates to use computing technology. For example, the Hartnell College homepage resulted in several pages declaring the Core Competencies expected of all graduates. One competency, “Information Competency”, states students will “…(utilize) appropriate technology and resources to access information efficiently and effectively” (Hartnell College Core Competencies, 2018). Specific expectations of colleagues informally interviewed include an ability to keyboard and use word processing software, familiarity with office applications (including Excel and PowerPoint), and the ability to use technology to conduct research.

In addition to these expectations, college students are expected to have computer literacy skills to utilize course management software, social media, email, and general database management (Anderson & Horn, 2013). In her doctoral dissertation, Lahore (2008) found that most college instructors expect students to have five major areas of digital literacy. These include using word processing software (most commonly Microsoft Word), manipulating spreadsheet software to prepare charts and graphs (most commonly Microsoft Excel), employing software for classroom presentations and speeches (most commonly Microsoft PowerPoint), navigating the Internet for research, and learning and participating in online classrooms using various platforms or software. Additional research supports these five areas of expected skills (Gupta, 2006; Thompson, Bellanca, Owens, & Lorenzo, 2012). There has also been a strong push to increase hybrid and distance-education course offerings across higher education in general, further increasing the pressure for college students to be “online” ready (Smith, 2014).

Stakeholders are adding to the expectations of student skill level in digital literacy. Locally, the city of Salinas where Hartnell College is located just released its most recent city
strategic plans. One of the top publicized priorities is a focus on agricultural technology. The main economic driver of the city of Salinas, as well as the county of Monterey where it resides, is agriculture. However, farming is becoming increasingly technologically based and, as such, city leaders determined in their planning that “local schools…need to be teaching this.” (Salinas Chamber of Commerce, 2016). Most employers “…expect today’s undergraduates to possess a certain level of math and computer skills” (Tengesdal & Griffin, 2014, p. 106).

Nationwide, technology skills are touted regularly as being among the top skills sought by employers, even making Forbes Magazine’s list of “The 10 Skills Employers Most Want in 2015 Graduates” (Adams, 2014). Similar findings were documented by the National Association of Colleges and Employers (N.A.C.E.). In 2016, N.A.C.E. released the results of the Job Outlook 2015 survey of national employers. The study found that “Information Technology Application” ranked in the top five skills expected in new hire employees (National Association of Colleges and Employers, 2015). To meet employer expectations and needs, college graduates are expected to have basic computer and technology skills. They have become such an important skill set they are now considered a key factor in achieving economic productivity and participating in broader civic engagement (Bach, Shaffer, & Wolfson, 2013).

International employers also expect educational programs to teach students the necessary computer and technology skills to be effective in the workplace (Kozina, Dukic, & Dukic, 2012; Mabila, Ssemugabi, & Gelderblom, 2013; Yow, 2010). The International Society for Technology in Education (2007) created a list of six priorities for school age children globally. Number six, labeled “Technology Operations and Concepts,” indicates that, “Students (should) demonstrate a sound understanding of technology concepts, systems, and operations” including the ability to:
1. Understand and use technology systems;

2. Select and use applications effectively and productively;

3. Troubleshoot systems and applications; and

4. Transfer current knowledge to learning of new technologies (p. 2).

When the United Nations declared access to the Internet a “basic human right” (United Nations, 2011), these expectations were given international clout. A common undercurrent of the campus, local community, the State of California education administration, employers nationwide and international leadership is the assumption today’s college students and graduates should have a base set of computer and technology skills.

These expectations are not being met by the educational background and experience of the students entering colleges in the United States. The majority of first-semester college students have not taken any type of computer course in high school (Reese, 2016). First-semester college students also self-report high skills sets in spreadsheet, word processing and presentation applications (DuFrene, Clipson, & Wilson, 2010). Research, however, indicates there are inconsistencies between students’ perceptions of computer skills and their actual levels of competence (Grant, Malloy, & Murphy, 2009; Hanson, Kilcoyne, Perez-Mira, Hanson, & Champion, 2011; Kilcoyne, McDonald, Hanson, Champion, Garland, & Maples, 2009). Many students assess their level of technology competence higher than actual reality. As a result, many students do not perceive when they have a deficiency. Furthermore, the 21st century college student favors a more independent, autonomous learning style (Carlson, 2005) and is less likely to self-report when having difficulty with class instruction or educational directives.
When non-traditional degree seeking students are factored in, the disparity becomes even greater. Jesnek (2012) indicates that non-traditional students are typically defined as being over 25 years of age who are “…often first-generation college enrollees, displaced from their previous careers due to unforeseen layoffs, or desperate to update their résumés by earning an advanced certification or degree in order to ensure job security” (p.1). Jesnek further indicates that enrollment numbers of non-traditional students have increased dramatically in the community college setting. Fewer of these students are “digital natives” and studies have determined non-traditional students have greater difficulty with technology use when pursuing higher education (Caravello, Jimenez, Kahl, Brachio, & Morote, 2015; Hargittai, Piper, & Morris, 2018; Lambrinidis, 2014; Prensky, 2001a). When the non-traditional students are elderly, they are more often to be late adopters of technology than pioneers (Chen & Chan, 2014), and many need additional support to adapt to new technologies encountered on college campuses. Historically, non-traditional students have also been associated with higher rates of college attrition (Wladis, Hachey, & Conway, 2015). As more and more computer use is expected from college students, educators must consider how digital literacy could have an impact on non-traditional student success.

Minority students in general have challenges when it comes to basic technology skills. These students are less likely to have a computer at home (Fairlie, 2012) and are more likely to have their first interaction with and learning of computer and technology skills at a later age than majority students (Buzzetto-More, Uhoha, & Rustagi, 2010; Chisholm, I.M., Carey, J., & Hernandez, A., 2002). Hispanic students have more barriers to being college ready and have a lower level of digital literacy compared to majority students (Kirk, Chiagouris, Lala & Thomas, 2015; Van Slyke, 2003). For example, in 2012, researchers determined only 64 percent of
Hispanic teens owned a computer, compared to 81 percent of white teens (Levin & Kater, 2018; Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013). At Hispanic Serving Institutions where Latinx populations are concentrated, these issues are even more pronounced (Code Advocacy Coalition, 2018; Gallup, 2018).

Although assumed to have high levels of computer self-efficacy, Wilkinson (2006) determined incoming college freshmen increasingly do not. Concurrently, there has been a decrease in the number and types of classes offering remediation skills or tutoring in basic computer skills. Campuses foster an environment where the student who does not have basic computer skills for the college level is often overlooked and begins his/her college career without access to resources to improve. Most colleges and universities do not assess students for basic technology skills upon admission (Grant, Malloy, & Murphy, 2009; Hanson, Kilcoyne, Perez-Mira, Hanson, & Champion, 2011). Most accredited institutions of higher education assess entering students for reading, writing and mathematics. Unfortunately, as is the case with California community colleges, many institutions do not consider computer skills or digital literacy as a “basic” skill and do not assess incoming students (Education Commission of the States, 2014) even though recognized and reputable assessment companies offer placement assessment for such skills. For example, the College Board offers the ACCUPLACER assessment in Computer Skills Placement (College Board, 2017). Not only are students not being assessed for these skills, but students needing or seeking support to increase these skills meet additional barriers. Mitchell and Leachman (2015) indicated that many schools have shut their computer labs as a cost-cutting measure even as these same schools acknowledged the importance of computer literacy for student success and future employment considerations. As a result, colleges and universities have been closing computer labs, relying on students to provide
their own devices, instead (Poggi, 2018). At Hartnell College there is a history of eliminating existing courses because students that need the coursework are not enrolling. Nationally, the trend is that the computer skills courses that are offered are typically populated with students already proficient in computer skills (Goode, 2010).

In summary, there are both institutional and societal expectations of certain technology skills. However, student computer skills are often overstated or inflated, and non-majority students have even poorer skills sets as a whole. Institutions have closed computer labs. This has left few resources for remediation. Hispanic Serving Institutions, particularly community colleges, must address these barriers to student success.

**Part II: Factors Driving Expectations and Lack of Assessment/Support**

There are multiple contributing factors of the technology skills expectations outlined previously. One of the most significant is that society as a whole is advancing in its use of technology. For example, industrialized nations are embracing “all-digital” paradigms. In this reality, information is becoming fully digitized. Whether it is sound and video converted to MP4 files, the boom in electronic book sales, online shopping replacing the brick and mortar business model, or our home security and appliances being connected to our smart phone, our everyday lives are becoming, by design, more technology dependent (Adobe Press Release, 2013; Mudhar, 2013). Teenage culture in the United States is marketed as revolving around technology, from cell phones to gaming systems to connecting on social media. A study by the Pew Research Center revealed that only one-third of teens surveyed in 2012 owned a smart phone, but the number jumped to 73% in 2015 (Armitage, 2015). Common Sense Media, a nonprofit organization that rates and reviews media by age level for parents, determined that teenagers, on average, spend six to nine hours per day using a combination of computers, mobile devices, or
other technologies (Cooper, 2015). Li, Snow, & White, (2015) described the immersion in
technology by teenagers as being “pervasively integrated” into their lives (p. 1). The push for
more and more technology has become societally driven, with a large contributor to our
economy being the next new gadget or tech for our personal, home or work lives, particularly the
marketing of a cell phone for every man, woman and child (Yelton, 2013). Juxtaposed against
these trends, researchers have asserted that although students may be digital natives there is as
much variation within the digital native generation as between the generations when it comes to
using technology effectively (Bennett & Corrin, 2008).

Higher education has embraced this demand for technology as a necessary operating
expense of classroom maintenance. Colleges and universities are spending more and more on
average, year-over-year, for on-campus technology in terms of hardware and software. For
example, Shawn McCarthy, Research Director for International Data Corporation (IDC)
Government Insights, indicated in 2015 U.S. higher education institutions spent $6.6 billion on
information technology (IDC Government Insights, 2015). As a result, classrooms contain more
and more diverse technology for student and teacher use. However, spending on staff and faculty
to teach technology skills courses and support for computer labs has decreased during the same
period (Grajek, 2018). This has led to pedagogical shifts; classroom teaching and classroom
support require today’s college student to interact proficiently with more and more computer
based technology without the assistance of staff or faculty (Eisenberg, Johnson, & Berkowitz,

Campus culture has become inherently tied to keeping up with technology expectations.
These expectations are often driven by students themselves. The tech that students use outside of
the classroom has had a direct influence on the technologies added by college campuses (Rubin,
This trend has stayed consistent. As students brought laptops onto campuses, institutions responded with laptop checkout services and campus wi-fi to meet perceived student demand. As e-books have become more accessible, students have demanded more digital resources for classes (International Consultants for Education and Fairs (ICEF) Monitor, 2012). With widespread cell phone use, students have shifted faculty member culture to communicating via a text message instead of email.

Student technology expectations have resulted in expectations for high levels of technology proficiency from faculty members. If instructors or professors do not use smart phones, are still using PowerPoint instead of emerging presentation software such as Prezi, and are not active on social media, they are considered technologically inept (Jones, Ramanau, Cross, & Healing, 2010). Student expectations have driven faculty members to use more technology in the classroom. As a result, the narrative of the tech savvy college student is now becoming the expected practice for administrators, faculty members and staff. This has helped create a cycle where there is more and more reliance on technology in the classroom setting.

Institutions have also assumed students are capable of using the technology in which they have heavily invested (Guy & Lownes-Jackson, 2010). This has resulted in a contradictory environment of increased spending on emerging technologies with no assessment as to whether students can actually use the technology (Miller & Pope, 2003; Jesnek, 2012). Since the early 2000s, colleges and universities have decreased or eliminated basic computer skills courses (Duke, 2011; Fink, Jenkins, Kopko, & Ran, 2018). Duke (2011) further indicates that increasingly, these types of courses are no longer a priority in campus scheduling. This has led to decreasing support for students deficient in basic computer skills. For campuses that have a
computer lab, the function is to serve proficient students and not intended to be remedial (Terris, 2009). Students have decreasing options to increase digital literacy.

As the infrastructure for computer skills training has disappeared, so largely has any rationale for assessing entering students. The students without adequate computer skills are just assumed to be able to bridge those skills via experience in their college courses. Education professor Neil Selwyn (2012) argues while some students can gain higher skills via engagement with technology, this is not true for most students. It is anticipated the problem will continue to get worse, as students coming from the current K-12 system are receiving less and less training in the technologies needed for college success (Mullons, 2017). Even in the new Common Core, there is no mention of the Internet or online applications, and it is anticipated the lack of focus on digital literacy will produce high school students that will have trouble even researching and applying to college, much less have success with computer technology if they get there (Braverman, 2016). Furthermore, community colleges have competing interests and programs for resources, and every new initiative handed down by a state legislature is another barrier to assessment (Jenkins, Lahr, Fink, & Ganga, 2018; Mejia, Rodriguez, Johnson, & Brooks, 2018).

Multiple factors have produced a culture where incoming college students are expected to use technology in the class setting, but without a system of assessing the technology skills level of students. This, in turn, has led to a system where student support to increase or obtain basic technology skills is largely non-existent.

Part III: Solutions

An overview of the research suggests practical solutions for institutions of higher education. The ICT Literacy Council, comprised of technology educators from around the globe,
recommended that all colleges implement assessment to help determine gaps in basic computer skills (ICT Literacy Panel, 2007). However, a literature search for best practices for college assessment of basic computer and technology skills produced no results. Even a text frequently referenced in the literature for guidance on technology-based education assessments, ironically, did not have a chapter on technology assessments (Mayrath, 2011).

Therefore, implementing assessment will require several steps. First, institutions must adopt and/or create assessment measures useful for determining students needing additional computer skills training to supplement first semester enrollment. Trying to determine student needs in this area after the student has started coursework is too late. As mentioned previously, relying on student self-reporting is also problematic. Only an assessment of incoming students can determine skill deficiency (Mays, 2018; Salinas, 2003; Smith, Bedayse, Lalwah, & Paryag, 2009).

Additionally, if this assessment is made an integral part of the orientation process, it will result in a more comprehensive system of assessment (Cardell & Nickel, 2003; Grenci, 2013; Van Biljon & Pretorius, 2009; Webb, 2018). This allows the possibility of remediation before the student begins classes and can also help advisors and counselors devise student schedules to best match student needs the first semester. Just as with English and math placement, this would ensure every incoming student would be assessed.

The second part of the solution requires colleges to acknowledge that every incoming student must have access to the latest technology. This is particularly true of Hispanic Serving Institutions who have a student base with larger socio-economic challenges and demographic variables than other institutions. This is what Selwyn (2012) refers to as “techquity,” in which
technology is used to create an equitable education system. This system, he notes, is one in which “…equitable approaches to digital education are concerned with ensuring every student gets whatever different things they might personally require” (p. 5). Additionally, courses must be created and taught in such a way as to teach computer skills that increase computer literacy and student confidence with technology (Case, MacKinnon, & Dyer, 2004; Smith, 2004).

Although there are costs for purchasing new technologies, multiple authors and institutions have suggested that newer technologies for existing infrastructure could off-set the costs of new, emerging technology purchases (Cortez, 2017; Nagel, 2012), including updating server and desktop virtualization, shifting to cloud computing, adding remote desktop support, providing online administrative services, and developing mobile computing services (California State University (CSU) Northridge, October 2009).

As a guide for creating an effective assessment and a supportive learning environment, the most successful supplemental learning models for technology skills have relied on hands-on computer-based training (CBT) directly tied to assessment (Grenci, 2013). This is a similar model used for the remediation of other basic skills. Based on assessment results, students receive additional training only for those skills in which they are deficient, repeating the learned skills until mastery is accomplished.

The third step for Hispanic Serving Institutions is factoring in the bilingual background of Hispanic students. The American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education (1985) released recommendations still used to this day for the assessment of bilingual students (Baker, Wright, & Cook, 2017). For purposes of creating a basic technology assessment and follow-up for HSIs, a key recommendation of these agencies would be to offer the assessment and
supplemental coursework in both English and Spanish. This is further supported by subsequent research in the area (Bentz & Pavri, 2000; Richlin, 2006; Baker et al., 2017). However, this solution pathway will not be implemented at Hartnell College or other Hispanic Serving Institutions without clearly establishing the need first. Until there is a snapshot of basic computer skills of incoming students via assessment, as well as on-campus support for basic computer skills, change is unlikely and the skill deficiencies of students will remain unaddressed.

Chapter Summary

The literature review focused on three key areas: explanation of the expectations and misconceptions of student skills, factors driving expectations and lack of assessment/support, and proposed solutions.
Chapter 3

Methodology

Overview

The purpose of this study is to assess the current level of basic computer skills assessment at community college Hispanic Serving Institutions (HSIs) in California and to determine if courses and supplemental instruction in basic computer skills are offered on these campuses. This chapter begins with a justification for selecting a cross-sectional survey design for this study. This is followed by a description of the process used to select the survey population. Last, an explanation of the procedures for analyzing the data and a summary of results is provided.

Selection of Research Design

At its core, this study seeks to determine current practices and attitudes within an educational setting. With this in mind, the best research design is the cross-sectional survey design outlined by Creswell (2005, 2011, & 2014). A survey “…provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population” (Creswell 2014, p. 155). A cross-sectional survey design is “…the most popular form of survey design used in education” where a researcher collects data at one point in time and has “…the advantage of measuring current attitudes and practices.” (Creswell, 2005, p. 377). Creswell further explains a cross-sectional survey design “…provides information in a short amount of time” (Creswell, 2005, p. 377).
For this study, the specific type of cross-sectional survey design selected was focused on examining “…current attitudes, beliefs, opinions, or practices” (Creswell, 2011, p. 356). As a snapshot of the current state of a population, this is an ideal means of assessment for this study, as a survey can be used to describe current trends in education (Creswell, 2014).

**Selection of Participants**

Because this study resulted from the observation of a local problem at Hartnell College, an HSI in California, the population for the study is the 55 community colleges in California designated as Hispanic Serving Institutions (Hispanic Association of Colleges and Universities, 2015). The HSIs selected include (listed alphabetically):

<table>
<thead>
<tr>
<th>Allan Hancock College</th>
<th>Long Beach City College</th>
<th>Riverside City College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antelope Valley College</td>
<td>Los Angeles City College</td>
<td>San Bernadino Valley College</td>
</tr>
<tr>
<td>Cerritos College</td>
<td>Los Angeles Harbor College</td>
<td>San Diego City College</td>
</tr>
<tr>
<td>Cerro Coso Community College</td>
<td>Los Angeles Mission College</td>
<td>San Diego Mesa College</td>
</tr>
<tr>
<td>Chaffey College</td>
<td>Los Angeles Pierce College</td>
<td>San Diego Miramar College</td>
</tr>
<tr>
<td>Citrus College</td>
<td>Los Angeles Trade-Tech College</td>
<td>San Joaquin Delta College</td>
</tr>
<tr>
<td>College of the Desert</td>
<td>Los Angeles Valley College</td>
<td>San Jose City College</td>
</tr>
<tr>
<td>Crafton Hills College</td>
<td>Mendocino College</td>
<td>Santa Ana College</td>
</tr>
<tr>
<td>Cuesta College</td>
<td>Merced College</td>
<td>Santa Monica College</td>
</tr>
<tr>
<td>East Los Angeles College</td>
<td>Modesto Junior College</td>
<td>Santa Rosa Junior College</td>
</tr>
<tr>
<td>El Camino College</td>
<td>Moreno Valley College</td>
<td>Southwestern College</td>
</tr>
<tr>
<td>Evergreen Valley College</td>
<td>Mt. San Antonio College</td>
<td>Taft College</td>
</tr>
<tr>
<td>Fullerton College</td>
<td>Mt. San Jacinto College</td>
<td>Ventura College</td>
</tr>
<tr>
<td>Golden West College</td>
<td>Norco College</td>
<td>West Hills College Coalinga</td>
</tr>
<tr>
<td>Grossmont College</td>
<td>Oxnard College</td>
<td>West Hills College Lemoore</td>
</tr>
<tr>
<td>Hartnell College</td>
<td>Palomar College</td>
<td>West Los Angeles College</td>
</tr>
<tr>
<td>Imperial Valley College</td>
<td>Pasadena City College</td>
<td>Woodland Community College</td>
</tr>
<tr>
<td>Las Positas College</td>
<td>Reedley College</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1. List of community college Hispanic Serving Institutions in California

This type of sampling is characterized by Creswell (2014) as a single-stage sampling procedure. In this type of sampling procedure, “…the researcher has access to names in the
population and can sample the people directly.” (p. 158). The institutions were sampled directly. To determine the respondents, administrators at Hartnell College were consulted. The recommended target population was the Vice-Presidents of Academic Affairs (or equivalent) at each community college HSI campus. The list of sample respondents by title and school is provided in Appendix A.

Contact information for respondents was acquired using a college-by-college website search. The survey was then distributed electronically using a link via SurveyMonkey, with follow-up emails and/or phone conversations to ensure completion. The goal was to have a census. Babbie (2015) defines a census as “A survey or study that involves an entire population.” A survey method was selected to collect responses. The specific survey method selected for this study was a researcher-administered questionnaire format, which is considered a valid format for determining traits of individual participants (Fink, 1995). Salant and Dillman (1994) identified several factors in good survey research:

- Reduce coverage error- A good sampling frame list of individuals is needed to ensure the coverage of the population is adequate and not error prone. This was achieved by receiving responses from all 55 schools in the population.
- Reduce sampling error- A large sample from the population is needed. Again, responses from all 55 schools achieved this result.
- Reduce measurement error- A good instrument with clear, unambiguous questions and response options is needed. The questions were field tested with Hartnell College administrators to minimize measurement error.
- Reduce nonresponse error- As large a return rate as possible is needed. All 55 schools in the population responded to the survey.
In summary, all four standards were achieved in this study. First, responses were received from all 55 schools in the population (reduced coverage error, reduced sampling error and reduced nonresponse error). Second, the questions were field tested with Hartnell College administrators before disbursement to the sample population (reduced measurement error).

**Securing IRB Approval**

Surveys/assessments of human subjects must be approved by the University of Arkansas’ Review Board (IRB). The appropriate forms and request were submitted and approved by the University of Arkansas (Appendix D). Participants were notified that

- their identities will be kept confidential,
- any institutional data will be made public; and
- there will be no anticipated risks for participants.

Following the completion of the study and defense of this dissertation, the participants will be notified and allowed access to the subsequent write-up and results.

**Assessment Design**

As outlined previously in the literature review, there are five key skill sets expected of college students:

- The ability to use word processing software (most commonly Microsoft Word);
- The ability to use spreadsheet software to prepare charts and graphs (most commonly Microsoft Excel);
- The ability to use software for classroom presentations and speeches (most commonly Microsoft PowerPoint);
- The ability to navigate the Internet for research; and
- The capability of learning and participating in online classrooms using various platforms or software.

Subsequent research supporting these five areas of expected skills is found in Gupta, 2006 and Thompson et al., 2012. As such, for purposes of the survey, “basic computer skills” were defined as students having the ability to perform in these five areas and the questions in the survey were designed with these five areas in mind. The survey included a cover letter via email (Appendix B) and the survey questions (Appendix C).

The survey was administered May 31, 2018. Participants were given a two-week electronic response deadline, with reminders sent once per week. After this deadline, I contacted participants not responding via telephone until data for all 55 institutions were collected. Such a survey design has been determined to be advantageous in identifying attributes of a larger population (community college HSIs nationwide) from a smaller group of individual participants (Babbie, 1990; Fowler, 2013).

**Pilot Test**

Fowler (2013) recommends involving subject matter experts as one way of designing effective research questions. The survey questions were presented to a group of administrators working in roles focused on student success at Hartnell College, including:
- Vice-President of Student Affairs
- Dean of Student Affairs
- Dean of Academic Affairs
- Student Academic Support System Coordinators
• Academic Follow-up Services Specialist
• Tutorial Services Coordinator
• Chair, Student Success Committee

These seven administrators are directly involved with the assessment process for incoming students and/or learning support services for current students and, as such, provided valuable insight into the final format of the questions for the survey. The questions were then field tested with these administrators before finalizing for disbursement to the study population.

**Data Collection**

The assessment data were collected from Directors of Student Academic Support, Deans of Learning, Support and/or Instruction and Vice-Presidents of Academic Affairs (or equivalent) at each of the 55 community college HSIs in California. Contact information for these administrators was obtained using an Internet search for each campus.

The participants were given the determined deadline for completing the online assessment and sent the link for the assessment via email. The assessment was designed and distributed using SurveyMonkey. After the deadline for online completion passed, remaining missing participants were contacted by email and/or telephone.

**Validity and Reliability**

The length of the survey is appropriate as it focused on the two main objectives of the study: to determine whether or not community college HSIs in California are currently assessing incoming students for basic computer skills, and whether or not there are support services for students needing remediation in basic computer skills.

The validity and reliability of the study are secured in the simplicity of the study design. The answers to the first seven questions are objective. There is only one true and possible answer
for each question, and a respondent either does or does not know the correct answer. The final two questions achieve validity and reliability due to the 100% response rate achieved.

**Generalizability**

All participants in the population were assessed (all community college HSIs in California). Therefore, the results of the survey will be definitive for this group. As this group is also a significant number of the HSIs nationwide, this study will provide a starting point for anticipating similar trends at institutions outside of California.

**Repeatability and Reproducibility**

The ease of distribution makes the repeatability and reproducibility of the study warranted by future researchers. This adds to the trustworthiness of the study, and since the goal of any research should be “…producing valid and reliable knowledge in an ethical manner” (Merriam, 2009), the ease other researchers will have in replicating the study’s findings will be of value in affirming the final results.

**Data Analysis**

In analyzing the data, the SurveyMonkey tool provided a report of the responses to each question, including:

- Number of total respondents ($n$) per survey;
- Number of respondents per question;
- Number of respondents per answer possibility; and
- Comparison reports of all responses.
These data provide community college HSIs in California a clear picture of basic computer skills assessment and remediation practices. I used descriptive analysis and measures of central tendency for explanation and further analysis of results.

**Chapter Summary**

A cross-sectional survey design was distributed to accomplish the goals of this study. For the survey population, a census was achieved, with all 55 schools of the sample participating. Finally, a justification for the procedures of data analysis was provided.
Chapter 4

Presentation of Data

Overview

The purpose of this study is to assess the current level of basic computer skills assessment at community college Hispanic Serving Institutions (HSIs) in California and to determine if courses and supplemental instruction in basic computer skills are offered on these campuses. The study also seeks to assess the perceptions and the degree of concern administrators at these institutions have surrounding basic computer skills readiness of their students. Fifty-five California community college institutions with the HSI designator were identified and a survey was conducted with an administrator from each campus. The administrators were each asked the same nine questions, two demographic and seven Likert-scale exploratory.

The purpose of this chapter is to analyze the data collected from the survey. This chapter begins with an overview of the demographics of the participants in the study collected from the survey. Next, an aggregated analysis of participant responses concerning assessment, support and academic requirements for basic technology skills on his/her campus is presented. The chapter concludes by presenting the participant’s responses regarding perception of basic technology skills and level of concern of each participant regarding his/her student body in regards to these skills.

Participant Demographics

Of the 55 possible institutions that could participate in this study, all 55 responded. All participants were academic administrators who were best suited to respond to the survey and
provide accurate information for their campuses. Participants were asked two initial questions to begin the survey.

Question 1: *Your position/title*

Question 2: *Institution name*

The participants included, by title and in descending order of number of respondents, the following:

- Vice-President of Academic Affairs- 26
- Vice-President of Instruction- 16
- Executive Vice-President- 2
- President-1
- Vice-President of Academic Services-1
- Vice-President for Education Services-1
- Vice-President for Student Affairs-1
- Vice-President for Student Learning-1
- Vice-President for Student Services-1
- Dean of Academic Technology- 1
- Dean of Adult Education & Noncredit-1
- Dean, Library, Learning Resources, and Distance Education- 1
- Dean of Instruction- 1
- Dean, Student Success and Support- 1
Basic Computer Skills Assessment, Support and Requirements

Using the previously cited research in this dissertation, and to determine answers to the first five of the research questions offered in Chapter 1, participants were asked Question 3: 

Currently, does your institution assess incoming students in any of the following areas (check all that apply):

- Ability to use word processing software (most commonly Microsoft Word)
- Ability to use spreadsheet software to prepare charts and graphs (most commonly Microsoft Excel)
- Ability to use software for classroom presentations and speeches (most commonly Microsoft PowerPoint)
- Ability to navigate the Internet for research
- Ability to use platforms or software for online learning and participation

Ninety-one percent of the respondents \( (n = 50) \) indicated no assessment in any of the five areas exists for incoming students on those campuses. Only 9\% \((n = 5)\) of the participants indicated incoming students were assessed for the ability to use platforms or software for online learning and participation. Of the remaining four areas, only one (<2\%) of the 55 participants indicated incoming students were assessed for basic technology skills in those areas.
Currently, does your institution assess incoming students in any of the following areas? (Select all that apply)

Answered: 55  Skipped: 0

Figure 2. Percentage of community college HSIs in California currently assessing basic computer skills

The participants were then asked Question 4: Does your institution provide learning support via coursework for students needing to reach proficiency in any of the following areas?

- **Word processing software** (most commonly Microsoft Word)
- **Spread sheet software to prepare charts and graphs** (most commonly Microsoft Excel)
- **Software for classroom presentations and speeches** (most commonly Microsoft PowerPoint)
- **Navigate the Internet for research**
- **Platforms or software for online learning and participation**
- **None of the above**
In terms of coursework, 84% \((n = 46)\), indicated at least one area offered. From the 55 schools, 67% \((n = 37)\) reported there are courses available to students for proficiency support in word processing. Sixty-five percent \((n = 36)\) of the 55 indicated there are courses available to students for proficiency support in spreadsheet software. Sixty-four percent \((n = 35)\) indicated courses for proficiency support in presentation software. For navigating the Internet for research, 60% \((n = 33)\) responded such courses exist. In terms of online learning and participation, 55% \((n = 30)\) of the 55 participants indicated such course. Interestingly, of the 84% percent indicating course offerings, no single institution offers coursework in all five areas. The most common course across the 46 schools offering coursework are courses for word processing with 80% \((n = 37)\). The least common course was a course for platforms or software for online learning, evident in only 55% \((n = 30)\). Of the 55 participants, 16% \((n = 9)\) indicated no courses are available.

Does your institution provide learning support via coursework for students needing to reach proficiency in any of the following areas? (Select all that apply)

Answered: 55  Skipped: 0

![Graph showing percentages of community college HSIs in California offering basic computer skills coursework, by type](image)

Figure 3. Percentage of community college HSIs in California offering basic computer skills coursework, by type
Next, Question 5 asked, *Does your institution provide learning support via tutoring for students needing to reach proficiency in any of the following areas?*

- Word processing software (most commonly Microsoft Word)
- Spread sheet software to prepare charts and graphs (most commonly Microsoft Excel)
- Software for classroom presentations and speeches (most commonly Microsoft PowerPoint)
- Navigate the Internet for research
- Platforms or software for online learning and participation
- None of the above

For tutoring support, 65% \((n = 36)\) of the sample indicated at least one area of tutoring is provided. Fifty-one percent \((n = 28)\) of the participants reported tutoring is available to students for proficiency support in word processing. The same result \((n = 28)\) was recorded for the area of spreadsheet software tutoring support and software for classroom presentations or speeches. Tutoring support reported for navigating the Internet for research was evident in 55% of the sample \((n = 30)\). The greatest area of tutoring support reported from the sample was in the area of platforms or software for online learning and participation, with 56% \((n = 31)\) of the participants indicating such tutoring. Interestingly, comparing only those reporting the offering of tutoring services for basic technology skills, there was no tutoring area common across all campuses. Of the 55 total participants in the study, 35% \((n = 19)\) indicated no tutoring support is available on their campuses.
Next, the participants were asked if various basic technology skills education experiences were prerequisite requirements. Question 6 asked, *Does your institution require any of the following prerequisites for any non-computer skills course?*

- A high school basic computer course
- A college level basic computer course
- A computer skills competency examination
- A computer skills training workshop
- None of the above
Basic computer skills are not a prerequisite requirement at most campuses in the sample, with 95% (n = 52) of the participants indicated none of these education experiences are a prerequisite for non-computer skills courses. Only 5% (n = 3) indicated any type of prerequisite, with all three indicating a college level basic computer skills course was a prerequisite for some non-computer skills courses.

Does your institution require any of the following prerequisites for any non-computer skills course? (Select all that apply)

![Percentage of community college HSIs in California requiring basic computer skills prerequisites for non-computer skills courses](chart)

Figure 5. Percentage of community college HSIs in California requiring basic computer skills prerequisites for non-computer skills courses

These three respondents were asked a supplemental question: *If you selected any of the above, which non-computer skills course/s require the pre-requisite/s?*

One respondent indicated that a college level basic computer skills course was a requirement for a local Associate’s of Arts degree at his/her institution. Another respondent indicated that a college level basic computer skills course was a requirement for certain Business
courses. The last respondent indicated that such a course is a requirement for taking online courses at his/her institution.

For Question 7, participants were asked, *Does your institution require any of the following prerequisites for any non-computer skills degree program?*

- *High school basic computer course*
- *College level basic computer course*
- *Computer skills competency examination*
- *Computer skills training workshop*
- *None of the above*

Ninety-six percent (*n* = 53) indicated none of the education experiences are a prerequisite for non-computer skills degree programs. Only 4% (*n* = 2) of the participants indicated a prerequisite, with both indicating a college level computer course is a prerequisite requirement.

These two respondents were asked a supplemental question: *If you selected any of the above, which non-computer degree program/s require the prerequisite/s?*

One respondent indicated that a college level basic computer skills course was a requirement for a local Associate of Arts degree. The second participant indicated such a course was a requirement for a Business degree at his/her institution.
Figure 6. Percentage of community college HSIs in California requiring basic computer skills prerequisites for non-computer skills degree programs

Perception and Concerns of Basic Computer Skills

The last two survey questions asked the participants to indicate which of the five areas of basic computer skills presented he/she considers to be a basic college skill, and the level of concern each participant has in regards to the basic computer skills level of his/her student body.

Question 8 asked respondents, *As an administrator, which of the following would you consider to be a “basic” college skill (select all that apply)*

- Ability to use word processing software (most commonly Microsoft Word)
- Ability to use spread sheet software to prepare charts and graphs (most commonly *Microsoft Excel*)
- Ability to use software for classroom presentations and speeches (most commonly *Microsoft PowerPoint*)
• Ability to navigate the Internet for research
• Ability to use platforms or software for online learning and participation

The majority of administrators indicated basic technology skills should be considered a basic college skill. Ninety-five percent (n = 52) indicated the ability to use word processing software is a basic college skill. Fifty-five percent (n = 30) of participants indicated the ability to use spreadsheet software, sixty-five percent (n = 36) reported the ability to use software for presentation. Ninety-one percent (n = 50) indicated the ability navigate the Internet for research as a basic college skill, and 71% (n = 39) of the participants responded the ability to use platforms for online learning and participation is a basic college skill. One participant (< 2%) indicated that none of the basic technology skills should be considered basic college skills.

As an administrator, which of the following would you consider to be a "basic" college skill? (Select all that apply)

Answered: 55  Skipped: 0

Figure 7. Percentage of community college HSI administrator in California that consider basic computer skills as basic college skills
The last question, Question 9, asked participants, *As an administrator, how concerned are you about the level of basic computer skills of your student body?*

- Very concerned
- Somewhat concerned
- Neutral
- Somewhat indifferent
- Very indifferent

The majority of the sample, 58%, were “neutral” \(n = 32\), with 5% “indifferent” \(n = 3\) and 2% “very indifferent” \(n = 1\). Only 29% of the sample \(n = 16\) were “somewhat concerned”, and 5% \(n = 3\) were “very concerned”.

Figure 8. Percentage of community college HSI administrators in California concerned about basic computer skills of the student body
Chapter Summary

The purpose of this chapter was to provide an overview of the 55 participants involved in the study and to present their responses to seven questions pertaining to basic technology skills on their campuses. The chapter began with a summary of the study’s participant demographics, then proceeded with individual responses concerning basic technology skills assessment, support and requirements and closed with individual responses surrounding perception and concerns of basic technology skills. I provided the rationale for each question and each question was presented along with the participants’ aggregated responses.
Chapter 5

Findings, Conclusion, and Recommendations

Introduction

This chapter compares and contrasts the data presented in Chapter 4 with the literature review for this study. The chapter begins with an overview of the study and then proceeds to a presentation of the findings for each research question along with conclusions reflecting how the findings were similar to, or different from, previous research. The chapter concludes with limitations to the study, recommendations for improved practice, and suggestions for future research.

Overview of the Study

This cross-sectional survey study was conducted to determine if community college Hispanic Serving Institutions (HSIs) in California are currently assessing, and providing support for, basic technology skills for students. The research also surveyed participant attitude and perception of the importance of such skills. The participants in this study were all administrators of community college HSIs in California and determined to be the best contact person to provide responses for the research survey. These participants were either in a key academic post for such information (such as Vice-President of Academic Affairs) or were recommended by the Vice-President’s Office (or equivalent). To answer the research questions, 55 participants, representing every community college HSI in California, answered a brief, three-minute survey. All participants were asked the same questions, including two participant identifying questions, and seven Likert-scale exploratory questions for nine questions total. The survey was distributed via an email link, and the subsequent responses were analyzed.
Prior published research documented separately basic technology skills deficiencies of incoming college students and deficiencies of students labeled as “Hispanic”; however, there has not been research conducted specifically of Hispanic Serving Institutions in terms of assessing incoming student basic technology competence, academic support for basic technology skills on campus, and administrator attitude and perception towards technology as a basic skill. This study adds to the body of literature concerning basic technology skills assessment and support at HSIs in California, the largest system of higher education in the United States (California Faculty Association, 2018). This study also provides recommendations to institutional leaders, policy makers, and other faculty members who want to increase overall student success by ensuring basic technology skills are assessed and supported on their respective campuses.

**Findings**

There were seven central research questions guiding this study:

1. What basic computer skills assessment do community college HSIs in California require of incoming students?
2. What basic computer skills courses do community college HSIs in California offer current students?
3. What basic computer skills tutoring do community college HSIs in California offer current students?
4. What basic computer skills do community college HSIs require as prerequisites for course enrollment?
5. What basic computer skills do community college HSIs require as prerequisites for degree programs?
6. What are the beliefs of community college HSIs concerning computer skills as a basic skill?

7. What are the perceptions of community college HSIs concerning basic computer skills on their campuses?

A discussion of the major findings for each research question follows, listing the corresponding survey question.

Research Question 1

Currently, does your institution assess incoming students in any of the following areas?

This question was developed to allow me to identify which basic computer skills areas are assessed at institutions in the population sample. The five areas (ability to use word processing software, ability to use spread sheet software, ability to use software for classroom presentations and speeches, ability to navigate the Internet for research and ability to use platforms or software for online learning and participation) were identified in the literature review as commonly accepted basic computer skills in higher education. Over 90% of the respondents \( n = 50 \) indicated there was no assessment for any of the five areas on those campuses. Of the remaining respondents, only one HSI community college in California assesses incoming students in all areas, with the remaining four institutions only assessing student ability to use platforms or software for online learning and participation.

Research Question 2

Does your institution provide learning support via coursework for students needing to reach proficiency in any of the following areas?
Once students are enrolled and attending classes, I wanted to determine if academic support courses existed for students needing to increase skills in the five areas of basic computer skills. Eighty-four percent of the respondents ($n = 46$) indicated courses were offered in at least one of the five areas for students to improve skill sets. The most frequent type of class offered indicated in responses was support for word processing (67%; $n = 37$), followed closely by 65% of respondents ($n = 36$) indicating there are courses available to students for proficiency support in spreadsheet software and 64% ($n = 35$) indicating such courses are available to students for proficiency support in presentation software. The lowest responses for coursework support were in the areas of navigating the Internet for research (60%; $n = 33$) and coursework support for platforms or software for online learning and participation (55%; $n = 30$). Support courses across all five areas were not reported on any one campus, suggesting the support for basic computer skills courses changes significantly from campus to campus. Furthermore, nine of the 55 community college HSIs (16%) report having no support courses whatsoever for the five different areas indicated.

Research Question 3

**Does your institution provide learning support via tutoring for students needing to reach proficiency in any of the following areas?**

Once students are enrolled and attending classes, I wanted to determine if academic support via tutoring existed for students needing to increase skills in the five areas of basic computer skills. Positive responses were not as robust as Question 2, with only 65% ($n = 36$) of the respondents indicating tutoring support is offered in at least one of the five areas for students to improve skill sets. The greatest reported tutoring support was in the area of platforms or software for online learning and participation, with 56% ($n = 31$) reporting such services. This
was followed closely by 55% of the sample ($n=30$) reporting tutoring support for navigating the Internet for research. Fifty-one percent of the participants ($n=28$) reported tutoring is available to students for proficiency support in word processing, with the same result (51%; $n=28$) for the areas of spreadsheet software and software for classroom presentations or speeches. Of the 55 participants, 35% ($n=19$) indicated there was no tutoring support available whatsoever.

Research Question 4

Does your institution require any of the following prerequisites for any non-computer skills course?

Of the five different areas, I wanted to determine if any of the following was a required pre-requisite for any non-computer skills course:

- A high school basic computer course
- A college-level basic computer course
- A computer skills competency examination
- A computer skills training workshop

Ninety-five percent ($n=52$) of the participants indicated none of the listed education experiences are a prerequisite for non-computer skills courses. Only three of the respondents (5%) indicated any type of prerequisite requirement. For these respondents, a sub-question was asked:

Sub-question 4A: If you selected any of the above, which non-computer skills course/s require the pre-requisite/s?
I wanted to determine if there was a commonality for institutions requiring a pre-requisite. However, the reasons for the pre-requisite varied. One respondent indicated that a college level basic computer skills course was a requirement for a local Associate’s of Arts degree at his/her institution. Another respondent indicated that a college level basic computer skills course was a requirement for certain Business courses. The last respondent indicated that such a course is a requirement for taking online courses at his/her institution.

Research Question 5

Does your institution require any of the following prerequisites for any non-computer skills degree program?

Similar to Question 4 above, I wanted to determine if any of the prerequisites (high school basic computer course, college level basic computer course, computer skills competency examination, or a computer skills training workshop) were a requirement for any non-computer skills degree programs. Ninety-six ($n = 53$) indicated none of these education experiences are a prerequisite for non-computer skills degree programs. Of the two participants indicating a prerequisite, a sub-question was asked:

Sub-question 5A: If you selected any of the above, which non-computer degree program/s require the pre-requisite/s?

One respondent indicated that a college level basic computer skills course was a requirement for a local Associate’s of Arts degree, with the second indicating such a course was a requirement for a Business degree at his/her institution.
Research Question 6

As an administrator, which of the following would you consider to be a “basic” college skill?

This question was developed to determine if administrator definitions of a “basic” college skill matched the literature review indicating all five areas as basic college skills:

- Word processing software (most commonly Microsoft Word)
- Spread sheet software to prepare charts and graphs (most commonly Microsoft Excel)
- Software for classroom presentations and speeches (most commonly Microsoft PowerPoint)
- Navigate the Internet for research
- Platforms or software for online learning and participation

Ninety-five percent of respondents \((n = 52)\) indicted the ability to use word processing software as a basic college skill with 91% \((n = 50)\) indicating the ability to navigate the Internet for research as a basic skill. Although this was expected given the literature review, there was a significant decrease in basic skills agreement in the remaining areas. Only 71% \((n = 39)\) of the participants responded the ability to use platforms for online learning and participation is a basic college skill. Sixty-five percent \((n = 36)\) reported the ability to use software for presentation as a basic college skill. Fifty-five percent \((n = 30)\) of participants indicated the ability to use spreadsheet software as a basic college skill.
Research Question 7

As an administrator, how concerned are you about the level of basic computer skills of your student body?

I asked this question to determine community college HSI administrators’ attitudes and perceptions towards basic computer skills of their students. The majority of the respondents, 65%, were neutral or indifferent ($n = 36$). Twenty-nine percent of the sample indicated they were “somewhat concerned” ($n = 16$), with only 5% of the sample “very concerned” ($n = 3$).

The next section presents conclusions drawn from an analysis of the research findings and shows how the findings compare to the existing literature.

Conclusions

This study explored the current state of basic computer skills assessment and support at community college Hispanic Serving Institutions (HSIs) in California. The emphasis in college student basic skills, and how best to assess and provide ongoing support for these skills, continues to be a high discussion and priority action topic not only nationwide, but around the globe (Gallacher & Reeves, 2019). Although basic computer skills are assumed to be a basic skill needed by college students to be successful, the literature indicates there is a de facto assumption that students entering the college and university level are at a basic level of computer skill proficiency. Given the increasing national movement of Guided Pathways at the community college level, there will be even more of a temptation for colleges to ignore assessment of and support for student basic computer skills, with greater levels of expectations by institutions for students to be even more technology ready (Jenkins, Lahr, Fink, & Ganga, 2018). The findings of this study led to the following conclusions:
1. **Community college HSIs in California do not assess incoming students for basic computer skills.** Only five of the 55 community college HSIs in California have any type of basic computer skills assessment for incoming students. This is consistent with research findings that traditional college students are assumed to be “digital natives” (Bennett & Corrin, 2018) and that non-traditional students are expected to have sufficient skill sets to use expected campus technologies (Hargittai, Piper, & Morris, 2018). With passage of California bill AB 705, and the subsequent elimination of remediation classes in English and Math at the community college level, there will be even less incentive for basic computer skills assessment going forward that would trigger additional developmental education (Mejia, Rodriguez, Johnson and Brooks, 2018).

2. **Community college HSIs in California have varying academic support for basic computer skills.** Whereas 84% of schools report basic computer skills courses in at least one area available to students, and 65% of schools report tutoring for basic computer skills in at least one area, there is a wide array of availability. Most of the schools indicating course offerings (80%) provide a course for students in word processing, but barely half (55%) provide a course in platforms or software for online learning and participation. None of the schools in the study offered courses in all five areas of basic computer skills, and nine of the 55 offered no courses whatsoever. Even fewer schools reported tutoring support for basic computer skills. Only 65% of the participants reported tutoring is available for students in at least one area. Of these, 86% offer tutoring for platform and software for online learning. However, only slightly more than half of those reporting tutoring indicated the availability of
tutoring across the other four areas of word processing, spreadsheets, software for classroom presentations and navigating the Internet. 35% of the schools in the sample offer no tutoring whatsoever in these areas. This disparity between California community college HSIs, and the subsequent student experience and know-how, will have a ripple effect, given the number of Hispanic college students is expected to increase by 42% by 2021 (Levin & Kater, 2018).

3. **Basic computer skills courses are not prerequisites for non-computer skills courses or programs.** With the exception of three schools, none of the schools in the study require basic computer skills courses for any subsequent coursework, or even as a requirement to earn a degree. This may be largely due to the decrease of basic computer skills offerings in the California public school system. The latest data indicates that only 2% of high school students in the state are enrolled in any type of computer course (Reese, 2016). This reality creates a two-pronged cause for the lack of prerequisites in the basic computer skills areas. First, the lack of courses in public schools create a barrier for community colleges that may want students to have some sort of basic computer skills prerequisite. Second, the absence of course offerings in public schools means community colleges would need to create curriculum to provide instruction and remediation in basic computer skills. However, the California Community College system is already under pressure to tighten academic pathways and programs, as many transfer students to the four-year system end up with excess credits upon completion that are not applicable to the four-year degree (Fink, Jenkins, Kopko, & Ran, 2018).
4. **Most California community college HSI administrators believe computer skills are basic college level skills.** Over 90% of the administrators surveyed indicated that the ability to use word processing software and the ability to navigate the Internet for research are a basic college skill. Two-thirds indicated that the ability to use software for presentations and the ability to use platforms for online learning are a basic college skill. 55% responded that the ability to use spreadsheet software is a basic college skill. As such, this correlates with the findings of Conclusion 2: administrators indicating a computer skill as a basic skill subsequently offer coursework in those same areas on their campuses. However, as indicated in Conclusion 1 and Conclusion 3, these same schools do not assess incoming students to determine the need for supplemental basic computer skills, nor is there any requirement for a student to take such a course in his/her academic program.

5. **Most California community college HSI administrators are not concerned about the level of basic computer skills of the student body.** Sixty-five percent of the administrators in this study were not concerned about the level of basic computer skills of the student body, with only 29% somewhat concerned. This is a further indicator that California community college HSI administrators, and, consequently, their respective institutions, are operating under the assumption their students *already have* the basic computer skills needed to be successful. However, this is clearly not supported by any data, as 50 of the 55 schools in the sample do not assess incoming students. This is not to infer that these administrators are generally uncaring. However, what it does infer is administrators do not have data contrary to their assumptions to *make* them care about basic computer skills of all students. This is in
spite of the fact community college administrators are more and more being called upon to use data in decision making (Mays, 2018) and increasingly accountable to the public for student learning outcomes and success (Webb, 2018).

**Limitations**

In the course of this study, a couple of limitations were identified. These should be considered by the reader when examining the research.

1. This study was limited to California community college Hispanic Serving Institutions (HSIs). While virtually all of the findings in this study were consistent with the literature, it is unknown if the experiences of California community college administrators (and thus, their institutions) who are not HSI designated would be comparable.

2. When I created the interview questions I assumed a level of clarity in what I was asking of the respondents in the survey. However, three of the respondents contacted me via the information I provided in the cover letter to ask clarifying questions. If there were other administrators that did not clearly understand what was being asked, this could skew the findings.

3. Although I was thrilled to have a 100% response for the study, it was not without some prodding. Two of the respondents were recalcitrant during follow-up efforts to secure survey responses. Although I was successful in obtaining a response from every administrator in the study, the attitudes demonstrated by the two respondents mentioned above may have affected their responses to some of the questions.
Recommendations for Improved Practice

In his book *Leading with Emotional Courage: How to Have Hard Conversations, Create Accountability, and Inspire Action on Your Most Important Work*, Peter Bregman, a renowned expert on leadership and organizational change, highlights a truth about human nature:

“The research shows that, even as adults, we tend to conform to the behaviors of those around us. If your colleagues take sick days, then you’ll start taking them too. If your colleagues are messy, you’ll become (sic) more messy, too” (Bregman, 2018, p. 5).

I might continue his stream of thought to say, “If your fellow administrators and community colleges don’t assess students for basic computer skills, then neither will you.” With Bregman’s assertions in mind, and the findings presented in this study, the following recommendations are offered. These suggestions are not just the result of the study’s findings, but also best practices gleaned from the literature review.

**Recommendations for Institutional Administrators**

1. Administrators need to create a culture of assessment that includes basic computer skills. The literature review of existing data is strong that a significant number of college students, particularly those that find their way to a Hispanic Serving Institution, are not ready for the technology demands of the college experience.

2. Administrators need to collaborate with faculty to provide a clear link to supplemental coursework and tutoring. Given the mandated compression of curriculum requirements in many states and the Guided Pathways initiative, collaborative innovation will be needed to connect students with the academic support needed to increase basic computer skills.
3. Administrators need to work with public schools in their acquisition area to encourage a resurgence of computer skills based courses. The earlier students receive the appropriate computer skills training to be successful at the college level, the less likely the burden for community colleges later on to provide supplemental education.

4. Administrators can encourage faculty to do in-class basic computer skills assessments. As faculty members, we are the ones triggering assignments requiring the use of the technologies outlined in this paper. There are various, free, online assessments for basic computer skills that would help faculty help students realize technology limitations.

5. Shared governance committees should include basic computer skills as an institutional learning outcome/core competency. All community colleges have institutional learning outcomes or core competencies expected of every student graduating with a degree. By including basic computer skills as one of these milestones, it will create the foundation for long term academic support to include assessment and supplemental learning.

**Recommendations for Policy Makers**

1. Policy makers need to include computer skills in any conversation related to “basic” skills and expand the definition of “basic”. It is clear from the literature that basic computer skills are a needed basic skill at the college level. It is clear from this study that community college administrators acknowledge such skills as a basic college skill. Unfortunately, historical legislation has not included basic computer skills alongside the mainstays of English, ESL and Mathematics.
2. Policy makers need to provide legislation and oversight to promote computer skills, once again, in the K-12 arena. As with any basic skill, attempting to remediate once a student is at the college level is daunting and not as successful compared to the student learning the skill earlier on.

3. Policy makers should use data to drive all legislative decisions. Policy makers have been just as guilty making assumptions about the technology readiness of college students, evident in changing funding priorities for computer skills courses the past two decades. We don’t know if we don’t assess.

Recommendations for Faculty

1. Faculty do not need to wait for the political machinery to catch up to the realities highlighted in this study. Any faculty member can have students take free, online, basic computer skills assessments to at least determine a starting point for the level of students in his/her class. This will also afford the faculty member the opportunity to connect any students demonstrating deficiency with existing support services on campus.

2. Faculty can help lead change by researching examples of successful assessments used at other colleges that could be used as models for their own institutions. Technology assessments were, at one time, a higher education standard. There are archived efforts of past practices available in every state.

3. Faculty can promote existing computer courses or tutoring available on campus in course syllabi. For the student that wants or needs extra computer skills education, not knowing options can be a barrier to access.
Suggestions for Future Research

My background, experience and networking allowed me to obtain a complete study sample comprised of every California community college Hispanic Serving Institutions. In many ways, this was a convenience sample, but the study has merits beyond its limited scope. With this in mind, the following suggestion for future research are provided.

1. This study was limited to California community college Hispanic Serving Institutions. Future participants should include the entire California community college system. As the largest community college system in the United States, its sheer impact it has on the number of students is staggering. This would help solidify whether or not the issues outlined in this paper are systemic beyond the Hispanic Serving Institutions.

2. This study was limited to California community colleges. Future participants should include both the California State University and University of California four-year systems to determine if assessment and support for basic computer skills are provided. If this is not just a community college problem, there is a chance for greater resource support if it is system wide throughout the state.

3. Other community college districts around the country should conduct similar studies. The literature would indicate this is truly a national problem and deficiency with some of our college students. Replicating this survey in other districts could help generate a larger national awareness and discussion for not only more support for basic computer skills in higher education, but substantive change at the K-12 level to ensure basic computer skills are taught early on.
Closing

I am grateful to the participants in this study who willingly answered for their respective institutions regarding basic computer skills assessment, support and beliefs. As administrators, I know each respondent’s time was a precious commodity donated to my research efforts. This study provided a valuable starting point for changes needed to help ensure students at our campuses are best served.

There are many, many challenges for community colleges in California, particularly Hispanic Serving Institutions. It seems the next major legislative mandate is always right around the corner, and what was once priority soon gets placed to the proverbial back burner. I hope the conclusions and recommendations in this study will provide institutional administrators, policy makers, and other faculty members with the data and talking points needed to make basic computer skills assessment and support, once again, an inherent part of the student experience.
References


Miller, M. T. & Pope, M. L. (2003). *Barriers and challenges to serving non-traditional students in e-learning environments (Research report)*. San Jose, CA: San Jose State University Department of Instructional Technology.


## APPENDICES

### APPENDIX A

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<td>Reedley College</td>
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<tr>
<td>Dean, Student Success and Support</td>
<td>Riverside City College</td>
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<td>Position</td>
<td>College</td>
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<tr>
<td>Vice-President of Instruction</td>
<td>San Bernadino Valley College</td>
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<td>Vice-President of Instruction</td>
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<td>Vice-President of Instruction and Planning</td>
<td>San Joaquin Delta College</td>
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<td>Vice-President, Academic and Student Affairs</td>
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<td>President</td>
<td>Taft College</td>
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<td>Vice-President for Student Affairs</td>
<td>Ventura College</td>
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<td>Executive Vice-President</td>
<td>West Hills College Coalinga</td>
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<td>Vice-President of Educational Services</td>
<td>West Hills College Lemoore</td>
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<tr>
<td>Dean of Academic Affairs</td>
<td>West Los Angeles College</td>
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<tr>
<td>Executive Vice-President</td>
<td>Woodland Community College</td>
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APPENDIX B

Dear Colleague,

In your position at your college, you serve an important function when it comes to student success. As educators, we must be aware of learning challenges facing students in order to promote change. Your response to the survey can greatly enhance our understanding.

For my doctoral thesis, I am conducting research to explore digital literacy trends at our community college Hispanic Serving Institutions in California. I want to determine whether these schools currently assess incoming students for digital literacy. I will also investigate the learning support in digital literacy provided for students at California community college HSIs.

Your participation in this research is, of course, voluntary. Your confidentiality and anonymity are assured. Response to the survey is your consent for your responses to be compiled with others. Although the survey is coded to allow for follow-up with non-respondents, you and your institution will not be individually identified with your questionnaire or responses. Please understand that use of this data will be limited to this research, as authorized by the University of Arkansas at Fayetteville, although results may ultimately be presented in formats other than the dissertation, such as journal articles or conference presentations. You also have the right to express concerns to me at the email below, my dissertation chair Dr. Suzanne McCray at the University of Arkansas, Fayetteville, School of Higher Education, or the University of Arkansas, Fayetteville Institution Review Board.

I greatly appreciate your valuable time and participation in this research. The survey will take approximately 10 minutes to complete. Please respond to the survey within two weeks.

Thank you for your interest and participation in this study. I genuinely appreciate your time.

Sincerely,

Jason Wayne Hough
Instructor, Hartnell Community College
ABD University of Arkansas, Fayetteville
APPENDIX C

I. DEMOGRAPHICS

1. Current position
   a. Tutorial Services Coordinator
   b. Director of Student Academic Support
   c. Dean of Learning, Support and/or Instruction
   d. Vice-President of Academic Affairs
   e. Other

2. Institution name:

II. ASSESSMENT

1. Currently, does your institution assess incoming students in any of the following areas? (Select all that apply)
   a. Ability to use word processing software (most commonly Word)
   b. Ability to use spreadsheet software to prepare charts and graphs (most commonly Microsoft Excel)
   c. Ability to use software for classroom presentations and speeches (most commonly Microsoft PowerPoint)
   d. Ability to navigate the Internet for research
   e. Ability to use platforms or software for online learning and participation.
   f. None of the above

2. Does your institution provide learning support via coursework for students needing to reach proficiency in any of the following areas? (Select all that apply)
   a. Word processing software (most commonly Word)
   b. Spreadsheet software to prepare charts and graphs (most commonly Microsoft Excel)
   c. Software for classroom presentations and speeches (most commonly PowerPoint)
   d. Navigating the Internet for research
   e. Platforms or software for online learning and participation
   f. None of the above
3. Does your institution provide learning support via tutoring for students needing to reach proficiency in any of the following areas? (Select all that apply)
   a. Word processing software (most commonly Word)
   b. Spreadsheet software to prepare charts and graphs (most commonly Microsoft Excel)
   c. Software for classroom presentations and speeches (most commonly PowerPoint)
   d. Navigating the Internet for research
   e. Platforms or software for online learning and participation
   f. None of the above

4. Does your institution require any of the following prerequisites for any non-computer skills courses? (Select all that apply).
   a. High school basic computing course
      Required for:
   b. College level basic computer course
      Required for:
   c. Computer skills competency examination
      Required for:
   d. Computer skills training workshop
      Required for:

5. Does your institution require any of the following prerequisites for any non-computer skills degree program? (Select all that apply).
   a. High school basic computing course
      Required for:
   b. College level basic computer course
      Required for:
   c. Computer skills competency examination
      Required for:
   d. Computer skills training workshop
      Required for:
6. As an administrator, which of the following do you consider to be a “basic” college skill? (Select all that apply).
   a. Ability to use word processing software (most commonly Word)
   b. Ability to use spreadsheet software to prepare charts and graphs (most commonly Microsoft Excel)
   c. Ability to use software for classroom presentations and speeches (most commonly Microsoft PowerPoint)
   d. Ability to navigate the Internet for research
   e. Ability to use platforms or software for online learning and participation.
   f. None of the above

7. As an administrator, how concerned are you about the level of digital literacy in your student body? (Select one).
   a. Very concerned
   b. Somewhat concerned
   c. Neither concerned or indifferent
   d. Somewhat indifferent
   e. Very indifferent

THANK YOU FOR YOUR PARTICIPATION!
To: Jason Wayne Hough
From: Douglas James Adams, Chair
IRB Committee
Date: 05/01/2018
Action: Exemption Granted
Action Date: 05/01/2018
Protocol #: 1802100800
Study Title: Assessment and Support for Basic Computer Skills: Digital Literacy at Hispanic Serving Institution in California

The above-referenced protocol has been determined to be exempt.

If you wish to make any modifications in the approved protocol that may affect the level of risk to your participants, you must seek approval prior to implementing those changes. All modifications must provide sufficient detail to assess the impact of the change.

If you have any questions or need any assistance from the IRB, please contact the IRB Coordinator at 109 MLKG Building, 5-2208, or irb@uark.edu.

cc: Suzanne McCray, Key Personnel