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Comparing Effectiveness of Intensive Hybrid and Traditional Course Formats in the Community College Setting

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**Comparing Effectiveness of Intensive Hybrid and Traditional Course Formats
in the Community College Setting**

by

Cecelia Corgan Monto

A dissertation submitted in partial fulfillment of
the requirements for the degree of

Doctor of Education
in
Learning and Leading

University of Portland
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Abstract

This study compared the effectiveness of courses taught in a five-week intensive hybrid course format with courses taught in an 11-week traditional course format, in order to explore options for expanding access to higher education in a community college setting. A second theme of the study was that expanding academic access through alternative formats is only valuable if courses produce positive academic results. The historical rationale behind community colleges and the contemporary initiatives to expand them have underscored the need to increase access by providing a range of options to higher education that meet the varying needs of students. The study used matched pairs of courses taught by the same instructor with the same content, texts, and assignments in the two different delivery modes to gather quantitative and qualitative information to evaluate effectiveness. The study also investigated student characteristics that could affect learning in the different formats, and strategies for successfully teaching students in an intensive hybrid course format. Data were gathered from four sources at a community college in the Pacific Northwest: institutional data on student characteristics and performance, in-class student surveys, pretests and posttests of knowledge, and qualitative interviews with instructors. Linear regression analyses and *t*-tests showed no statistically-significant differences in earned grades between the two formats, controlling for other predictors of student success, including age, gender, and academic characteristics. Therefore the study demonstrated that the alternative format of the five-week hybrid course was

academically effective in a community college, and could expand access to higher education for students in this setting.

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Chapter 1: Introduction

Community colleges have played a crucial role in the landscape of contemporary higher education. Over 1,100 community colleges currently exist in the United States, and approximately 35% of all postsecondary students have been enrolled in community colleges (Provasnick & Planty, 2008). The most recent 2015 report on the Conditions of Education from the U.S. State Department emphasized the large presence that community colleges have had in the United States (U.S. Department of Education, 2015a). National enrollment trends have demonstrated consistent expansion of student participation in higher education in the United States; approximately 70% of high school students have attended some form of higher education at some point in their lives (Conley, 2008; Porter & Polikoff, 2012). Recent initiatives have encouraged participation in higher educational for all students, a trend called *college for all* (Carnevale, 2008), which further emphasizes the potential for increased enrollment. The prevalence of community colleges, combined with the trends towards increasing enrollment, position the community college to play an important future role in meeting the higher education needs of the United States.

As greater numbers of students have enrolled in higher education, community colleges have strived to meet the growing needs of their student populations. And because community colleges have served a more diverse and nontraditional student body than traditional colleges and universities (Dougherty & Townsend, 2006; Dowd, 2003; Provasnic & Planty, 2008), unique needs have emerged based on the characteristics of the students. When compared with traditional four year university students, the typical community college student was more likely to display

nontraditional characteristics, meaning he or she was often older, less affluent, a first-generation college student, non-residential, part time, and often had expanded family/parent and worker obligations (Provasnic & Planty, 2008, Ross-Gordon, 2011). These nontraditional students balanced multiple adult roles, which often resulted in severe time constraints that impeded academic participation. Chao, DeRocco and Flynn (2009) reported that the greatest barriers to access for nontraditional students were time constraints associated with work and family obligations, cost, course location and course schedules. There has been an increase in nontraditional learners (over the age of 24) enrolling in higher education (Chao et al., 2009; U.S. Department of Education, 2015b), and nontraditional students now have a more common presence on college campuses (Ross-Gordon, 2011). The National Center for Education Statistics estimated that nontraditional students now make up more than 60% of the higher educational population (2015). Approximately 44% of the postsecondary students in the United States have now been reported as over the age of 24 (Kasworm, 2008).

Community college students, with their larger proportion of nontraditional learners, have a greater proportion of students with less academic experience (Jenkins, Speroni, Belfield, Jaggars, & Edgecombe, 2010; Provasnic & Planty, 2008). These students were more likely to be underprepared academically when they entered higher education at the community college level, as demonstrated by high participation in remedial courses (Provasnic & Planty, 2008). Jenkins, Speroni, Belfield, Jaggars and Edgecombe (2010) found evidence that more than 50% of community college students enrolled in at least one remedial course in math, reading or writing initially.

Community college students also often lacked *college knowledge*, a skill base that helps them navigate and succeed in the culture of higher education. Conley (2008) defines *college knowledge* with four key elements: cognitive strategies (such as problem solving, informational interpretation, and research), foundational content knowledge, self-management and learning skills (such as time management and ownership of learning), and college culture and process knowledge (such as matriculation, cultural norms and identity). These factors suggest that community college students struggle to a greater degree to meet the demands of both academic issues and life commitments.

Given the growth of community colleges nationwide and the characteristics of the students served, alternative educational options could be one way to provide increased educational access, particularly to nontraditional students who face greater challenges related to time and location. As seen throughout history, access to higher education has encompassed many aspects. In the community college setting, access has been provided through reduced tuition costs, open admissions, location availability, and time scheduling. New innovations in course delivery methods that offer convenience of time, location, and instructional modality may provide an additional way to expand access.

However, improved access should not be defined simply in terms of convenient times and location, and delivery method of instruction. Academic access demands equivalent academic quality. It is important to evaluate alternative course formats not only on their ability to expand convenience of access to higher education, but also in the ability to deliver consistent, high-quality academic outcomes. Some

new innovative course formats have been created without the benefit of theoretical grounding and careful review. Course design methodology has not always been fully vetted in the implementation of the new formats. Without maintenance of academic standards, alternative course delivery formats would only provide a superficial appearance of expanded access to higher education. Course innovation without maintenance of quality standards could actually prevent genuine educational access, because substandard educational options would result (Dowd, 2003). Therefore, careful study to examine possible alternatives to course format and delivery are needed that assure academic quality and standards are met, and accommodate for the characteristics of students served. Alternative formats also must complement current educational policy initiatives that affect community colleges, and align with the historical purpose of education in the United States.

Educational Policy Initiatives and Legislation Affecting Community Colleges

In addition to the growth trends in higher education, there has been increased focus on global comparison of educational outcomes, objectives, and competition (Ripley, 2013). This global comparison has impacted policy initiatives and new legislation that has promoted expansion of community colleges. In recent years, the global Organization for Cooperation and Economic Development (OECD) reported that educational achievement levels in the United States have remained stagnant in comparison to other leading countries (OECD, 2014; Ripley, 2013). There is also a new perception of education as the lever to promote a desirable positive economic and social climate (Ripley, 2013), so the issue of greater access to education is linked to

larger social issues in the United States, and influenced the trajectory of U.S. community colleges.

On a national level, President Obama has initiated educational reform movements from pre-k onward, but particularly in the area of higher education. The expansion of higher education can be seen at all levels of policy dialogue, and has become very focused on the community college. Most recently, Obama proposed legislation to fund free community college education which could bring about even greater enrollment growth for community colleges (Obama, 2015). Obama's proposal, called *America's College Promise*, promotes access to higher education specifically through the community college venue to approximately 9 million additional students (Westcott, 2015). This expanded access may require new approaches to course delivery methods to meet the needs of a growing and changing student population.

The national trend of expanded access to higher education was reflected in Oregon legislation. In 2011, Senate Bill 253 passed, commonly known as *40-40-20*. The bill mandated that all adults in Oregon graduate from high school by 2025, and set the ambitious goal of 80% of students continuing on to postsecondary education. The bill had broad societal support within government, in the business community, and within educational institutions statewide.

More recent Oregon legislation has emerged with continued focus on the community college. Senate Bill 81 was introduced by Senator Mark Haas on January 9, 2015 (Hammond, 2015). Titled *the Oregon Promise Tuition Waiver Program*, the bill was approved with funding by the Oregon Legislature on July 2, 2015 (S. 81, 2015). The bill aimed to improve access to higher education by providing free tuition

for students attending community college. Senate Majority Leader Diane Rosenbaum stated that the bill was a “bold action that improves access to higher education and workforce training in Oregon” (Oregon State Legislature, Senate Majority Office, 2015). The bill is scheduled for implementation in September, 2016. Although the bill did not spell out implementation, it will likely require even greater academic options to serve the growing number of students. Community colleges across the state of Oregon are aware of the current change and are anticipating a need to expand course access in innovative ways to meet potential demand.

The Historical Value of Access in the Community College Mission

It is not surprising that community colleges have been at the forefront of new legislation and policy initiatives that increase academic access. The context of community college education has historically been rooted in the values of democracy, social justice, and equal opportunity. Community colleges have supported the democratic process by providing educational access on a large, public scale, and in this way they have served as a means towards social equity and mobility (Bragg, 2001; Dougherty, 1994; Dougherty & Townsend, 2006; Dowd, 2003; Vaughan, 2006). Aragon and Brantmeier (2009) go so far as to call community colleges *vanguards of social justice* and *catalysts for social change*. To provide this opportunity, community colleges have promoted educational access throughout history through a variety of approaches including open admissions policies, affordable tuition, geographic outreach, convenient time schedules and innovative course delivery methods (Dougherty, 1994; Provasnic & Planty, 2008; Vaughan, 2006).

The historical value placed on access and opportunity in American education can be traced back to the writing of Horace Mann in the 1800s (Mann, 1848, as cited by Labaree, 2011), and have been a key tenant in the American democratic system. From this foundation, improved educational access became a commitment to equal opportunity in education. That commitment has endured well into present day, and community colleges remain at the forefront of that commitment. The Truman Commission Report coined the term *community college* in 1947, and created a network of two-year public colleges that were spread throughout the country and charged little or no tuition (Vaughan, 2006). The report concluded “It is obvious, then, that free and universal access to education, in terms of interest, ability and need of the students, must be a major goal of American education (U.S. President’s Commission on Higher Education, 1947, p. 36). The community college movement grew substantially during the 60s and 70s. The promotion of access in education was one of the themes of the civil rights movement. The Carnegie Commission on Higher Education (Mayhew, 1974) followed the trend towards greater opportunity to higher education to students in all life circumstances, and expanded on the Truman Commission’s goals. Both initiatives promoted open access to education (Dougherty, 1994).

The Link between Student Characteristics and Access in the Community College

History has demonstrated the democratic commitment to educational access that is evident in community college work and scope. Historical information on the inception of community colleges and enrollment patterns has also demonstrated that policy initiatives and political factors created opportunity for individuals to attend

community college (Dougherty, 1994), and continue to shape community college work. As current policy decisions expand the opportunity of a community college education, it is likely that increased numbers of students, many of whom will be nontraditional.

The characteristics of the students who enroll in community colleges may shape the way future courses and services are delivered. Therefore, a key point to expanding academic access may rest in finding new ways to deliver courses that address student challenges. Community colleges must confront this combination of student characteristics in a myriad of creative ways to improve access. Community colleges already address some student barriers by offering lower tuition rates, more remedial course offerings, and convenient community locations. Additional approaches towards improving access have begun through the creation of innovative course formats that address student characteristics and realities, such as online delivery modes and intensified time frames. Because new instructional delivery formats could further improve access to education, they can be framed in terms of a larger commitment to democracy and social justice. However, maintenance of high quality academic outcomes cannot be ignored in the pursuit of convenience and efficiency. Careful attention is necessary to ensure that improved access truly addresses the needs of students *and* is designed in a way that maintains academic quality and standards.

Importance of the Study

The importance of this study is evident by the aforementioned legislation and policy initiatives, and based in the historical and social ideals of equal opportunity to

educational access. Expanded academic access through innovative course formats could support the expansion of higher education, and community colleges are at the forefront of educational service in the United States. Davies (2006) made the link between the global context of education and the need for innovative formats as a way to respond to social trends and student needs.

Educational innovation aligns with the state's call to pursue expanded options to educational delivery. Former Oregon Chancellor of Education George Pernsteiner made strong recommendations to pursue innovation in educational systems to improve educational access and encourage social equity. In the recent 2012 Oregon University System (OUS) report entitled "From Goal to Reality: 40-40-20" Pernsteiner argued that there was a need "to make the necessary changes to expand educational attainment significantly for Oregon's growing and underserved populations... [so society can reap] the broad societal benefits of quality education" (Oregon University System, 2012, p. 2). Therefore, it is important to investigate new options for course formats in order to improve educational access and help students attain their academic and career goals.

Very few studies have investigated course effectiveness and student success in time-shortened, hybrid courses at the community college level. Furthermore, most research has failed to examine the influence of learner characteristics and how nontraditional student characteristics relate to course format effectiveness (Seamon, 2004). The possibility that student differences in academic preparation may affect performance in an intensive and hybrid course structure has not been fully

investigated, especially for learners with lower academic ability levels in reading, writing and math skills.

Purpose of the Study

The purpose of this study was to examine the effectiveness of one alternative course format that combined intensive and hybrid course delivery methods, by evaluating both academic outcomes and accommodation to nontraditional student characteristics, as a possible means towards providing greater access to education in a community college setting. In this process, strategies and instructional practices were identified that support learning in an intensified hybrid course delivery method, so that this alternative educational format is constructed with consistent academic quality and creates genuine access to higher education.

Chapter 2: Literature Review

This study examined the effectiveness of a five week intensive hybrid course format model and the relationship that nontraditional adult student characteristics have on learning and access to education. Hence, the literature review contains three areas of focus:

- The theoretical framework of adult learning theory and andragogy.
- The effectiveness of intensive course format design.
- The effectiveness of hybrid course format design.

In the first section of the literature review, adult learning theory was applied to the student characteristics common to the community college environment. This application of theory helped identify the educational issues distinct to this population. Because community college students have often been adult learners, effective instructional delivery is best understood through the lens of adult learning theory. The second and third topics addressed in the literature review examined the effectiveness of intensive, time-shortened course schedules and the effectiveness of hybrid/online course formats, in order to identify what is known about the strengths and challenges of these formats and determine if they are conducive to learning. These three areas of review allowed for a multi-dimensional investigation into how and why course format and instructional delivery innovations may be effective methods of increasing access to higher education.

There was a substantial body of scholarship on adult learning theory and a sufficient amount of research on intensive course formats and hybrid/online course

formats; however little of the research on these topics had been conducted in the community college environment. Community college student characteristics differ from the characteristics of traditional university students, and these differences may become more pronounced with the recent policy changes that will likely increase community college enrollment. The literature also revealed important information regarding the potential contributions of both intensive course formats and hybridized/online course formats, but the information was quite limited in relation to the combination of hybridized AND intensive course delivery in the same course. The conclusion of this literature review allowed integration of the needs of community college students with innovations in course format design that could improve access to higher education.

Adult Learning Theory and Andragogy

Although there is no single unifying theory that unites the experience of adult learners, the theoretical concepts of andragogy, self-directed learning theory, and situated learning theory all emphasize the relationship between learning and the characteristics of adult students (Merriam, Caffarella & Baumgartner, 2007).

Andragogy refers to characteristics unique to adult learners, and separates the distinct traits of adult learning from the broad body of generalized learning theory (Knowles, 1980). The concept of andragogy argued for a teaching approach that acknowledges intrinsic motivation and relies less on passive learning. This style contrasts with a passive, more teacher-centered, traditional lecture style of instruction. Personal responsibility for learning is at the foundation of andragogy, and is built from the motivation and student initiative inherent in a self-responsible outlook on learning

(Wlodkowski, 2008). In this theory, the successful student constructs an identity-based personal responsibility to sustain motivation (Kasworm, 2003), which aligns with the concept of self-directed learning. Andragogical principles emphasize a teaching style that encourages students to reflect, implement, and link current learning to past knowledge and experience (Knowles, 1980). Andragogy takes into account the maturity of the adult student, and the motivations that resulted from his/her life circumstances and experiences. Andragogy is an important lens to use in the examination of instructional practice because it provides insight into learning and best practices in teaching (Wlodkowski, 2008; Wlodkowski & Ginsberg, 2010). The instructional style supported by this theory is one of facilitated learning, with the instructor providing resources and direction, but letting the student generate more of the specific learning (Merriam et al., 2007).

The approach of andragogy is relevant to the community college student profile and could influence innovative course delivery structure and models that would result in greater access for nontraditional adult students. Arwood (2015) and Merriam (et al., 2007) argued that innovative educational formats that reflect andragogy could acknowledge the characteristics of adult learners and maximize appropriate learning strategies. The andragogical perspective meshes well with the community college student profile. According to Ross-Gordon (2011), nontraditional older students who held multiple social roles (worker, student, parent, citizen) perceived their student role differently than the typical young student, age 17-22, who had less demands and life responsibilities. Nontraditional students often confronted a greater number of situational challenges, such as job difficulties, health, financial or legal problems and

family/personal issues (Grunau, 2005). These students also often supported themselves and their families, and they developed a utilitarian perspective about their educational pursuits. Because of life circumstances and responsibilities, nontraditional adult students often face substantial barriers to education, particularly related to rigid course time schedules and locations (Silva, Cahalan & LaCirreno-Paquet, 1998). They sought out relevancy to link learning to their own life experiences (Merriam et al., 2007).

Self-directed learning theory. Self-directed learning theory is a key tenant in the concept of andragogy (Merriam et al., 2007), and presents an important approach to instructional design that addresses the needs of nontraditional community college students. Like andragogy, self-directed learning theory emphasized the mature adult learner's desire for relevant learning and linkages to past experiences. Seamon argued that relevancy created intrinsic motivation that encouraged students to engage in learning (2004). According to Knowles theory of self-directed learning, learners who took greater control and responsibility for their learning learned more effectively (1980). Reflected in this idea, Brockett & Hiemstra (1991) created the *Personal Responsibility Orientation* that integrated the characteristics of adult learners in combination with instructional method processes. This model placed more ownership for learning on the shoulders of students, and encouraged independent learning. This orientation fit the typical profile of the community college student. The self-directed learning model also relied on student maturity and a greater sense of self-awareness than found in traditional pedagogy for younger learners (Merriam et al., 2007). The self-directed learner is aware enough to possess the self-discipline and motivation to take advantage of resources and opportunities to learn, which required more initiative

(Knowles, 1980). Brockett & Hiemstra (1991) argued that self-awareness was a critical element because self-directed learning is based in an orientation of personal responsibility for learning, and the motivation and responsibility to learn were reciprocal in the self-directed learning process.

The role of the instructor in the self-directed learning environment was different than in an instructor-centered environment. In a self-directed educational environment, the learner displayed more independence and maturity, and the instructor took on a facilitative role rather than a central role (Knowles, 1980; Merriam et al., 2007). In the self-directed model, the instructor provided resources and opportunities and harnessed the students' direction, and there was more focus on problem-based learning over simple acquisition of knowledge (Jarvis, 1985). In this facilitative role, the instructor also assisted students in assessing their own learning needs and helped them self-evaluate (Brockett & Hiemstra, 1991). Consideration of the self-directed instructional approach could prove useful in the instructional design work for innovative formats. However, familiarity with the subject matter influenced the level of independence the learner has, and even self-directed learners were temporarily dependent learners when presented with unfamiliar subjects (Knowles, 1980).

Situated learning theory. Andragogy and self-directed learning theory have also been linked to situated learning theory because of the emphasis on the learning environment and context as critical dimensions in the learning process (Lave & Wenger, 1990). Research by Lave and Wenger indicated that situated learning could be important for community college students, because a large part of the learning environment for these nontraditional adult learners would be shaped by past

experience, circumstances, emotions, and culture. Adult students interpreted their collegiate learning experience through their involvement in complex social roles with work, family and school. Brockett & Hiemstra (1991) emphasized the importance of situational factors and social milieu in the learning context, and Kolb and Kolb (2005) similarly noted the interaction between the learner and his/her environment was critical to the learning process.

Therefore, situated learning also explained the common position of the nontraditional community college student on the periphery of the academic world. Nontraditional students, with competing identities (worker, parent, etc.) sometimes never moved to full participation as students in college (Ross-Gordon, 2011). However, this disposition did not necessarily limit their attainment of higher education. The choice to remain on the periphery was a viable option in the community college environment, where campus living and activities were not required. This legitimate peripheral participation as defined by Lave and Wenger (1991) created a social structure where full participation was not required. Nontraditional community college learners did not typically identify with a peer group or campus experience as a significant influence; they interpreted and participated in college learning in relation to how they saw their learning interacting with their multiple roles (Kasworm, 2003). Swenson (2003) also explained that situated learning is individual, meaning that each person learned within the context of his/her experience and environment, and therefore the traditional expectation of group learning was essentially flawed. Situated learning theory places less emphasis on traditional, campus-based life and more focus on individual student needs.

Adult learning theory and nontraditional student characteristics. The theoretical framework of adult learning helps explain the learning needs of students in the community college setting and suggests that innovative instructional design may address those needs and improve access to higher education. New approaches to educational delivery that factor in andragogy, self-directed learning theory and situational learning theory could create conditions that acknowledge community college student circumstances and characteristics and facilitate success. The theory of andragogy aligns with instructional design that promotes linkage of new information to life experience. Adult learning theory suggests implementation of teaching methods that encourage reflection, dialogue (including online), and independent research to construct new knowledge. Situated learning perspectives aligned with course formats that promote greater time flexibility, nontraditional time schedules, and longer blocks of time that allow for seminar style learning.

Instructional design that incorporated these adult learning theories required a paradigm shift for instructors as well as for students. As learners strived to make meaning of instructional content more independently, instructors facilitated learning in a different way than traditional lectures, instructor-directed interactions, and full term traditional course formats. It was important to provide a range of activities and resources the student could draw from independently, with less reliance on traditional time schedules. Swenson recommended revamping the traditional concept of group learning through an instructor-led class experience in a different way that allowed an individual's learning style, past experience, personal motivation and other variables to play a larger role in learning (2003). In contrast to traditional instructor-led classroom

activities, this type of format required the student to move through course material much more independently, without always having the guiding presence of an instructor.

Intensive Course Formats

Intensive course formats are one innovation that may improve access to education for nontraditional community college students. Intensive course formats are defined as course delivery schedules that offered course content in a compressed, time-shortened time frame and often had block class sessions that met with less frequency. Terminology regarding intensive courses is varied, and included terms such as *time-shortened*, *compressed*, *condensed*, and *block courses*. Intensive courses have been defined as meeting the full number of course content hours, and are therefore different from *accelerated* courses, which often meet in a reduced time frame. Mixed conclusions on the success of intensive course formats have been reached by researchers on this topic, although the majority of studies reported positive outcomes. Scholars have argued that it is important to examine intensive course formats critically and thoroughly to ensure that academic standards are maintained and teaching methods support positive learning for students.

Positive findings on intensive course formats. The majority of research in the area of intensive course format delivery has suggested that intensive or time-shortened course formats were as effective as traditional full term formats in many academic aspects (Anastasi, 2007; Daniel, 2000; Davies, 2006; Kucsera & Zimmaro, 2010; Lovett, Meyer & Thille, 2008; Martin & Culver, 2007; Scott, 2003; Sheldon & Durdella, 2009; Van Scyoc & Gleason, 1993; Wlodkowski, 2003).

Well documented meta-reviews reported overwhelmingly positive outcomes for intensive formats. The first large scale meta-review on intensive course formats was conducted in 1991 by Scott and Conrad. The meta-review studied 50 intensive courses, and concluded that intensive courses generally resulted in equivalent or superior learning outcomes when compared with traditional courses. Daniel (2000) also conducted an extensive review of time-shortened courses across a variety of academic disciplines, and found that time-shortened formats produced equivalent academic results for almost all courses. In this meta-review, Daniel (2000) examined a multitude of smaller studies that documented the outcomes of time-shortened courses compared to full length semester courses. The studies used in the review included a wide range of academic subjects including math, English, languages, science, economics, languages, business, psychology, education and others. Daniel reported very little difference in academic outcomes on the majority of courses in the meta-review, and in fact, the review demonstrated stronger academic results in many cases. For example, Daniel noted that often students in the intense, time-shortened courses actually performed better on achievement tests than their full term peers. However, Daniel noted that this academic advantage diminished over time. Longitudinal studies included in the meta-review reported equivalent subject knowledge gains over time. Kuscera and Zimmaro (2010) also conducted a large study of 130 courses to compare the effectiveness of intensive and traditional formats when courses were taught by the same instructor within the same year, and throughout a variety of academic departments. Like Daniel's study, Kuscera and Zimmaro reported greater positive

academic outcomes by students enrolled in the intensive courses, and found equivalent course workload amounts in both formats.

Many specific subject area studies also yielded positive findings related to the potential of intensive course formats. Martin and Culver (2007) compared two sets of subject specific matched courses in English and marketing, with an intensive and traditional length course in each topic. Courses employed the same instructors and covered identical coursework. These authors found equivalent outcomes in student learning or perceptions of the courses. A comparison study of statistics courses in 6 and 12 week formats showed equal learning gains in both groups (Lovett, et al., 2008). Student performance in psychology courses was compared between full semester and condensed formats, and no significant differences on final exam grades were found. Equivalent student success was evident in both formats (Anastasi, 2007). Van Scyoc and Gleason (1993) did a focused study in the topic area of Economics, where they compared identical courses that ran either three or 14 weeks, with equivalent student academic results. In Van Scyoc and Gleason's study, variables such as contact hours, course content, course requirements, student characteristics and time of day were controlled, however the instructors were different, which presented some validity question. However, the study tested student initial achievement and long term retention in economics courses, over the period of two years by using a comprehensive economics test. The longitudinal nature of this study made it exceptional for comparing long term academic outcomes between intensive and full term courses. The study also examined confounding variables and identified specific variables that affected student achievement and retention, and found that instructor, GPA, pre-

knowledge and gender were all significant predictors (Van Scyoc & Gleason, 1993). Interestingly, the three-week intensive course initially showed greater gains in knowledge acquisition. However, over time, the gains diminished and both groups showed equivalent test scores, which mirrored other research such as Daniel's meta-review in 2000.

Hall, Wilson and Sanger (2012) also did a focused comparison study in the field of introductory chemistry at the community college level over the course of 4 years. Although they did not track the students' academic progress over time, they had a larger sample of students which gave the study results more reliability. Hall, Wilson and Sanger (2012) compared classes that used identical course materials, texts, assignments, instructors, and grading rubrics to minimize variables. Their study compared three-week intensive courses to 15-week semester courses. This study found that students enrolled in the intensive courses had greater academic success, in terms of course completion, grades and subject mastery. This study commented that the majority of past research investigated humanities courses, and therefore this study added important information on academic achievement in the subject area of science. This study controlled for student characteristics such as age, gender, life experience, and academic experience and major, and therefore addressed student attributes as factors in academic success. The research found that the only student characteristic that effected achievement was age, which proved a positive factor in course success for this and several studies. This study provided an example of using student academic records in combination with student characteristics to gain a fuller understanding of what impacts student achievement in the differing formats.

In an additional study conducted by Sheldon and Durdella (2009) at a community college, comparison of student success rates between intensive and traditional course formats found that students enrolled in the time-compressed course had stronger performance. In this study, it was interesting to note that the course studied were all at the developmental level, and contained both math and writing. In this comparison one contributing factor to student success was the higher course completion rate in the intensive format.

Seamon (2004) compared student outcomes in psychology courses in an intensive and traditional format and found that the students enrolled in intensive courses showed greater academic gains over traditional course formats. Seamon's study was interesting because it examined instructional design and teaching differences in addition to grades, competency testing, and student characteristics. By isolating variables, the study deeply examined the effect of course delivery in the intensive course format, and demonstrated best practices that could be implemented.

Knowledge acquisition is a key indicator of academic quality, and a critical element in course effectiveness. Intensive courses did not appear to sacrifice rigor or academic quality, and contrary to conventional wisdom, intensive formats yielded equivalent academic results to longer traditional course formats. The majority of studies reported equivalent knowledge acquisition for students regardless of format (Anastasi, 2007; Lovett et al., 2008; Van Scyoc & Gleason, 1993). Some studies actually demonstrated that intensive course formats produced superior learning outcomes over traditional course formats when students were tested for content knowledge and immediately following course completion (Hall, et al., 2012; Scott,

2003; Seamon, 2004; Van Scyoc & Gleason, 1993). However, long term differences in subject mastery gains between intensive and full term courses faded in virtually every study that included longitudinal data. Student content mastery ended up virtually equivalent over time in either format (Daniel, 2000; Seamon, 2004 Van Scyoc & Gleason, 1993). Although long term academic benefits of intensive course formats may not endure, these studies suggest that equivalent learning appears possible, and that intensive formats may be viable options for expanded educational access.

Previous studies have indicated that the most important component of successful intensive course outcomes was the instructional methodology used by the instructor in the course (Grady, 2013). Courses presented in intensive format required adaptation of teaching methods that accommodated the time frame and maintained course organization delivery (Wlodkowski, 2008; Wlodkowski & Ginsberg, 2010). Changes in class activities and the structure of assignments based on the intensive time frame, such as longer blocks of class time, were important elements of successful intensive course construction (Grady, 2013; Kretovics, Crowe & Hyun, 2005). However, curricular adaptation to intensive formats presented a challenging issue. Faculty often reported difficulty in revamping teaching strategies to accommodate the intensive time frames (Daniel, 2000; Krevtovics, et al., 2005; Marques, 2012; Wlodkowski, 2003). The perceived instructional difficulty was one of the reported factors that created resistance to the intensive formats, ranging from hesitance to radical aversion by instructors (Marques, 2012). Therefore, the criticism of intensive formats as ineffective could be related to the difficulty in adapting teaching methodology rather than actual format itself.

Scott (2003) argued that students experienced intensive formats differently than traditional course formats, and that instructional methodology had a greater effect on course quality and student success in the intensive time frame when compared to full term courses. Scott outlined four important course attributes that had more impact in the intensive course format. The attributes were: instructor characteristics such as enthusiasm, knowledge/experience and a student orientation; teaching methods such as organization, experiential and applied learning, interaction and discussion; classroom environment including atmosphere and student relationships; and evaluation adaptations such as different exams and assignments (Scott, 2003). Scott concluded that although all courses benefit from these instructors and course attributes, they were more important in intensive formats because students became overwhelmed quickly, and course demands could overpower students if they did not perceive relevance and connection in the learning.

Davies's extensive review (2006) argued that almost any class could be successfully offered in an intensive or accelerated format, as long as appropriate teaching methods and organization were in place. Scott (2003) highlighted the teaching methodology and instructional design that were essential to the success of intensive formats. This literature could be a guide for instructional accommodations made to intensified course offerings. Criticism of intensive course formats could be seen as a call to create better links between teaching methods to learning theory. Because the innovation of intensive course delivery formats has the potential to improve academic access, it is consistent with the historical values in the U.S. education system and important to consider.

Negative findings on intensive course formats. Some meta-analytic studies of intensive courses reported negative findings and favored traditional course formats (Lutes & Davies, 2013; Seamon, 2004). Critics speculated that intensive courses were of inferior quality because they offer nothing more than efficiency of time and cost (Anastasi, 2007; Daniel, 2000; Scott, 2003; Vreven & McFadden, 2007), and compromised academic quality. Some academics criticized these programs as *McEducation*, meaning superficial “junk food” type courses (Wlodkowski, 2003). If these critiques are valid, the outcomes of innovative intensive formats could be very problematic. Dowd (2003) argued that such programs actually reproduce inequality by providing subpar education, and therefore compromise improved access to higher education. Expanded academic access without quality would not provide true access.

It was important to examine research with negative findings on intensive course format outcomes to gain a full understanding of the limitations and possibilities of this delivery method. Petrowsky (1996) compared two business courses, one two-week intensive course with one full semester course, and found the students in the intensive course scored lower on a full program comprehensive test. Lutes and Davies (2013) reported concern about course rigor in a compressed format course, despite overall equivalent achievement in course completion and grades for both groups of enrolled students. Their large study showed a reduction of student workload in the time-shortened formats of about 21 minutes per credit hour, and the authors speculated that lack of rigor in the intensive formats could result if workload is reduced (Lutes & Davies, 2013). However, their study did not explain the equivalent student

achievement as reported by grades, despite the workload reduction. This study noted that course workload differences could have been based on the subject and instructor.

Another negative concern related to intensive learning focused on the high level of self-discipline and self-regulation that was required. Students without self-management skills were not as successful in intensive formats (Wlodkowski & Kasworm, 2003). Criticism of intensive course formats points to the crucial importance of academic standards. Academic quality must be maintained to provide content equivalency that allows students assurance of educational quality, and the freedom to change majors or transfer colleges (Lutes & Davies, 2013). Therefore, effective implementation strategies of intensive course formats must be identified that support academic standards.

Research limitations on intensive course formats. Although the previous research has revealed predominantly positive reports related to intensive course formats, certain limitations in the studies were evident, and reduced the generalizability of the findings. Research imperfections, such as comparing course results that used different instructors, or inconsistencies in the duration of time in the intensive courses studied, created challenges in interpreting the research results. For example, the study conducted by Martin and Culver (2007) only had two instructors participating in the study, and both possessed the highest *excellent* instructor rating in their college. Therefore this study may have generated results that are reliant on instructor qualities rather than course format attributes, because the instructor characteristics were not controlled for in this study. The study conducted by Kuscera and Zimmaro (2010) emphasized instructor and course evaluations rather than subject

mastery and student competency. Therefore academic standards were deemphasized because subject mastery was not assessed. Anastasi (2007) noted that his study was limited by its short duration of time, and argued that other studies in the field had this same limitation. In the negative findings, Petrowsky's study used a course comparison between an extremely brief course format that compared only a 2-week course with a full semester course (1996). Petrowsky also did not provide any information regarding instructors; therefore the influence of instructor characteristics was not fully explored. Davies (2006) positive meta-analysis of intensive formats identified problems with some of the empirical data gathered in previous studies, which included a lack of randomly assigned students, a lack of long term data, unclear measurements of academic success, and a lack of differentiation based on student characteristics such as age and academic preparation. Davies (2006) concluded that appropriate implementation of intensive formats is critical, and further study is needed about the impact that these formats have on adult learners. The limitations of these studies make a case that further study is needed, and attention to study methodology is critical.

Frequency of class schedule related to intensive course formats. Past research on frequency of class intervals has also proven relevant to intensive course formats and presented additional possibilities for impacting course effectiveness. Examples of intense course formats in the literature described courses offered in long blocks of time in a condensed time period, with less frequency of class sessions than a traditional course format held over the duration of an entire term or semester. The literature related to the frequency of course schedule described cognitive learning theory and the spacing effect, and researchers argued that long term memory storage

was stronger in a spaced out distribution of learning tasks over longer periods of time (Bahrick, Bahrick, Bahrick & Barick, 1991; Dempster, 1988). However, relatively few studies examined the impact of sequence and frequency of class schedules on student achievement in actual class settings (Collins & White, 2011; Fike & Fike, 2013; Gallo & Odu, 2009). Fike and Fike (2013) reported mixed findings on the effect of schedule frequency for math courses, and asserted that class schedule was not a predictor of student success. Collins and White (2011) reported no clear advantage for either intensive or distributed course schedules. Their study showed equivalent learning gains regardless of full-term or intensive format, with the exception of intensive language learning courses, where the intensive format showed greater learning gains. Anastasi (2007) argued that compressed class schedules produced a classroom environment that was more conducive to learning due to greater student engagement. Gallo and Odu (2009) noted that nontraditional students predominantly preferred intensive or compressed math courses, even one-day-a-week classes, although they reported mixed results on the academic success presented in intensive course delivery formats. Gallo and Odu (2009) concluded that less frequent, intensive class conditions were less optimal for learning. However, their study did not specifically examine class frequency distribution in relation to characteristics of the adult learners.

Conclusions about intensive course formats. The majority of the research concerning intensive course formats contradicted the negative stigma that intensive educational formats have received in the past, and several potential advantages regarding intensive course formats were revealed in research. The more positive outcomes may have resulted from progress in the instructional methodology and

design used in intensive courses, perhaps as a result of earlier criticism. Of course the literature reported the obvious advantage of time efficiency and student convenience, which was evident in student feedback stating preference for intensive formats (Gallo & Odu, 2009; Lee & Horsefall, 2010; Ross-Gordon, 2011; Scott, 2003; Young, 2002). The advantage of convenience suggested that the intensive approach to course time schedules could make education more accessible to nontraditional students. Research also documented additional academic advantages. Research reported decreased course fragmentation in the intensive formats (Dexter, Tai & Sadler, 2006). Students had reduced time to forget course material, which was also cited as a positive outcome of intensive formats (Hall, et al., 2012). Several aforementioned studies also documented solid subject knowledge gains for students. In addition to general subject mastery, Seamon (2004) identified specific improvements in higher level thinking for students enrolled in intensive courses, regardless of student characteristics, motivation, or prior GPA levels. Often, greater student satisfaction was recorded for many intensive courses (Scott, 2003). Faster-paced degree completion contributed to increased motivation for students because they maintained academic momentum (Wlodkowski, 2003). Because these formats often incorporated elements recommended by adult learning theory, such as linking past experience to larger subject concepts and increasing interaction patterns in the classroom (Anastasi, 2007), they could be ideally suited to the community college student profile. In fact, positive research findings likely contributed to an increase in the implementation of innovative and intensive course formats, and this trend has grown significantly in recent years (Marques, 2012; Wlodkowski, 2003).

Intensive course formatting is not a new educational concept. Colleges and universities have typically held time-shortened intensive course formats during summer semesters for many years and used these formats in response to immediate learning needs, such as intensive language training programs in World War II (Daniels, 2000). Increased intensive course formats have also been prevalent in winter intersessions and weekend programs (Daniels, 2000). The long history of intensive course offerings has provided a large body of research and solid information on productive approaches to time shortened coursework. However, there is a lack of research on the effectiveness of intense, time-shortened course formats in the community college setting with nontraditional students.

Hybrid Course Formats

Previous research on hybrid courses has provided insight into effective hybrid course design and instruction. The term *hybridized* or *blended* has been used to refer to a course delivery method that includes both online and in-person instruction (Dziuban, Hartman, Moskal, 2004; Kaleta, 2003; Laster, Otte, Picciano & Sorg, 2005; Willekens & Gibson, 2009). It offered a third option for instruction, in-between fully online and fully face-to-face formats (Kaleta, Skibba & Joosten, 2007). Reduced in-class seat time has been a common trait in all models of hybrid learning (Dziuban, et al., 2004; Kaleta, et al., 2007; Young, 2002). Beyond this simple definition, research has expanded the definition of hybrid course delivery to a more comprehensive approach that included the planned integration of online with traditional face-to-face classroom activities in a pedagogically valuable manner (Laster, et al., 2005). Other scholars further refined the definition of hybrid or blended courses. Allen and Seaman (2007)

specified percentages of time spent online and in the face-to-face setting, and defined hybrid courses as having between 30% - 79% of course content delivered online. However, there has been no consensus about the ratio of online to face-to-face instruction in the literature.

The terms *hybrid* and *blended* were often used interchangeably in the field, and there was no standardization about the terminology (Estelami, 2012; Gleason, 2013). Other terms included *mixed-mode*, *flexible*, *blended*, and *distributed learning* (Helms, 2014; Vignare, 2007). For this study, the term *hybrid* will be the dominant terminology used to describe courses that combine online with face-to-face instructional delivery. The definition of hybridized learning was also fluid because new modalities have emerged in education rapidly, such as video conferencing, podcasting, blogs and other media (Picciano, Dziuban & Graham, 2013). Because there was no widely accepted terminology of the hybrid/blended course format, data collection and comparison has proved difficult (McGee & Reis, 2012; Vignare, 2007). There was also a lack of consistency in the comparison of pedagogical methods and equivalencies of curriculum and instructors in hybrid courses (McGee & Reis, 2012; Gonzalez, 2014). Hybrid courses were often not fully tracked within institutions, which made them harder to evaluate and recognize (Allen & Seaman, 2007; Picciano, 2007). Young (2002) argued that the hybrid format was unrecognized in many educational settings, because the hybridization of course content occurred without clearly defining it and without an evaluation process in place. These inconsistencies, in addition to the fact that hybrid learning was an emerging trend, resulted in some confusion about the designation of hybrid status on courses.

The hybrid trend originated from online/distance learning. The increased prevalence of online/distance instruction began in the 1990s, and has been embraced within the U.S. higher education system (Allen & Seaman, 2007 and 2013; Arabasz, Boggs & Baker, 2003; Gleason, 2013; Graham & Robison, 2007; Reasons, et al., 2005; Stack, 2015; U.S. Department of Education, 2010). In fact, approximately 90% of colleges have offered some form of online coursework as part of their regular instruction (Jackson & Helms, 2010; Tallent-Runnels, Thomas, Lan, Cooper, Ahern, Shaw, & Hatfield, M. 2006). The literature documents large increases in enrollment in online and hybrid courses nationwide (Allen & Seaman, 2007, 2013; Estelami, 2012; Jackson & Helms, 2008; Reasons et al., 2005), and online learning has been recognized as one of the most powerful trends in education today (Stack, 2015; Young, 2002). Growth in all areas of online learning is expected in the future (Chen & Chiou, 2014; Estelami, 2012; Stack, 2015).

Although online course formats remained more common than hybrid, the hybrid model has also grown rapidly in higher education in recent years (Arbaugh, Ashay, Desai, Rau, Balakuntalam & Sridhar, 2010; Bonk & Graham, 2008, Helms, 2014; Vignare, 2007, Willekens & Gibson, 2009; Young, 2002). Hybrid learning has become part of the mainstream in most colleges and universities, partly because of convenience and student need (McGee & Reis, 2012; Picciano et al., 2013). Due to the nature of the online and hybrid formats, which feature greater flexibility and less face-to-face classroom, the format has particularly addressed the challenges that many nontraditional students have encountered (Bonk & Graham, 2008). The attributes of

hybrid course formats could improve educational access for nontraditional students (McGee & Reis, 2012).

However, without quality increased access is meaningless. Therefore, it is important to examine the quality presented in hybrid course formats to assure that academic standards are maintained. There have been mixed findings regarding the academic quality of online and hybrid course formats. Meta-studies reported both positive outcomes and negative outcomes in a variety of aspects (Allen & Seaman, 2013; McGee & Reis, 2012; Shacher & Neumann, 2003; Stack, 2015).

Positive findings on hybrid course formats. The majority of research has yielded many positive reports on online and hybrid education delivery modes. The most obvious benefit has been increased access and convenience (El Mansour, Bassou, Mupinga, & Davison, 2007; Shea, 2007; Stewart & Scappaticci, 2005; Young, 2002), particularly due to the reduced the need for structured *seat time* (Chen & Chiou, 2014; Dziuban et al, 2004; Vaughan, 2007). The reduced commitment to a specific place has also meant that students reported less time spent commuting (Helms, 2014; Jackson & Helms, 2008). Administration and students reported the additional benefit of greater course availability due to hybrid course offerings (Jackson & Helms, 2008; Lorenzetti, 2004).

Many large studies demonstrated that students learned effectively in the hybrid course format (Chen & Chiou, 2012; McGee & Reis, 2012; U.S. Department of Education, 2010; Shachar & Neuman, 2003; Vignare, 2007). Vignare's large meta-analysis of hybrid course effectiveness (2007) concluded that hybrid learning formats produced equivalent or sometimes better student outcomes than traditional face-to-

face courses. Students demonstrated equivalent performance on subject matter measurements such as proficiency exams in several meta-analyses (Estelami, 2012; Shachar & Neuman, 2003; U.S. Department of Education, 2010; Vignare, 2007). Chen and Chiou (2014) reported that hybrid courses had the potential to create equivalent or better student achievement, particularly if students' learning needs were factored in to course design and delivery method.

Beyond large meta-analysis, the literature contained more specific examples of hybrid course outcomes equaling or surpassing traditional outcomes (Gratton-Lavoie & Stanley, 2009; Stack, 2015; Stewart & Scappaticci, 2005). Gratton-Lavioe and Stanley (2009) reported that student test scores from microfinance courses were slightly higher for online and hybrid students than students enrolled in the same course in a face-to-face format. Stack (2015) found that academic performance was equivalent between the student groups in the two course delivery methods. Stack noted that his study controlled for selection bias. This is important because a common concern regarding research on student performance in hybrid and online courses has been that stronger students may self-select in to these courses (Stack, 2015). Positive outcomes for hybrid courses were even reported among underprepared college students, particularly when the online portion of the delivery focused on active learning strategies (Stewart & Scappaticci 2005).

Studies often indicated a high degree of student satisfaction with the online instructional delivery. A large study conducted by Dzuiban, Moskal and Hartman (2005) of almost 200,000 students reported high student satisfaction in the hybrid course format. Persistence and retention rates in hybrid courses were higher, and

dropout rates were lower in comparison with fully online courses in this study, which addressed the common worry about persistence and retention rates in online and hybrid courses (Dzuiban, Moskal & Hartman, 2005). These researchers argued that the in-person sessions that were part of the hybrid course format established a stronger relationship between the teacher and student and reinforced the coursework expectations to a greater degree. Student satisfaction in hybrid and online courses has been linked to overall course effectiveness (El Mansour, et al., 2007). Clarity of assignments and course organization that was constantly available through the online element of the course was also a point of strong student satisfaction (Estelami, 2012). The hybridized learning formats also reported improved use of the physical resources of campus space which was an important advantage reported by college administrators (Kaleta et al., 2007).

Studies have indicated that students in the hybrid format have often been older and had more academic experience than students enrolled in traditional courses, which may have given them an academic advantage. However, Gratton-Lavoie and Stanley (2009) controlled for age, marital status and family status, and found that academic outcomes remained equivalent for students enrolled in either hybrid or face-to-face courses. Stack also reported equal academic outcomes for students in hybrid and traditional course formats, even when selection bias of the compared student groups was controlled (2015).

Negative findings on hybrid course formats. Hybrid course delivery has aroused skepticism in the education community related to academic standards and student learning outcomes (Means, Toyama, Murphy, Bakia & Jones, 2009; Vignare,

2007). Although touted as offering students the best of both the online and traditional course delivery methods, opinion has been divided about whether or not hybrid modes of learning maintained academic standards compared to traditional formats (Chen & Chiou, 2014; Estelami, 2012; Parsons-Pollard et al., 2008; Reasons et al., 2005, Stack, 2015; Vignare, 2007). Variability of student satisfaction in hybrid courses was reported, although hybrid weaknesses often mirrored typical weaknesses reported for fully online courses, such as reduced contact with instructors and reduced student-to-student connection (Parsons-Pollard, et al., 2008; Jackson & Helms, 2008). Concerns about hybrid courses were expressed in complaints about sparse online postings and responses, and reduced intensity of communication. This problem was often the result of poor integration of course content to the delivery mode and course, particularly related to the design of the online portion of the class (Shea, 2007). Technology difficulties were also a common weakness for both hybrid and online courses and posed difficulties for both students and faculty (Stewart & Scappaticci, 2005; Vignare, 2007). While it was recognized that technology had the potential to disseminate information efficiently and in an engaging manner, training and mastery of technology was essential for both students and faculty (Stewart & Scappaticci, 2005). Students were also challenged in hybrid courses by time management issues, and the need for greater self-responsibility in their learning mode (Vaughan, 2007). The online portion of the coursework depended largely on students' initiative and self-discipline.

Instructional shifts in hybrid course formats. Research has consistently emphasized the importance of instructional methodology and course design in creating effective hybrid course delivery (Estelami, 2012; Garrison & Kanuka, 2004; Graham

& Robison, 2007; Helms, 2014; Jackson & Helms, 2008; McGee & Reis, 2012; Twigg, 2003). Research described the first phase of course change was a basic redesign to accommodate the combination of face-to-face and online modalities (McGee & Reis, 2012). But successful and truly effective design has gone beyond simple redistribution of face-to-face and online content delivery to reconceive the sources of information and the place more responsibility for learning on the learner (McGee & Reis, 2012). McGee and Reis described this as “radical transformation of pedagogy” (p.8, 2012) that shifted learning away from the more common teacher-centered transmission of information and required learners to construct their learning experience from a variety of resources, from both direct instruction and self-directed online sources. Gleason (2013) argued that teaching and learning has been reconceptualized in the hybrid format, and the central role of the instructor has shifted as online resources have emerged as an additional foundation source of information. In the hybrid format, the instructor and learner, working together, bridged the use of the online and face-to-face environments (McGee & Reis, 2012). To successfully restructure courses in the hybrid format, Gleason (2013) noted that instructors have had to determine which tasks could be taught most effectively in each modality. Scholars argued that successful adaptation to the hybrid environment required changes in course structure and delivery that took advantage of both modalities (Gleason, 2013; McGee & Reis, 2012; Shea, 2007). Graham and Robison (2007) also described the additional advantages presented by the online venue and noted that instruction must be tailored to the possibilities inherent in each format. In this way, hybrid course design did not simply combine face-to-face with online instruction; it actually

transformed the pedagogy of teaching (Graham & Robison, 2007; McGee & Reis, 2012; Vaughan, 2007).

Research has provided several examples of the successful integration between face-to-face and online course segments used in hybrid course formats. Active learning strategies have proved effective, and examples included use of self-testing exercises, group work, simulations and case studies, online tutorials, and video resources (McGee & Reis, 2012; Vaughn, 2007). The use of discussion boards and online learning communities was a common instructional strategy used to encourage discourse and build student engagement (Willenkens & Gibson, 2010). Intentional use of online organization tools was demonstrated, and recommended due to the importance of course organization in the hybrid format (Welker & Beradino, 2006). Research demonstrated that instructors of hybrid courses actually had a greater variety of instructional techniques at their disposal (McGee & Reis, 2012; Vignare, 2007).

Research reported high levels of student connection and enhanced interaction for faculty who took full advantage of the hybrid structure and available course tools and services (Aycock, Garnham, & Kaleta, 2002; McGee & Reis, 2012; Vaughan, 2007). Welker & Bernadino (2006) found that hybrid instructors often had more interaction than faculty teaching strictly online courses. Student-to-instructor interaction has been identified as one of the most important elements of promoting student engagement and success in the hybrid format, with frequent email cited as the primary indicator of student to faculty connection (Willekens & Gibson, 2010). The element of student-to-teacher interaction was an essential element for instructional delivery in the hybrid format, with emphasis on teacher feedback on student

performance and progress (McGee & Reis, 2012). In some cases, increased frequency of communication between the instructor and students and student-to-student was made possible by utilizing the two formats (Estelami, 2012). Students genuinely wanted instructor feedback in the online portions of courses, and it was important for instructors to build this element into their hybrid teaching methodology (Tallent-Runnels, et al., 2006). Instructor-student connection was shown to increase motivation and student engagement in both the online and in-class environments (McGee & Reis, 2012).

Brookfield (2003) argued that course formats that feature more individualized learning led to greater gains in critical thinking and independent thought. Rapid technological innovation has increased the variety of ways that instructors have engaged students in individualized ways (Graham & Robison, 2007). The interactive teaching and learning strategies that have emerged from online course delivery methods have created a more interactive methodology that has allowed for individual direction in the learning process and a shift away from the transmissive, whole-class form of teaching (Graham & Robison, 2007; Picciano et al., 2013; Waddoups & Howell, 2002).

The research has suggested that hybrid learning formats could have the potential to be truly transformative in the field of education (Garrison & Kanuka, 2004; Graham & Robison, 2007; McGee & Reis, 2012; Shea, 2007). The key to this transformative potential is founded in successful instructional design that maintains consistent academic standards. McGee and Reis (2012) have argued that thoughtful design that uses technology that enables interaction and promotes active learning has

the potential to enhance student learning. Shea (2007) argued that hybrid learning environments had the potential to support higher levels of critical thinking and learning because the format provided unique instructional design features such as increased activities that were reflective in nature. These findings suggest that hybrid formats may be particularly consistent with the needs of adult learners, as understood by adult learning theory (Ausburn, 2004; Willekens & Gibson, 2009). Ausburn (2004) reported that adult students in her study followed the preference pattern established by adult learning theorists such as Knowles, and preferred instructional strategies that promoted relevant, reflective, and self-directed learning methodologies. Additionally the advantage of 24/7 access to learning materials enhanced the learning experience of many students.

In an extensive literature review Vaughan (2007) concluded with a call to practitioners to combine the best features of in-class teaching with the best features of online learning to promote active, relevant, self-directed learning opportunity for students with added flexibility. McGee and Reis (2012) also called for greater integration and interactivity in hybrid course delivery and outlined specific variations of course design. It is important to recognize that hybrid courses are different than online or traditional courses (Graham & Robison, 2007; Willekens & Gibson, 2010), and therefore they offer different opportunities in instructional design and effectiveness. Effective practice in hybrid course delivery has relied on intentional course design that focused on course objectives first, and aligned learning activities and pedagogy in a way that best utilized each modality (McGee & Reis, 2012). Gleason (2013) summed up this idea when she stated “pedagogy needs to drive

technology, not the other way around” (p. 605). There remains great need for expanded models and examples to help faculty implement learning activities that maximize the possibilities of the hybrid format, and great care must be used in constructing positive hybrid course formats to ensure positive benefits (Estelami, 2012).

Conclusions about hybrid course formats. Mixed reviews about hybrid and online instruction have indicated that further study is needed. Limitations existed in many studies, and may have contributed to the inconsistent findings. One limitation has been that the literature on hybrid learning has often been anecdotal, and problems such as inconsistent assessment measurements, failure to factor in student characteristics, student selection bias, and confusion about terminology have existed (Allen & Seamon, 2013; McGee & Reis, 2012). A lack of longitudinal research on hybrid course effectiveness was also evident in the literature, because the majority of studies focused on individual course outcomes rather than longer term educational program outcomes. The lack of longitudinal research on hybrid course outcomes could be the reason why studies in this topic have produced inconsistent results (Reasons et al., 2005).

Despite these limitations, there was sufficient literature regarding hybrid and online instruction to determine certain conclusions. The potential for success of hybrid formats in meeting the needs of nontraditional students was evident in many positive research findings. Research suggested that hybrid formats had potential positive student outcomes in areas of student access and convenience, student satisfaction and persistence, and academic achievement (Dzuiban, et al., 2005; Garrison & Kanuka,

2004; Helms, 2014; Jackson & Helms, 2008, McGee & Reis, 2012; Reasons et al., 2005). Intentional course design was the key element that supported learning and academic quality, and more emphasis on best practices in hybrid delivery is needed (Estelami, 2012; McGee & Reis, 2012). Because equivalent academic outcomes were often found in the hybrid format, this course delivery method could be one of the solutions to expanding access to higher education (Shea, 2007). Online learning environments have even been described as a potential source of democratization in education because of the expanded access to greater numbers of students (Lally & Barrett, 2006). Further study is also needed to examine the role of student characteristics as they relate to hybrid instructional design. Of course, just as intensive courses require effective teaching and equivalent quality of academic standards, hybrid course design must also support equivalent course quality.

Combining Adult Learning Theory with Intensive and Hybrid Course Delivery

The consistency between adult learning theory and intensive and hybrid course delivery methods suggests that they may be key issues in access to higher education. Because of the growing importance of community colleges serving students in the United States, these issues have become more urgent. Previous research has indicated the positive potential of alternative instructional delivery methods, such as the intensive format and the hybrid format, and the importance of addressing adult student characteristics and learning theory. However, the research suggests that innovative course design has not always been grounded in sound theoretical study. Careful investigation is required to ensure that academic standards are maintained in the

implementation of any future course delivery innovation, and convenience should not become the only guiding factor in instructional design.

Information provided by the literature review has provided a sound context for data collection in this study, and provided insight on how to meet the needs of adult students and improve instructional design in both intensive and hybrid delivery modes. By linking the three areas of research in the literature review, it was possible to combine the aspects of intensive course design and hybrid course design with the characteristics of nontraditional adult students. The present study, which evaluated courses that combine intensive and hybrid attributes, may provide insight in to whether this course delivery format improves access to coursework, meets the needs of adult nontraditional students, and yields equivalent educational outcomes. For example, could the intensive face-to-face portions of the classes be compartmentalized to fit in with students' work and family obligations, while the online portions of classes could take place while kids are napping or after swing shift work day. Although only one article on this specific combination of modalities was found (Grady, 2013), the literature review suggested that proper implementation of both intensive and hybrid course delivery methods could provide positive learning. The literature also suggested that a combination of both modalities could provide additional access to higher education, and may be particularly well suited for the community college setting.

Questions about course design effectiveness should not discourage course format innovation. Rather they should inform and motivate investigation and be used to improve innovation. Innovative course delivery formats have the potential to create

academic access to nontraditional students in higher education, which is consistent with historical values of education in the United States. With careful consideration of theoretical information and rigorous study into actual models of intensive and hybrid/online course delivery, effective new course delivery formats could be constructed that take into account the characteristics of community college students

Need for Further Research

There was a lack of studies that investigated course effectiveness where both of intensive and hybrid modalities were used together. Further, there was little information that linked the specific characteristics of community college students with these alternative formats. Therefore there is need to examine the effectiveness of combining intensive and hybrid course delivery in one course format, and need to evaluate this format as an option that may improve educational access for nontraditional students. The combination of intensive formats with hybrid course delivery in the community college setting is the specific topic of the present study.

Research Questions

This study examined course format effectiveness by comparing student success indicators in five-week intensive hybrid courses with 11-week traditional face-to-face full term courses. The study described the characteristics of community college students to gain understanding of student needs in terms of course design and in terms of higher education access. Student traits were studied in order to further investigate how alternative course formats could meet student needs and provide greater academic access. The study was guided by four fundamental research questions:

1. Are there differences in the characteristics of students enrolled in the intensive five-week hybrid format compared to those in the traditional 11-week format?
Do these student characteristics create challenges that might impede or strengths that may support learning?
2. How effective are intensive five-week hybrid courses in comparison to traditional face-to-face courses for community college students?
3. What are effective instructional practices for teaching intensive hybrid courses at the community college level?
4. What are the implications of these data for access to higher education in the community college setting?

Chapter 3: Methods

This study was conducted at a community college in the state of Oregon. The study compared the effectiveness of courses taught in a five-week hybrid intensive format with courses taught in an 11-week traditional format. The characteristics of students enrolled in both formats were also examined to control for possible confounding variables and to investigate whether the intensive hybrid format may provide an added point of access for some students.

Setting

The research took place at a large, semi-urban community college in Oregon, which had an overall enrollment of 111,909 full time and part time students, with an unduplicated headcount of 21,357 in the 2013/14 academic year. Part time students account for 80% of total enrollment. The average student is 25.1 years of age. 55% of students identify themselves as female and 43% male. 22% of students identify as Hispanic. Across all graded courses, 78% of students receive a course grade of C or better. The college offers 78% of its courses in a traditional face-to-face format, 17% in an online format, and 5% in the hybrid format. The traditional format is defined in this study as the 11-week public college quarter schedule, based on the Carnegie Unit of one classroom hour corresponding to one credit hour.

Courses Examined in the Study

All courses studied were in matched pairs in both the 11-week traditional and five-week hybrid formats at the same college. The course pairs featured the same instructors, with the same course outlines, texts, assignments and grading systems.

This provided an unusual opportunity to compare the formats head to head. The 11-week traditional courses studied were mixed between the traditional weekday program and the weekend program at the community college, and were all delivered in a face-to-face instructional method. The five-week hybrid courses examined in this study were held exclusively on Saturdays. All of the five-week hybrid courses used in this study followed a format that included five course sessions held as face-to-face instruction, in once-a-week block time-frame held on Saturdays, which comprised 50% of course time. The additional 50% of instruction took place online during the same five-week time frame; therefore the format was technically *intensive* and *hybrid*. The combination of face-to-face and online instruction yielded equivalent course contact hours for the five-week hybrid format when compared to the 11-week traditional format. The online portion of the five-week hybrid class used the common Blackboard Platform. Online instruction included online discussion boards, animated power point slides with sound, video presentations, quizzes, and tests. Courses studied were primarily taught by adjunct instructors rather than full-time instructors; only one matched pair of courses was taught by a full-time faculty member.

Courses selected for this study were chosen based on the availability of instructors who taught in both modalities. All instructors who teach in both the five-week hybrid and eleven-week traditional format were approached, and agreed to participate. Participation was voluntary. In total, the study compared quantitative data from ten matched pairs of courses (20 classes) that took place between 2012 and 2015, with a total of 455 students. The quantitative data from the ten matched pairs were collected with the same methodology within the same request made to the Department

of Institutional Research. These data examined demographics, grades, and academic history. Among the ten matched pairs, the study was able to examine more closely six course pairs (12 classes) that took place during the 2015 study time frame by gathering student survey data and instructor interviews for these courses. The more in-depth study of the six pairs included both quantitative and qualitative data. These data provided additional information that illuminated complexities that could influence student success. Four of the instructors from eight paired classes taking place in the 2015 time frame also agreed to gather pretest and posttest data targeting gains in subject knowledge.

The mix of courses studied provided a cross-section of lower division course topics out of the college general education transfer studies division. Courses examined include the following:

- ART 101 (Spring 2015 and Spring 2015 terms)
- CIS 101 (Spring 2015 and Summer 2015 terms)
- GEO 144 (Spring 2015 and Summer 2015 terms)
- HE 209 (Spring 2015 and Spring 2015 terms)
- PSY 104 (Spring 2015 and Spring 2015 terms)
- SOC 204 (Spring 2015 and Fall 2015 terms)
- EC 202 (Fall 2013 and Winter 2014)
- EC 202 (Fall 2013 and Fall 2013)
- HE 252 (Fall 2013 and Spring 2015)
- EC 200 (Fall 2012 and Fall 2012)

The following table identifies the data sources by course and format.

Table 3.1

Data Sources by Course

Course title	Institutional data	Student survey	Pretest posttest	11-week N	5-week N
ART 101	x	x	x	34	18
CIS 101	x	x		23	14
GEO 144	x	x	x	13	7
HE 209	x	x		33	10
PSY 104	x	x	x	32	33
SOC 204	x	x	x	16	25
EC 202 (F)	x			31	13
EC 202 (W)	x			35	38
HE 252	x			20	8
EC 200	x			39	13
Total Sample				276	179

For the student survey, there were 193 questionnaires collected, from a sample group of 258 students enrolled in those classes.

Sample of Participants

The sample was entirely made up of community college students at one community college in Oregon. Because these were actual classes occurring with students who enrolled in them for credit, there was no randomization of participants. Though it would be ideal to randomly assign students to the two modalities, this study had the limitation of using the students who self-selected into either format. Because students self-selected into the different classes, it was vitally important to collect student characteristics data in order to control for possible differences in student profiles between the two formats. Collecting these student variables allowed the researcher to evaluate whether particular student characteristics might have been responsible for different outcomes between the two formats.

In this study, 455 total students were examined in the institutional research data. Of this total group, 276 students completed the student survey. 141 of students sampled took a pretest, and 133 of the students took a posttest, which allowed for comparison of subject knowledge gains. Six instructors who taught a total of 258 students participated in the instructor interviews.

In comparison to the overall college, this sample was different in terms of part-time status and age, and similar in terms of gender and C or better passing status. Part-time students accounted for 34% of the enrollment in this study; however the overall college reported a part-time enrollment of 80%. The mean age of the student in the study was 25.11 years of age ($SD = 9.172$), which was younger than the overall college. The differences were explained by the Director of Institutional Research as the result of a large noncredit student body that attended primarily part-time and was slightly older (F. Naus, Personal Communication. December 11, 2015). In the study sample, the age range was 17-62, with a median age of 21. Fifty-four percent of the students identified as female and 45.4% percent male. Across all credit bearing sections at the college, 78% of the students received a course grade of C or better, compared with 84% in this study.

Table 3.2

Student Profile Comparison of Study Participants and Overall College

Characteristic	Overall college %	Overall study %	11-week student %	5-week student %
Part-time/full-time				
Part-time	80.00	34.00	26.20	46.10
Full-time	20.00	66.00	73.80	53.90
Mean age	26.50	25.10	23.30	27.80
Gender				
Male	43.00	45.40	46.50	43.60
Female	55.00	54.60	53.50	56.40
C or better	78.00	84.00	83.70	84.40

*Note: Overall College data included a large number of non-credit students.

Data Collection

The study used a mixed methods approach, examining:

- Institutional research data (quantitative)
- Pretest and posttest subject mastery data (quantitative)
- Student survey data (both quantitative and qualitative)
- Interview data from participating instructors (qualitative)

The mixed methods approach allowed the researcher to triangulate data and thereby improve the validity of the study. Through this variety of resources, valuable information was obtained that may help inform future course formatting and instruction to most effectively benefit students and improve access to higher educational institutions.

Institutional research data. Institutional research data from the college Institutional Research Department were used to examine student characteristics, measure course format effectiveness, and control for confounding variables. Data were

collected from the Banner system at the college. Demographic data captured information about student characteristics for each class, including variables such as age, gender, and ethnicity. Course format effectiveness was evaluated by comparing student grades, student achievement of C or better status, and withdrawal rates. Course effectiveness was further evaluated to investigate mean grades and mean percentage of students earning a C or better. Final grades are a common measure of course performance (Anastasi, 2007). Course completion and C or better measurement indicators are widely used as student success measures (Gonzalez, 2014; Tallent-Runnels et al., 2006). Additional student academic characteristics, including previous GPA to date, academic preparation levels demonstrated through COMPASS placement tests, and course-taking history were gathered to control for possible student differences between the formats. Previous cumulative GPA provided evidence of actual academic performance. Course-taking history records showed how much previous coursework students had completed, thus indicating their academic experience levels. The COMPASS placement test is a widely used exam that measures student proficiency levels in reading, writing, and math.

Pretest and posttest data. Pretest and posttest results were used to measure progress towards subject knowledge gains. Test data between the two formats were compared for differences in student learning outcomes. These tests were brief, subject specific tests that compared student knowledge of course material at the beginning and end of each course. (See appendices D, E, F, G for pretest and posttest samples.) Because instructors are in the strongest position to identify course content and assess subject area knowledge, the pretests and posttests were created by each instructor.

However, the following parameters were provided: the pretests and posttests had to be identical, and the tests were given to both the hybrid and traditional courses.

Instructors administered the pretests and posttests during class sessions, and emailed the results to the researcher. Pretest and posttest measurements are a common method of assessing gains in subject knowledge (Creswell, 2012). Instructors administered the pretest on the first day of class, and the posttest on the last day of class. Instructors provided only summary data on the pretest and posttest information; therefore it was not possible to test for statistical significance in test results. However, knowledge gains for each class were recorded, and provided a comparison measure of format success.

Student survey data. A student survey was created in order to gather comparison information from students attending both hybrid and traditional formats, and included both quantitative and qualitative elements (see Appendix C.) It was adapted from the general course evaluation form, so that new items could be added to generate the additional information not found in the intuitional research data source. The survey was piloted with a University of Portland graduate class, and revisions were made to improve validity. A group of community college student volunteers also piloted the survey for clarity and understanding. Questions were reworded to use common language and terms of the target student audience. In the areas of technology, difficulty of course work, and instructor traits, multiple questions were asked to strengthen the validity of the results in these topics. The survey was conducted in a *cross-sectional format* (Terenzini, 1982), which is defined as “one time

collection of data from currently enrolled students” (p.58). This format allowed for comparison between the two course formats on the same measures.

The student survey was composed of 23 questions and was created in consultation with instructors who have taught both the intensive hybrid and traditional formats, and tested with current community college students to refine the clarity of the questions. The survey was paper and pencil based. It was administered by a neutral college representative the day before the end of each of the courses and dropped into a ballot-style box to ensure anonymity. The students in both course formats were given the identical student survey. The surveys were done on a volunteer basis. All surveys were anonymous, and items did not contain information sufficient to identify students. Once received, the researcher marked the surveys from each class with a code for record keeping, and kept the surveys in separate folders with identifying course notation. A consent form (see Appendix B) ensured that all participants in the student survey were aware of the content of the survey prior to their participation, as well as their option not to participate.

This quantitative and qualitative data were used to gather information about other issues relevant to student characteristics and student success that were not provided by the institutional research data.

The quantitative portion of the survey measured student work and family responsibility, internet and technology access and ability, student perceptions about the difficulty of the course and homework, effort, academic aspirations, perceived helpfulness and feedback of the instructor, and if students were familiar with their classmates’ names. These items provided additional quantitative information relevant

to the research questions and were used to control for potential confounding variables that could influence the student achievement in the courses. The survey used a Likert-style scale with four choice categories. The survey structure created ordinal variables for response data. It did not allow for a neutral response, and forced the student to declare an opinion.

The survey concluded with five qualitative, open-ended questions. The qualitative survey questions asked why students enrolled, what college services were helpful, what challenges students faced, how the instructor supported student learning, and what advice would help other students taking the class. The open-ended survey questions were recorded and organized into categories or “classes”. The properties of the classes identified core themes, a strategy recommended by Schatzman and Strauss (1973). For the student surveys, categories were based on the questions asked. The differences in the responses created comparison information regarding student motivation, strengths and challenges, and best methods of instructional support between the two formats. The open-ended questions allowed unanticipated topics to emerge, and identified best practices in instructional delivery, particularly those in the intensive, five-week hybrid classes.

The student survey open-ended questions read as follows.

1. Why did you enroll in this course?
2. What student services, if any, were most helpful to you for this course?
(such as the writing center or library; you may list more than one service).
3. What advice would you give students taking a course like this?
4. What were the challenges of this course?

5. In what ways did the instructor support your learning in this course?

Instructor interview data. Interviews were conducted with six instructors participating in the study. Instructors teaching in both of the formats were particularly valuable informants in the researcher's effort to understand the strengths, weaknesses, and challenges posed by the five-week hybrid format. Instructor participation was also voluntary. Instructors were emailed a request to participate, with notation that participation was not required. However, instructors enthusiastically volunteered to participate in the research process. Every instructor contacted agreed to participate in the study. The research request and methodology were designed to respect the instructors' status as the subject area experts and as informants with valuable insights to provide. The instructor interview followed the semi-structured format that included four key questions

1. Did you adjust your teaching methodology, activities or assignments to accommodate for the five-week hybrid format? If so, in what ways?
2. Did you have more, less, or about the same amount of discussion? In what form did the discussion take place? Was the discussion more in-depth or the same in the five-week hybrid format?
3. Were there differences in the class environment or relationships between the students, or between you and the students in the two formats? If so, please explain.
4. What successes or challenges have you encountered in teaching in the five-week hybrid format?

The questions focused on the differences that might occur between the two formats, and provided additional insight in to course differences or similarities that may not have been anticipated.

Instructor interviews were scheduled at the convenience of the participating faculty member, and took place on campus in the researcher's office. Each interview took approximately one hour. The interviews began with the structured questions, but left ample time for the instructors to assert their individual understandings about their experiences with the students and the course delivery.

The interviews were recorded by the researcher taking handwritten notes. Interviews were transcribed via computer immediately following each interview to facilitate the qualitative coding process. The qualitative analysis involved coding the interview transcription. Categories emerged from the qualitative coding process based on the four broad interview questions initially, and additional specific classes emerged during the coding process. The emergent themes constructed the following categories of data:

- Adjustments to course delivery based on format
- Instructor and student relationships
- Student profile differences, and the relation to academic success
- Challenges and successes
- Best Practices
- Potential for student success, including mastery of learning and academic momentum

Procedures and Timeline

The study was conducted during the 2015 calendar year. Courses and instructors were identified for the study in March, 2015. An IRB request was approved in March, 2015. Requests for study participation were then sent to instructors in late March, prior to the beginning of the spring term. Data were gathered in the spring, summer and fall terms.

- March 2015: Instructors were asked to participate in the study, and create pretests and posttests to assess changes in subject knowledge. Instructors administered the pretest on the first day of class, and the posttest on the last day of class. Four of the instructors agreed to administer the pretests and posttests.
- June, July, and December, 2015: Instructors were asked to give 15 minutes of class time to the student survey, which was administered by a neutral staff representative at the next to last class in the full-term course and the last class in the five-week hybrid. Six instructors agreed to participate in the student survey portion of the study.
- June, July and December, 2015: Instructors participated in a one hour semi-structured interview, conducted after the conclusion of their teaching in both formats. Data were recorded, coded and categorized.
- Fall, 2015: A formal request was made for data from the *Institutional Effectiveness Department*.

Full institutional support for the study was granted by the General Education Transfer Studies Division Executive Dean and the Vice President/Chief Academic

Officer (see Appendix A). The study was also incorporated into the recommendations section of the April, 2015 Program Review of Evening and Weekend Programs in preparation for accreditation.

Data Analysis

Simple frequencies from cross tabs in SPSS were used to describe and compare the demographic characteristics of students participating in the study (age, gender, ethnicity), and the related background characteristics including the amount of family responsibility and amount of work responsibility. Chi-square tests of independence were used to evaluate whether differences in student characteristics between the two formats were statistically significant. Differences in internet and technology access and ability based on the student survey data were also examined with frequencies and chi-square tests of independence to compare the variable of technology.

Frequencies were also used to assess pre-existing academic differences between students in the two formats. Variables such as cumulative GPA, academic preparation (COMPASS placement test scores), and the number of courses previously completed were examined using institutional research data. *T*-tests were used to compare the variables for prior credits taken and previous cumulative GPA. Because COMPASS scores did not assign numerical values, but only provided course placement categories, a *t*-test was not possible to use in comparison of COMPASS math, reading and writing scores. (COMPASS scores have a range that places students into specific course levels. There is no numerical test score. For example, students place into Math 20 or below, Math 60, Math 70, Math 95, Math 105-111, or Math at

the 200 level. In writing students place in to Writing 80 or below, Writing 90, Writing 115 or Writing 121 or above.) Academic persistence and certainty of major were evaluated using student survey data. Chi-square tests of independence were used to assess whether statistically significant differences occurred in these academic characteristics. This was designed to identify significant differences between the two formats, which could confound the relationship between format and course effectiveness.

Current student success indicators were also described using simple frequencies, such as class grades, C or better passing status, and withdrawal rates. A chi-square test of independence tested for differences between the two groups in these student success indicators. *T*-tests were also used to compare the means between the two formats for the student grades, C or better status, and certainty of future plans for persistence in college. Only five students in the entire data set recorded a withdrawal, so no *t*-test was run on such a small sample group.

Pretest and post-test data results were also compared as an additional measure of academic rigor and effectiveness. Tests for statistical significance were not run because two of the four instructors provided only summary data. However, the percentage of improvement in the pretest and posttest results was compared to assess effectiveness of the two formats in knowledge gains.

A variety of strategies were used to compare the effectiveness of the two formats, because this study sought to find out if course format affects student performance. An initial multiple regression analysis was run using course grade as the dependent variable to indicate student success. Course format was treated as a dummy

variable, in which intensive five-week hybrid courses were coded as one and 11-week traditional courses were coded as zero. Control variables were chosen for the regression analysis based on whether there were statistically significant differences in formats as demonstrated by previous chi-square tests. Control variables included age, part time/full time status, cumulative GPA, prior credits taken, and COMPASS math scores. Because cumulative GPA and COMPASS math scores were strongly correlated, two additional regression analyses were run: One that included cumulative GPA but without COMPASS math scores, and one that included COMPASS math scores but without cumulative GPA. In this way, the independent effects of the variables were fully examined in relation to student success as evidenced in student grades.

Although quantitative comparison between these formats was important, equally important were the insights gained through qualitative inquiry about the student and faculty experience of teaching and learning. Course format effectiveness was measured qualitatively through two sources: the open-ended student survey questions and the instructor interviews. These qualitative instruments addressed certain aspects of student characteristics and instructional delivery methods, and included opportunity for recommendations on instructional design improvement. The open-ended questions and interview responses informed the instructional practices and recommendations discussion, and they served to identify the predictors of student success in an intensive hybrid format. These qualitative strategies had the potential to identify issues that might not be reflected in quantitative assessment or anticipated in the closed-ended evaluation questions. Additionally, they provided a rich source of

insight into the challenges community college students face in intensive formats as well as strategies that students and instructor might use to transcend these challenges.

Conclusion

The mixed methods approach of this study provided a complex examination of student characteristics in conjunction with course effectiveness indicators, and therefore gave a more comprehensive assessment that improved the validity of the findings. The variety of data sources employed by the study also improved validity. The unique use of matched pairs of courses in the study assured that instruction and course content remained constant between the two formats. Therefore the other variables of student characteristics and course effectiveness indicators could be analyzed thoroughly. The variety of courses examined added breadth and greater generalizability to the study. These elements have added to the potential for useful application of this study to other institutions or academic programs.

Chapter 4: Results

This study compared student characteristics and academic outcomes between a five-week hybrid course format and an 11-week traditional course format, using data gathered from the Department of Institutional Research, a student survey, pretest/posttest results, and instructor interviews. Because student characteristics can influence academic outcomes, it was important for the study to examine variables in both areas to understand the impact on access to higher education in a community college setting. In general, results indicated that student characteristics had a high degree of similarity and only some differences in the two formats. Academic outcomes were quite similar in the two formats. Findings also yielded information on best practices in teaching, how differences in instructional practice may have existed between the two formats, and strategies that could best meet student access needs. The findings of this research describe:

- Student characteristics and subsequent strengths and challenges faced by community college students enrolled in the two course formats.
- A comparison of course effectiveness measures between the two formats.
- Student and faculty descriptions of effective instructional practice for teaching intensive hybrid courses at the community college level.

The study was mixed-methods in nature and involved both quantitative and qualitative research elements. This methodology allowed for the triangulation of results to examine the complex factors involved in student success. The qualitative

data presented in this chapter relate directly to the community college setting and are comprised of complementary information that provided context and illuminated issues that adult students face in the arena of higher education. This combination of sources allowed for a fuller evaluation of course effectiveness from multiple perspectives.

Comparison of Student Characteristics

Careful examination of both non-academic and academic student characteristics created a complex profile of the groups enrolled in the two formats and provided evidence of differences and similarities. The data depicted the challenges and needs of many community college students. This information provided an understanding about access and barriers that community college students encounter in higher education and indicated possible strategies for addressing those needs. The data suggested that students enrolled in a five-week hybrid course have some non-academic characteristics that influenced their choices and access related to their community college coursework. However the data also suggested that the greatest indicators of academic success may remain constant regardless of student characteristics.

Non-academic student characteristics. Non-academic student characteristics were compared initially between the total college student body and the overall study sample, and then between the two student groups in the study enrolled in either the five-week hybrid format or the 11-week traditional class format. It was important to consider how non-academic student characteristics might have predicted academic outcomes and influenced student success. Institutional Research data provided demographic information on student characteristics, including age, gender, and ethnicity; and the student survey tool provided additional data that described family

and work responsibility, and technology access and ability. Comparison between the overall college student body and the students in the study sample showed little difference in the characteristics of age, gender and ethnicity for credit bearing students; the study sample represented a fairly consistent picture of the overall college student body taking credit courses. Comparisons of non-academic student characteristics between the five-week hybrid and 11-week traditional found a mix of differences and similarities. Statistically significant differences in the age and amount of family responsibility were found between students enrolled in the five-week hybrid format and 11-week traditional formats. Students enrolled in the five-week hybrid were older and had reported more family responsibility. However there were no statistically significant differences in the ethnicity, amount of work responsibility, or technical access or ability for students in either format.

Age. Age was one non-academic variable that was statistically significantly different ($p < .001$) between the student groups in the two formats. The overall mean age of all students in the study sample was 25.1 (SD = 9.172). In comparison, the five-week hybrid students had a mean age of 27.8 (SD = 10.143), and the traditional 11-week students had a mean age of 23.3 (SD = 8.029). The age range was similar between the two formats, with the five-week hybrid students ranging from 17 to 60 years of age and the 11-week students ranging from 17-62. Even though the age range was greater in the 11-week traditional format, a t -test found the difference in mean student age between the two formats was statistically significant, with the five-week hybrid students being older ($t = -5.203$; $df = 453$; $p < .001$). Because this difference was statistically significant, it was included in a regression analysis to predict student

success and course effectiveness using grades. This was done to control for age as a confounding variable.

Gender and ethnicity. The demographic items of gender and ethnicity did not display significant difference between the student groups in the two formats. The gender balance of the overall study sample was 54.6% women and 45.4% men. The five-week hybrid format had a slightly higher percentage of women, with 56.4 % women and 43.6% men. The 11-week traditional format participants were comprised of 53.5% women and 46.5% men. A chi-square test of independence revealed that there was no statistically significant difference in gender between the two formats. ($\chi^2 = .378$; $df = 1$); $p = .539$). Ethnicity differences were also not statistically significant ($\chi^2 = 3.708$; $df = 7$; $p = .813$). The overall ethnic breakdown for students was similar in both formats and reflected the ethnic distribution in the overall student population in the college studied. The following table shows the student characteristics in terms of age, gender, and ethnicity.

Table 4.1

Student Demographic Characteristics by Format from Institutional Research

Characteristic	11-week traditional		5-week hybrid		χ^2 (df)
	N	%	N	%	
Age	276		179		36.199(4) <i>p</i> =.000
17-20	158	57.20	55	30.70	
21-25	59	21.40	45	25.10	
26-30	23	8.30	26	14.50	
31-40	21	7.60	29	16.20	
41 and up	24	13.40	39	8.60	
Gender	273		179		.378(1) <i>p</i> =.539
Male	127	46.50	78	43.60	
Female	146	53.50	101	56.40	
Ethnicity	264		166		3.708(7) <i>p</i> =.813
White	159	60.20	103	62.00	
Hispanic	72	27.30	39	23.50	
Mixed	12	4.50	7	4.20	
Asian	4	1.50	5	3.00	
Black	5	1.90	3	1.80	
Int'l	6	2.30	2	1.20	
Hawaiian	3	1.10	4	2.40	
Am Indian	3	1.10	3	1.80	

Family and work responsibility. Non-academic student characteristics not captured through the Institutional Research data, such as the related characteristics of family responsibility, amount of work responsibility, and differences in student ability to access the internet and use technology were gathered from the student survey. These were examined in conjunction with the demographic data to gain a more complex profile of students enrolled in both of the formats.

A chi-square test of independence was used to evaluate whether there were statistically significant differences between the two formats in terms of family and work responsibility. The data found a statistically significant difference in the amount of family responsibility for students between the two formats ($\chi^2 = 14.974$; $df = 3$; $p =$

.002). Students enrolled in the five-week hybrid had significantly more family responsibility than their 11-week student counterparts. However, there was no statistically significant difference in the amount of hours worked between the student groups in the two formats ($\chi^2 = 6.184$; $df = 3$; $p = 1.03$). In both groups about one third of students did not work at all, and about two thirds had part-time or full-time work responsibility. This table displays the differences in the amount of family responsibility and the amount of hours worked by format as reported from the student survey.

Table 4.2

Student Characteristics by Format from the Student Survey

Item	Total Percent	N	Traditional Percent	N	Hybrid Percent	N	χ^2 (df) <i>p</i>
Family Responsibility		193		104		89	14.974(3) <i>p</i> =.002
None	29.50	57	38.50	40	19.10	17	
Light	27.50	53	28.80	30	25.80	23	
Moderate	20.20	39	19.20	20	21.30	19	
Great Deal	22.80	44	13.50	14	33.70	30	
Hours Worked		192		104		88	6.184(3) <i>p</i> =.103
None	31.20	60	30.80	32	31.80	28	
1-15 hours	15.10	29	15.40	16	14.80	13	
16-30 hours	26.60	51	32.70	34	19.30	17	
31 or more	27.10	52	21.20	22	34.10	30	

Student motivation. The open-ended section of the student survey also gathered information on student motivation by asking “Why did you enroll in this course?” Not all the students answered this question. Of the responses received, the vast majority of students in both formats reported that their motivation to enroll was based on degree requirements. There was little difference between the two student groups in this area. Sixty-one (out of 151) of the students enrolled in the 11-week

traditional format and 54 (out of 107) of the students in the five-week format made this comment. The second reason why students enrolled was based on interest in the topic; 24 students in the 11-week traditional format and seven in the five-week hybrid format made this comment. Meeting career goals was only mentioned three times by either student group. Because few students responded to this question, it was not possible to calculate statistical significance.

Technology access and ability. Students' ability to access the internet and use technology was measured through the student survey. There were four questions on the student survey related to technology. No statistically significant differences were found between students in the five-week hybrid format and students in the 11-week format in any of the questions. Students had fairly similar access to the internet at home, with the five-week hybrid students reporting only a slight, non-statistically significant advantage ($\chi^2 = 6.314$; $df = 3$; $p = .097$). Students in the five-week hybrid also reported slightly higher frequency of internet use ($\chi^2=1.282$; $df = 3$; $p = .733$), but not enough to be statistically significant. Students reported similar ability to use online class materials, despite a difference in volume of online materials used in the two formats ($\chi^2 = 7.345$; $df = 3$; $p = .062$). Students also reported similar levels of computer ability. The five-week hybrid students had a greater number of strong ability users, however the overall differences were not statistically significant ($\chi^2 = 2.317$; $df = 3$; $p = .509$). Furthermore, in the interviews, instructors did not report differences in student ability regarding technology between the two formats. There were also no clear differences in the results from the open ended student survey questions relating to internet and technology challenge; students in either format rarely commented about

any aspect of technology. The similarities between the student groups in the two formats may indicate that technology does not constitute a barrier to student learning in either format. The following table describes the availability of home internet access, the frequency of internet use, the ease the student had in using online course materials, and the self-reported ability to use technology.

Table 4.3

<i>Internet and Technology Access and Ability</i>							
Item	Total Percent	N	11-week Percent	N	5-week Percent	N	χ^2 (df) <i>p</i>
Internet Access at Home		193		104		89	6.314(3) <i>p</i> =.097
Poor	3.60	7	2.90	3	4.50	4	
Fair	10.40	20	15.40	16	4.50	4	
Good	28.50	55	26.90	28	30.30	27	
Excellent	57.50	111	54.80	57	60.70	54	
Frequency of Internet Use							1.282(3) <i>p</i> =.733
Less than once a week	1.00	2	1.00	1	1.10	1	
Few times a week	7.30	14	8.70	9	5.60	5	
Once a day	16.60	32	18.30	19	14.60	13	
Daily multiple times	75.10	145	72.10	75	78.70	70	
Ease of online class materials		191		104		89	7.345(3) <i>p</i> =.062
Difficult	1.00	2	2.00	2	0.00	0	
Somewhat difficult	3.10	6	2.90	3	3.40	3	
Somewhat easy	23.60	45	16.7-	17	31.50	28	
Easy	72.30	138	78.40	80	65.20	58	
Computer Ability		193		104		89	2.317(3) <i>p</i> =.509
Weak	1.60	3	1.90	2	1.10	1	
Somewhat weak	10.90	21	12.50	13	9.00	8	
Somewhat strong	40.40	78	43.30	45	37.10	33	
Strong	47.20	91	42.30	44	52.80	47	

Instructor interview data on non-academic student characteristics. During the interviews, instructors discussed the differences in non-academic student characteristics present in the groups enrolled in the two formats. Instructors consistently commented on the age and the greater maturity of the five-week hybrid

students, and the amount of responsibility these students carried in their lives. Instructors' descriptions reflected the results of this study in some areas, and contradicted other findings in this study. Also in agreement with the results of this study, instructors did not notice or mention differences in gender or ethnicity between the two student groups. Also consistent with study findings, instructors reported a higher percentage of students with family responsibilities in the five-week hybrid format. However, instructors also perceived their five-week hybrid students had greater work responsibilities, which was not consistent with actual responses to the student survey.

All instructors commented on the benefits and challenges inherent in the student characteristics. Instructors remarked that older students tended to be more serious and responsible. The Sociology Instructor reported that the five-week hybrid worked well for more mature learners, because they could handle the increased responsibility for learning, but said younger students struggled in with this. The Computer Science Instructor and Art Instructor gave concrete examples of students in the five-week hybrid format having to learn course material more independently, such as learning the course terminology online at home. Instructors also perceived that maturity gave students greater initiative for their learning and more ability to relate class content to life experiences. The Psychology Instructor commented that the older students "have more experience to offer and they link it to class material" (Instructor E, personal communication, August 5, 2015). The Geology Instructor commented that younger students showed less interest in class subjects, because they didn't have past knowledge of the topic. The Sociology Instructor gave the example of an assignment

that required students to develop their own interest path related to the class, a task that required online research as part of the coursework, and reported that older students were more successful in that type of coursework. The Geology Instructor summed up a common sentiment that “Five-week students have to be self-starters” (Instructor C, personal communication, August 10, 2015.)

Overall, instructors reported age and maturity as advantages in the learning process. However, instructors also linked the characteristics of age and maturity to additional challenges for students, because they juggled more life commitments. Every instructor participating in the study reported that more of their five-week hybrid students faced challenges in meeting class demands because of external responsibilities. The Art Instructor summed up this sentiment by saying “Definitely the [five-week] hybrid has more students who work and have families and have greater difficulty in attending set class schedules” (Instructor A, personal communication, June 11, 2015). The Sociology Instructor discussed the heavy responsibility of the home life of one of his students who had six kids. The Health Instructor gave a specific example of an adult student in his five-week hybrid course who balanced school and family responsibility, saying “One student had three kids. While they napped, she did the homework, so she preferred the five-week class. She didn’t have to pay for daycare. It would be challenging for her to make an 11-week face-to-face class” (Instructor D, personal communication, August 17, 2015). Instructors perceived that the more mature students chose the intensive hybrid course because it better accommodated their other life roles and responsibilities.

Qualitative data from student survey on non-academic student

characteristics. Student comments from the open-ended questions in the student survey also provided evidence of differences in non-academic student characteristics, particularly related to family responsibility and time constraints. A greater proportion of students enrolled in the five-week hybrid format commented that they experienced significant challenges due to the lack of time available for them to devote to coursework. Thirty-five of the students (out of 107) in the five-week hybrid made this comment in the open-ended section of the survey, versus only 27 (out of 151) of the students who made this comment in the 11-week traditional format. Although the challenge of time was reported to a greater degree by the five-week hybrid students, the problem of procrastination was reported at similar levels between the two formats. Thirty-two students in the 11-week traditional format gave advice to avoid procrastination, and similarly 29 students in the five-week hybrid gave the same advice about procrastination. Although faced with greater time constraints, the results show similar levels of assigned reading and assignment completion between the two groups. The Sociology Instructor recounted the difference in procrastination between the 11-week traditional and five-week hybrid by saying “In the 11-week it’s more of a challenge to keep students on task in terms of assignments. For example, today after the final they were still turning in late work. This does not happen as much in the five-week hybrid”. (Instructor F, personal communication, December 9, 2015).

Academic characteristics. Student academic characteristics were examined through several measures provided by the Department of Institutional Research, and by two questions about academic persistence and certainty of major in the student

survey. Institutional Research provided data on previous credits taken, cumulative GPA, and COMPASS placement scores in math, writing and reading. It is important to consider whether the student groups in the two formats were academically comparable. The data suggest that the 5-week hybrid students were slightly more academically prepared, with more academic experience that assisted them in continued coursework. Three areas of academic characteristics showed statistical significance: Prior credits taken, cumulative GPA and COMPASS math scores, however the pattern was not uniformly attributed to just one of the formats. Prior credits and cumulative GPA levels were higher for the five-week hybrid students, and COMPASS math scores were higher for the 11-week traditional students. Therefore no clear pattern of academic advantage can be shown for either student. The statistically significant variables were included in a regression analysis (described later) to see whether they effected student success.

Prior credits taken. The difference in previous credits taken between the student groups in the two formats was statistically significant when examined with a chi square test of independence. Students in the five-week hybrid format had taken more previous credits than students enrolled in the 11-week traditional format ($\chi^2 = 11.87$; $df = 5$; $p = .037$). A *t*-test showed a statistically significant difference between the amount of previous credits taken ($t = 2.136$; $df = 453$; $p = .006$), and showed the mean average of prior credits taken for the five-week hybrid students was 18.207 (SD = 13.617) compared to a mean average of 15.68 (SD = 11.371) prior credits taken for students in the 11-week traditional format. The overall college average for previous credits taken was 16.67. Previous academic experience is a variable that has been

shown to be an indicator of academic readiness, with solid influence on student success in current course work.

Cumulative GPA. There was also a statistically significant difference between the cumulative grade point averages of the students enrolled in the two formats. A *t*-test showed the five-week hybrid student group had a cumulative GPA average of 3.13 (SD = 0.95), and the 11-week traditional student group had a cumulative GPA average of 2.98 (SD = 0.94). Interestingly, students in the five-week hybrid courses had a greater range in GPAs scores. For example, five-week hybrid students had a greater proportion of perfect GPAs. About a third (32.9%) of hybrid students had a cumulative GPA of 4.0, compared with only 17.9% of traditional students with a 4.0. Cumulative GPA levels are a standard predictor of future academic success, and this difference is a clear indicator of academic ability.

COMPASS scores. Despite the fact that the five-week hybrid students had taken more previous credits and had higher cumulative GPAs, the 11-week traditional students scored higher in academic preparedness in the COMPASS math placement tests ($\chi^2 = 13.465$; $df = 4$; $p = .009$). This indicator of academic preparedness suggested that there was not a definitive advantage for either student group. The COMPASS math scores were the only COMPASS placement scores that differed significantly between the two groups of students. Comparative scores in the COMPASS reading and writing tests were not significantly different. Because the COMPASS tests were provided by the Institutional Research Department as categorical data, which placed students into particular courses (categories are MTH 60 and below, MTH 70, MTH 95, MTH 105-243, and MTH 251), rather than numeric

data, chi-square tests of independence were done to compare the performance of the students in the two formats. The chi-square test in COMPASS reading scores showed students in the 5-week hybrid as slightly higher but not significantly so ($\chi^2 = 2.245$; $df = 4$; $p = .691$). The COMPASS writing scores also showed little difference ($\chi^2 = 1.75$; $df = 4$; $p = .780$). The following table shows important academic characteristics, such as prior credits taken, cumulative GPA, and COMPASS scores.

Table 4.4

Student Academic Background Characteristics by Format

Item	Total Percent	N	11-week Percent	N	5-week Percent	N	$\chi^2(df) p$
Prior Credits		455		276		179	11.87(5) $p=.037$
0 (first term)	7.90	36	9.80	27	5.00	9	
1-9 credits	24.60	112	22.50	62	37.90	50	
10-19 credits	31.20	142	35.10	97	25.10	45	
20-29 credits	20.00	91	18.50	51	22.30	40	
30-39 credits	11.60	53	10.90	30	12.80	23	
40 or more	4.60	21	3.30	9	6.70	12	
Cumulative GPA		421		257		164	17.587(5) $p=.004$
.01-1.99	14.30	60	16.30	42	11.00	18	
2.0-2.49	10.70	45	11.70	30	9.10	15	
2.5-2.99	9.50	40	8.20	21	11.60	19	
3.0-3.49	22.30	94	23.00	59	21.30	35	
3.5-3.99	19.50	82	23.00	59	14.00	23	
4.0	23.80	100	17.90	46	32.90	54	
COMPASS math scores		402		255		147	13.465(4) $p=.009$
MTH 60/below	22.60	91	19.60	50	27.90	41	
MTH70	35.60	143	36.10	92	34.70	51	
MTH95	22.90	92	21.20	54	25.90	38	
MTH105-243	13.70	55	18.00	46	6.10	9	
MTH251	5.20	21	5.10	13	5.40	8	
COMPASS read scores		413		261		152	2.245(4) $p=.691$
Below RD 80	3.10	12	2.70	7	3.90	6	
RD80	6.10	25	5.70	15	6.60	10	
RD90	14.50	60	16.10	42	11.80	18	
RD115	39.20	162	39.80	104	38.20	58	
RD 120	37.00	153	35.60	92	39.50	60	
COMPASS write scores		413		261		152	1.756(4) $p=.780$
Below WR80	4.10	17	3.40	9	5.30	8	

Table 4.4 (continued)

Student Academic Background Characteristics by Format

Item	Total Percent	N	11-week Percent	N	5-week Percent	N $\chi^2(df) p$
WR 80	9.40	39	10.00	26	8.60	13
WR90	27.40	113	27.20	71	27.60	42
WR115	22.00	91	23.40	61	19.70	30
WR121	37.00	153	36.00	94	38.80	59

Academic persistence and certainty of major. Academic persistence and certainty of academic major were also measured by two questions in the student survey, which made comparison between the student groups in the two formats possible. Academic commitment and direction often impact student performance. The student groups in the two formats had similar responses regarding academic persistence ($\chi^2 = 2.425$; $df = 3$; $p = .489$), and the large majority of students in both groups planned to register for the future term. Students in the 11-week traditional format were only slightly more likely to say they would register for the future term; with 78.9% reporting that they will definitely register, compared to 78.0% of five-week hybrid students. The student groups in the two formats also had similar levels of certainty about their academic majors ($\chi^2 = 2.277$; $df = 3$; $p = .517$). In this area, students in the five-week hybrid were slightly more likely to be certain of their academic major, with 57.3% reporting clear certainty, compared to 47.6% of 11-week traditional students reporting clear certainty. These findings suggested that there was little difference in academic commitment between the two groups, and these variables had little impact on the student success outcomes between the two formats.

Part-time/full-time status. Current academic status data were also captured from the Department of Institutional Research, to determine whether part-time or full-time status could influence academic outcomes. The ratio of full-time to part-time students for the overall study sample was 66.0% full-time to 34.0% part-time, with 53.9% of full-time students represented in the five-week hybrid format, and 73.8% of full-time students represented in the 11-week traditional format. The difference in the ratio of full-time to part-time students between the two formats was statistically significant ($\chi^2 = 19.043$; $df = 1$; $p < .001$). The greater percentage of part-time students represented in the five-week hybrid format was likely linked to the higher levels of responsibility these students carry in non-academic areas of their lives. The following table shows the academic characteristics of academic persistence, plans and academic status by format.

Table 4.5

Academic Persistence, Future Academic Plans and Part-time/Full-time Status by Format

Item	Total Percent	N	11-week Percent	N	5-week Percent	N	χ^2 (df) <i>p</i>
Certainty of academic major		192		103		89	2.277(3) <i>p</i> =.517
Very uncertain	9.40	18	9.70	10	9.00	8	
Somewhat uncertain	8.90	17	8.70	9	9.00	8	
Somewhat certain	28.70	57	34.00	35	24.70	22	
Very certain	52.10	100	47.60	49	57.30	51	
Register next term		172		90		82	2.277(3) <i>p</i> =.517
Won't register	4.70	8	6.70	6	2.40	2	
Probably won't	4.70	8	4.40	4	4.90	4	
Probably will	12.20	21	10.00	9	14.60	12	
Will register	78.50	135	78.90	71	78.00	64	
Part-time status	34.00	154	26.20	72	46.10	82	19.043(1) <i>p</i> =.000
Full-time status	66.00	299	73.80	203	53.90	96	

Qualitative data related to academic student characteristics. Neither instructors nor students commented on academic student characteristics in the open-ended student survey questions or the instructor interviews. The lack of comment from these sources may indicate that the differences are negligible, and not influenced by the course format.

Comparison of Course Format Effectiveness

The study used several standard indicators of course effectiveness to compare learning outcomes and student success in the two formats. The Institutional Research department provided data on course grades, C or better passing status, and withdrawal rates. Four instructors also provided pretest and posttest data of subject mastery gains, which was used to compare academic outcomes. Six instructors participated in interviews and described their experiences and perceptions about differences in course effectiveness between the two formats. The variety of data sources led to greater validity in the findings. Because the courses studied were matched pairs with the same instructor, grading rubrics, and assignments, course content was highly consistent.

Course grades. Course grades were compared between the two formats as the first measure of student success, and showed little difference between the two formats. A *t*-test comparing grade means demonstrated no statistically significant difference between the grades in the two formats ($t = -1.002$; $df = 448$; $p = .640$). The *t*-test found a mean grade for the 11-week traditional format of 2.97 (SD = 1.397; $n = 273$) and a mean grade of 3.10 (SD = 1.386, $n = 177$) for the five-week hybrid format. A chi-square test of independence produced non-statistically significant results, which was similar to the *t*-test ($\chi^2 = 3.685$; $df = 4$; $p = .450$).

C or better passing status. In the comparison of C or better passing status, there was also no statistically significant difference between the two course formats, ($\chi^2 = .035$; $df = 1$; $p = .851$). Both formats demonstrated similar student achievement, with less than a one percent difference between the two formats. Students in the 11-week traditional format had an 83.7% C or better passing rate, and students in the five-week hybrid format had an 84.4% C or better passing rate.

Withdrawal rate. Only five students in the total study withdrew, which did not provide a large enough sample from which to draw statistically meaningful information. Therefore, this indicator did not prove valuable.

The following table shows the grade comparisons by format, including C or better grade status and withdrawal rates.

Table 4.6

Grade Comparisons by Format

Item	Total Percent	N	11-week Percent	N	5-week Percent	N	χ^2 (df) p
Graces		450		273		177	3.685(4) $p=.450$
A	56.40	254	53.80	147	60.50	107	
B	17.30	78	17.60	48	16.90	30	
C	11.10	50	13.20	36	7.90	14	
D	2.00	9	2.20	6	1.70	3	
F	13.10	59	13.20	36	13.00	23	
Missing Grades		5					
C or Better	84.04	382	83.69	276	84.36	179	

Course Format Effectiveness and Student Characteristics Considered Together

The previous chi-square tests of independence found statistically significant differences between the student groups enrolled in the two formats in the categories of age, full-time/part-time enrollment status, math COMPASS scores, prior credits taken,

and cumulative GPA. To examine the effects these independent variables may have had on the relationship between course format and the dependent variable of course grade (as a measure of student success and course effectiveness), regression analyses were conducted.

The initial regression analysis was flawed because of a significant correlation between cumulative GPA and math COMPASS scores, ($r(369) = 0.136$, $p = .009$). Therefore, two regression analyses were run, one without the math COMPASS score variable and one without the cumulative GPA variable (reported in table 4.7). The regression analysis that included cumulative GPA showed it as the only significant predictor of course grade ($p < .001$). This analysis indicated that course format did not have significant effect on student success as measured by course grade, nor did the other non-academic and academic variables that differed between the two student groups - including age, part-time/full-time status, or prior credits taken. The next regression analysis that included COMPASS math scores revealed significant relationships between four predictor variables and student success as measured by course grade. Age was predictive ($p = .013$); part-time/full-time status was predictive ($p = .007$); prior credits was predictive ($p = .052$); and COMPASS math scores were predictive ($p = .021$). Again, course format had no statistically significant effect on student success as measured by course grade. The findings from both regression analyses made clear that course format did not impact student success as measured by course grades. The following table describes statistically significant variables that may predict course grades.

Table 4.7

Results of the Multiple Regression Analyses Predicting Course Grade

Variable	Unstandardized Coefficients		Standardized Coefficients		
	B	Standard Error	Beta	t	Significance
Model 1 using cumulative GPA					
(Constant)	.098	.166		.587	.588
Age	-.001	.004	-.009	-0.298	.766
Part-time/Full-Time	.080	.076	.032	1.048	.295
Prior Credits	.040	.027	.043	1.443	.150
Cumulative GPA	.982	.036	.803	27.246	.000
Format	.038	.073	.016	-0.526	.599
Model 2 using COMPASS math scores					
(Constant)	1.443	.367		3.928	.000
Age	0.021	.008	0.137	2.492	.013
Part-time/Full-Time	0.421	.156	0.140	2.705	.007
Prior Credits	0.111	.057	0.098	1.950	.052
COMPASS math	0.157	.068		0.126	2.309
Format	0.072	.149	0.025	0.481	.631
<i>Note: Model 1 statistics $R^2=.653$, $F(5, 412) = 155.518$, $p=.000$. Model 2 statistics $R^2=.050$, $F(5,393) = 4.189$, $p=.001$.</i>					

Pretest and Posttest Data

The pretest and posttest data showed little difference in subject mastery gains between the student groups in the two formats. Art, Geology and Sociology all showed slightly greater gains in subject knowledge for five-week hybrid students, while Psychology showed slightly greater gains for 11-week traditional students. Instructors only provided summary data on the pretest and posttest information; therefore it was not possible to test for statistical significance. When viewing the combined data on knowledge gains, the scores suggest that the academic outcomes between the formats

were equivalent. The following table reports the results of pretest and posttest gains in subject matter by class and by format.

Table 4.8

Percent Correct of Pretest and Posttest Results

Item	11-week percent	N	5-week percent	N
ART101				
Pretest	24.16	30	24.16	16
Posttest	76.70	30	85.00	14
Gain	52.54		60.84	
GEO144				
Pretest	32.31	13	35.00	6
Posttest	58.46	13	61.67	6
Gain	26.15		26.67	
PSY104				
Pretest	14.93	23	18.66	23
Posttest	64.50	21	59.90	21
Gain	49.57		41.24	
SOC 204				
Pretest	60.40	15	59.33	15
Posttest	86.95	14	87.14	14
Gain	26.55		27.81	

Student Perceptions of Course Demands

Student perceptions about the difficulty of the course, quantity of reading, and effort needed compared to other courses were provided by the student survey. This gave additional information regarding the academic demands of the courses as an aspect of course effectiveness. Although student perception data alone can present a skewed picture of academic attributes, when combined with quantitative achievement data it presents additional insight into course quality. These data reported only slight differences in the students' perceptions of difficulty between the two formats; the 5-week hybrid students perceived slightly greater course difficulty ($\chi^2 = 7.707$; $df = 3$; p

= .052). Although close, this result was not statistically significant. Not surprisingly, the only area of statistical significance was the perceived amount of reading. Five-week hybrid students reported a greater perceived amount of reading ($\chi^2 = 12.76$; $df = 3$; $p = .005$). Given that reading was completed in about half the amount of time of the traditional 11-week traditional format course, this perception would appear accurate to the student even if the amount of reading was equivalent. Despite the report of a greater amount of reading given in the five-week hybrid format, students reported similar levels of reading they actually completed regardless of format ($\chi^2 = 2.113$; $df = 3$; $p = .549$). Consistent with this finding, students reported similar levels of effort they exerted in both course formats ($\chi^2 = 4.414$; $df = 3$; $p = .220$). These findings showed student perceptions of the academic demands of the courses were similar regardless of delivery method and format. Course demands and academic rigor are often linked to course effectiveness and quality course outcomes, and therefore were an important element in this study. The following table describes student perceptions of course demands as reported from the student survey by format.

Table 4.9

Student Perceptions of Course Demands by Format

Item	Total percent	N	11-week percent	N	5-week percent	N	$\chi^2(df)p$
Difficulty of course		193		104		89	7.707(3) $p=.052$
Easy	24.90	48	27.90	29	21.30	19	
Somewhat easy	50.80	98	54.80	57	46.10	41	
Somewhat difficult	23.90	46	16.30	17	32.60	29	
Difficult	0.50	1	1.00	1	0.00	0	

Table 4.9 (continued)

Student Perceptions of Course Demands by Format

Item	Total percent	N	11-week percent	N	5-week percent	N	$\chi^2(df)p$
Amount of reading		193		104		89	12.767(3) $p=.005$
Much less	24.4	47	31.70	33	15.70	14	
Somewhat less	44.6	86	47.10	49	41.60	37	
Somewhat more	29.0	56	20.20	21	39.30	35	
Much more	2.10	4	1.00	1	3.40	3	
Reading completed		192		103		89	2.114(3) $p=.549$
None or very little	13.5	26	15.50	16	11.20	10	
Some of it	19.3	37	19.40	20	19.10	17	
Most of it	33.3	64	29.10	30	38.20	34	
All of it	33.9	65	35.90	37	31.50	28	
Effort in class		193		104		89	4.414(3) $p=.220$
Very little effort	4.70	9	5.80	6	3.40	3	
Some effort	24.9	48	27.90	29	21.30	19	
Pretty much effort	45.6	88	47.10	49	43.80	39	
Great deal of effort	24.9	48	19.20	20	31.50	28	

Instructor Interview Data about Course Effectiveness

Although no statistics were generated, instructors described first-hand experience regarding course effectiveness and gave concrete examples that explain the phenomenon in a deeper way during the interview process. Instructors were asked directly to compare the effectiveness of course delivery between the five-week hybrid format and the 11-week traditional format during investigative interviews. Although the question was direct, no instructor gave a definitive opinion that one delivery mode was more effective than the other. Instead, instructors described ways in which specific parts of the course content were made more effective by using options present in either the face-to-face or online venue. For example, the Art Instructor remarked

that the online option allowed her to lengthen in-class discussions when she found them to be unusually productive “because if we don’t get to something in class, I can kick it to the online format” (Instructor A, personal communication, June 11, 2015). In this way, the instructor was able to maximize particularly engaging discussions without sacrificing course content coverage, which she felt was an effective use of format. The Health Instructor also noted that five-week hybrid students had more in-depth discussions online because he required intervals of participation that included three entries on at least two separate days of at least 150 words per post. This was a different requirement than the face-to-face discussions in the traditional format, and he felt the class was more effective due to the quality of the online discussions.

Conversely, instructors commented the intensive hybrid format might be less effective due to lack of time and a higher level of responsibility that students must take for their own learning. The Geology Instructor commented that sometimes she did not have enough time to give students correction feedback on their assignments, so the quality of students’ coursework was diminished. Furthermore, if students did not demonstrate independent follow through on coursework, their learning could be compromised.

Instructor perspectives on course effectiveness were also addressed in the best practices section of this study.

Comparison of Best Practices Between the Two Formats

Best practices for instruction were addressed in portions of the student survey and through the instructor interviews. These information sources allowed for comparison between the two formats. Overall, students described similar preferences in teaching and instructional style regardless of format. Evidence of some difference in

teaching practices was found between the two formats through instructor comments, although there was greater similarity than difference.

Student satisfaction with instructional practices. The student survey included three quantitative questions related to instructional practices and allowed for comparison in student responses between the two course formats. No statistically significant differences were found in the areas of amount of instructor feedback, helpfulness of instructor feedback, or student-to-student connection in the classroom. When asked to describe the amount of instructor feedback received, both student groups reported high levels of satisfaction, with only slightly higher satisfaction reported by 11-week traditional students ($\chi^2 = 1.259$; $df = 3$; $p = .741$). This finding was not statistically significant. Students reported moderate satisfaction with the helpfulness of the instructor feedback. Five-week hybrid students were slightly more satisfied with instructor helpfulness in this category ($\chi^2 = 2.839$; $df = 3$; $p = .417$), although this result was not statistically significant. The student survey also asked students how many names of classmates they knew as a measure of student-to-student connection. Students in the 11-week traditional course reported knowing slightly more classmate names, however not enough to demonstrate statistical significance ($\chi^2 = 3.298$; $df = 3$; $p = .348$). The following table compares student perceptions of instructor effectiveness by format.

Table 4.10

Student Perceptions of Instructor Effectiveness by Format

Item	Total percent	N	11-week percent	N	5-week percent	N	χ^2 (df)p
Amount of feedback		193		104		89	1.250(3)p=.741
No feedback	3.50	7	3.80	4	3.40	3	
Very little feedback	13.50	26	12.50	13	14.60	13	
Moderate feedback	38.90	75	42.30	44	34.80	32	
A lot of feedback	44.00	85	41.30	43	47.20	42	
Helpfulness of feedback		193		104		89	1.250(3)p=.741
Not helpful	4.70	9	4.80	5	4.50	4	
Somewhat helpful	19.70	38	19.20	20	20.20	18	
Very helpful	37.30	72	42.30	44	31.50	28	
Extremely helpful	38.30	74	33.70	35	43.80	74	
Students names known		193		104		89	3.298(3)p=.348
Don't know names	19.20	37	17.30	18	21.30	19	
Know few names	63.20	122	60.60	63	66.30	59	
Know many name	14.00	27	17.30	18	10.10	9	
Know almost all names	3.60	7	4.80	5	2.20	2	

In the open-ended questions of the student survey, four categories related to best practices in instruction emerged from the data: instructor responsiveness, explanation of course materials, instructor engagement in class, and clarity of coursework. In all four categories, students reported similar levels of satisfaction with teaching practices, although a greater proportion of students in the five-week hybrid remarked on the importance of these practices. For example, in the category of instructor responsiveness, 47 (out of 151) of the 11-week traditional students mentioned this as important, compared to 44 (out of 107) of the five-week hybrid students, with both groups reporting frequency and promptness of instructor response

to email and assignments as the single most important thing instructors could do to support student learning. Explanation of course materials was rated the second most important instructional practice, with 23 of the 11-week traditional students and 20 of the five-week hybrid students commenting on this category. Engaging and interactive instructor qualities were also brought up by both groups, with 21 of the 11-week traditional students and 17 of the five-week hybrid students mentioning this category. The final theme that emerged from the open-ended student comments was the importance of clarity in instructions and expectations of coursework. Five of the 11-week traditional students and one five-week student commented on this category. Although student groups in both formats made similar comments regarding best instructional practices, the higher proportion of comments made by five-week students could indicate that these traits are more important in the intensive format.

Instructor interview comments on best instructional practices. Instructors reported both differences and similarities in the instructional practices they used as related to course format. During the interviews, every instructor emphasized that course objectives in either format were equivalent, and a review of the syllabi showed identical texts and similar assignments. However, every instructor also reported that they made adjustments in course delivery to adapt to the two modalities. Data on these adjustments was interpreted as best instructional practices specifically related to teaching in the intensive five-week hybrid format. Instructors described concrete examples of adjustments made: The five-week hybrid art assignment was changed to create a large portfolio assignment which used the internet instead of the face-to-face quizzes used in the 11-week traditional course. Instructors in the health, psychology,

and sociology classes replaced face-to-face lecture and instruction with required online written reflections and video segments as strategies to adapt course content delivery. Instructors commented on their ability to incorporate additional relevancy in to their courses by using online strategies that individualized some of the coursework. The Sociology Instructor described how the online discussion boards led him to direct students towards research projects in sociology that aligned with students' experience and interest. The Health Instructor remarked that the five-week hybrid students asked more questions that related the course material to their families and lives, and he subsequently added that information in to the online portion of a class in a way that enriched the whole course.

How adjustments in course delivery were made became a key finding related to best practices for intensive, hybrid course delivery, and demonstrated how learning objectives could be met effectively. Adjustments that considered the advantages and limitations of the online environment helped instructors efficiently cover course material. Instructors provided a variety of examples during the interviews. The Art Instructor took advantage of the online environment to link vocabulary with art images, and then folded that in to the adjusted portfolio assignment. In a similar way, the Health Instructor used online resources to supplement class presentations, and additionally taught students how to evaluate the validity of online information. In the interviews, instructors commented that best practices in the online portion of the class meant that they revised class content often, and they constantly checked in online with students. The aspect of continual course delivery in the hybrid mode was reported as overwhelming at times.

In many ways, the instructor comments on best practices for the five-week hybrid format centered on the opportunities presented by the additional online options for course content. Instructors made little mention of the instructional practices related to the intensive, time-shortened format, except about the greater convenience and access it provided students. The Health Instructor noted the convenience of the five-week hybrid format allowed students to maintain academic progress towards their degree completion, despite having complex lives including family and work responsibility. “Because they work full-time, 8-5, (it would be) hard for them to schedule classes so they prefer the five-week hybrid ... they can complete their program requirements within the proper time frame and don’t have to give up work.” (Instructor D, personal communication, August 17, 2015).

Student-to-student and instructor-to-student connection. Instructors gave mixed reports regarding the differences they perceived in relationships and student connections between the two formats. The computer science, geology, and sociology instructors thought that student-to-student relationships were stronger in the 11-week traditional format, while the health and art instructors reported stronger relationships in the five-week hybrid format. The Health Instructor described a greater extent of positive team work in the five-week hybrid. The Art Instructor commented that “students are more bonded in the (five-week) hybrid, over life circumstances. They commiserate” (Instructor A, personal communication, June, 11, 2015). Although greater student connection generally is perceived as beneficial to the classroom environment, both the sociology and psychology instructors commented that this can pose challenges to the teaching environment as well. The Sociology Instructor

described that although the 11-week traditional students are more interactive, “In the 11-week, there can be more flare ups, because people feel safer. Discussions are more revved up. In the 5-week they are trying to absorb what they can, but not as much joining in”. (Instructor F, personal communication, December, 9, 2015).

Despite some difference in student relationships between the formats, five of the six instructors reported that format did not impact the instructor-student relationship. Only the Sociology Instructor remarked that he perceived a difference. “It can be harder for me to read students in the five-week format. I think I need more time.” (Instructor F, personal communication, December 9, 2015). This instructor also noted that the age difference also impacted relationship development, stating that older students are “a different animal completely.” (Instructor F, personal communication, December 9, 2015).

Feedback as an instructional practice. Instructors commented that communication with students was an essential element of their instructional delivery in both formats, and intentional strategy in this area was very important in the intensive hybrid format. The Health Instructor specifically addressed the intensive time frame. “It is particularly important for the short time frame to respond quickly. I never wait more than a few days, so they can apply or improve for the next assignment.” (Instructor D, personal communication, August 17, 2015). The Geology Instructor also described the importance of a “large online presence” (Instructor C, personal communication, August 10, 2015) to facilitate regular interaction with students in the hybrid format. The Art instructor commented that the need for feedback is ever-present, especially in the five-week hybrid format where students

move through course content at a faster pace. The need for immediate feedback and communication was reported as overwhelming at times for instructors.

Technology coaching. Technology coaching also emerged as an important instructional practice that most of the instructors commented on in their interviews. Although instructors did not note any differences in the technological ability of students in the two formats, all instructors mentioned that some students faced learning barriers due to technology. The Art Instructor reported that certain students felt intimidated by the online medium. The Psychology Instructor commented that students would often get frustrated with the technology required in the five-week hybrid, and due to the time constraints they didn't have a lot of time to figure it out. Four of the six instructors conducted a technology tutorial in the first face-to-face session of the five-week hybrid, and the Psychology Instructor remarked that she often gave one-on-one assistance in technology as needed. The Health Instructor described his technology process as [In] "the first five-week hybrid class I take a few minutes on how to navigate Blackboard. I may be different in my set up, so I explain how to get in to the assignments and posts, so they don't have doubts (Instructor D, personal communication, August 17, 2015).

Provision of campus services. The open-ended section of the student survey also gathered information about helpful campus services. This information is helpful in considering a comprehensive approach to providing access and supporting student success. Campus services were rarely reported as useful to students. Ninety-eight students in the in the 11-week and 35 in the five-week format reported that they used no campus services at all. The library was the most common service used by both

formats. Twenty-four students in the 11-week and 35 students in the five-week reported using the library. Only one to three students in either student group used any other campus service, such as tutoring, counseling, or other services.

Instructor Preferences Between the Two Formats

When asked to give a preference between the two formats, most instructors could not make a definitive statement. All instructors felt there were positives and negatives in both delivery modes. The Art and Geology instructors felt that overall they preferred the 11-week traditional format. However the Geology Instructor commented that she would prefer to combine the hybrid option with the 11-week time frame. The Art Instructor commented that while longer face-to-face courses gave her the immediate satisfaction of connecting with students personally, the intensive hybrid courses provided a real point of access that some students really need, and she is glad she can provide that. The Computer Science Instructor slightly preferred the five-week hybrid format because “I have taught better in the five-week hybrid overall through the years.” (Instructor B, personal communication, July 28, 2015). The Sociology Instructor also had a slight preference to teach the five-week hybrid model, but his comments were similar to student comments about time and convenience advantages. In the interview he shared that he is a commuter, and the intensive hybrid model is simply more convenient. The Psychology Instructor shared mixed feelings, but commented that although the five-week hybrid wears her out, it is the only format she is willing to teach in the future. Service to students who otherwise would not have access to classes was an underlying theme that influenced instructor preferences.

Clearly, the strengths and challenges presented in the intensive, hybrid format created both positive and negative responses.

Conclusion

The data indicated similarity in student characteristics, academic outcomes, and instructional practices between the five-week hybrid course format and the 11-week course format. In areas of statistically significant differences, regression analyses were run to further explore the relationship between student characteristics and course effectiveness. Examination of the two formats was facilitated by the use of matched pairs of courses, with the same instructor, course content, texts, assignments, and grading rubrics. The matched pair strategy eliminated variables associated with differences in instructors. It also allowed for examination of student perspectives by comparing the responses in each format to the same survey questions. Instructor interview data provided additional insight into student characteristics, course effectiveness, and instructional practices. The triangulation of the data sources provided a comprehensive perspective on many issues related to student needs and instructional delivery in accelerated hybrid course formats in the community college setting.

Chapter 5: Discussion and Implications

The purpose of this study was to examine the effectiveness of one alternative course format that combined intensive and hybrid course delivery methods, by evaluating both academic outcomes and accommodation to nontraditional student characteristics, as a possible means towards providing greater access to education in a community college setting. In this process, strategies and instructional practices were identified that support learning in an intensified hybrid course delivery method, so that this alternative educational format is constructed with consistent academic quality and creates genuine access to higher education.

To answer this question, the study examined the characteristics of students enrolled in an intensive hybrid course format in comparison with students enrolled in a traditional format, and compared the academic outcomes of students enrolled in both formats. It was important to examine student characteristics in conjunction with indicators of student success and course effectiveness to control for confounding variables and to analyze potential effects. In this way, the impact of course format on student outcomes was assessed to evaluate course effectiveness and academic quality. A central assertion of this study is that expanding academic access through alternative course formats is only valuable if academic standards are maintained.

Concerns have been raised regarding the quality and academic rigor of alternative course delivery methods (Lutes & Davies, 2013; Seamon, 2004; Wlodkowski, 2003). Some administrators and faculty at the college participating in this study have expressed concern about the academic integrity of intensive and hybrid course delivery methods. The literature also demonstrated that although the majority

of alternative formats have been successful, including intensive and hybrid models, others have not (Daniel, 2000; Vaughan, 2007). The academic dissent should not be ignored. It is important to identify the key factors that have either contributed to or detracted from course success in alternative formats in order to innovate and improve instructional delivery and assure academic quality. This study sought to illuminate the attributes of successful course delivery in the alternative formats of intensive and hybrid instruction to support academic standards.

Community colleges have been a major provider of higher education in the U.S., and the resounding theme of accessibility has been evident throughout their history. The current policy initiatives of the *Oregon Promise* and President Obama's national proposal for free community college education underscore the value of access and innovation in community college work. One aspect of access to education is convenient delivery of course times and locations. This is a particularly important aspect of access for community college students, who are more likely to be nontraditional adult students who benefit from flexible course schedules (Provasnic & Planty, 2008; Ross-Gordon, 2011; U.S. Department of Education, 2015b). With innovation comes the need for examination. This study explored the effectiveness of the alternative five-week hybrid course delivery method by examining this format's ability to serve community college student needs and provide quality academic outcomes.

This study was unique because it examined a format that combined both intensive and hybrid aspects of instructional delivery. The majority of existing research has examined only one modality, either intensive or hybrid course delivery

(Daniel, 2000; Davies, 2006; Scott, 2003; Scott & Conrad, 1991; Vaughan, 2007; Vignare, 2007). This study examined students in a community college setting. Most research has been conducted on four-year university campuses (Hall et al., 2012). This study also had the advantage of using *matched pairs* of courses with the same course content, instructors, texts, and assignments. This strategy improved the validity and reliability of the study results, because it controlled for the influence of the instructor on student academic outcomes.

Discussion of the Findings

The literature review and findings from this study suggested that nontraditional students benefit from flexible course schedules, and that community colleges have a greater proportion of nontraditional students than traditional universities. Findings from this study indicated that alternative course formats have the ability to deliver effective academic outcomes when instructional practices are put in to place that maximize the options of intensive and hybrid course delivery. Further, the study described instructional practices used in intensive hybrid formats that promote student learning and support positive academic outcomes. Therefore, the implications of this study suggest that access to higher education could be expanded through alternative course formats, such as the five-week hybrid model, that both promotes convenience and provides quality academic outcomes.

Student characteristics. This study examined both non-academic and academic student characteristics in order to investigate more thoroughly the variables that influence effective learning and student success. The nonacademic student characteristics studied in this research included age, gender, ethnicity, and work and

family responsibility, which aligned with adult learning theory. Internet access and ability was also examined, because the five-week hybrid format contained a substantial amount of online work. The academic student characteristics studied included prior credits taken, cumulative grade point average, COMPASS math, writing and reading placement scores, full-time or part-time status, academic persistence, and certainty of major. Student success has often been associated with student characteristics (Hall, et al., 2012; Seamon, 2004; VanScyoc & Gleason, 1993), and skeptics have argued that students who enroll in intensive and hybrid courses may possess characteristics that give them an academic advantage (Stack, 2015). Therefore, it was important to examine these characteristics in relation to course format.

Existing scholarship on adult learning theory identified certain student characteristics as typical of the nontraditional adult learner, such as an older age and having greater family and work responsibilities (Chao et al., 2009; Reasons et al., 2005; U.S. Department of Education, 2015b). Research demonstrated that nontraditional adult learners were more likely to enroll in alternative course formats that required less commitment to a set time and location, and were more likely to attend on a part-time basis (Chao et al., 2009; Provasnic & Planty, 2008). The literature also reported that community college students possessed nontraditional student characteristics to a greater extent than university students, and nontraditional students benefitted from greater access to education through convenient course schedules (Dougherty & Townsend, 2006; Provasnic & Planty, 2008; Ross-Gordon, 2009). Findings from this study aligned with these findings in the literature. Students enrolled in the alternative five-week hybrid format were significantly older ($p < .001$).

The mean age for the five-week hybrid format was 27.8 (SD = 10.14), compared to 25.1 (SD = 9.17) for the 11-week traditional format. The five-week hybrid students also had significantly more family responsibility ($p = .002$) than students enrolled in the 11-week traditional format. Instructors also commented that students in their five-week hybrid courses were more likely to have family responsibilities, particularly parental responsibility. One instructor described a student in his class with six children, and other instructors described student challenges with daycare and even the occasional presence of children in the classrooms. The present study also found that students enrolled in five-week hybrid courses were much more likely to attend school part-time than students enrolled in the longer traditional courses ($p < .001$). Therefore, with regard to many non-academic student characteristics, this study was consistent with the literature to a large extent.

However, data from this study produced mixed results regarding one characteristic typical of nontraditional students: greater work responsibility. Quantitative data collected from the student survey showed no statistically significant difference ($p = .103$) between the amount of work responsibility reported by students enrolled in the five-week hybrid courses compared to those in the 11-week traditional courses. This finding was particularly interesting because the literature has consistently reported that nontraditional adult students have a greater amount of work responsibility (Chao, et al., 2009; Reasons, et al., 2005; McGee & Reis, 2012). However, during the interviews conducted in this study, instructors reported that the students enrolled in their intensive hybrid courses did have greater work commitments, so the findings from this study are mixed in this area. It should be noted

that the sample size in this study was small, (n=258, with 12 total courses studied). This inconsistency in findings may suggest that students were unclear about their reporting of work responsibility or that the survey tool did not properly address this issue. Because there was little difference in the amount of work responsibility reported between the two groups, this study's finding would suggest that combining work with school schedules is common for the majority of students in the community college setting, regardless of other variables. However, work responsibility remains a likely a factor in students' ability to participate in education.

The literature demonstrated that nontraditional adult students prefer, and are better served by, alternative course formats that provide a reduced commitment to a set time and location (Chao et al., 2009; McGee & Reis, 2012). The five-week hybrid format is an example of such an alternative format. In this study, a greater proportion of students who enrolled in the five-week hybrid format would be defined as having nontraditional student characteristics. Hence this quantitative finding reinforced existing findings that nontraditional students chose more flexible course formats. Instructors participating in the study also consistently reported that the convenience of the five-week hybrid format was beneficial to and often necessary for their nontraditional adult students. One instructor described a student who did most of her online coursework while her children napped. However, qualitative responses from the student survey regarding course format preference were not as conclusive. When the student survey asked "Why did you enroll in this course?" only a few students responded directly that convenience or course format influenced their choice. By far, the most common answer was simply that the class met transfer requirements. This

response could indicate that delivery format is not as important to these adult community college students as presented in the literature. However, because the literature highlighted this attribute, and it was a consistent finding in the instructor interviews, it is likely that the design of the student survey was vague in this area and students were not clear that course format was part of this question. Because the literature and data from this study report a preference by nontraditional adult students for convenient course schedules, this indicated that offering this course format option could improve access for these students.

Instructors also noted that many students were grateful for the faster pace of course completion presented in the five-week hybrid format. One instructor stated, “Because they work full-time, 8-5, [it would be] hard for them to schedule classes, so they prefer the five-week hybrid ... They can complete their program requirements within the proper time frame and don’t have to give up work” (Instructor D, personal communication, August 17, 2015). This flexibility helps students graduate on time. Academic momentum is an important aspect of student success and access that has often been overlooked in existing research. Faster course completion and its impact on student motivation was an additional positive aspect of the intensive hybrid format.

Academic student characteristics were examined in combination with nonacademic characteristics to check for possible effects on performance. Some previous studies asserted that student characteristics affected student achievement, particularly previous academic experience (Seamon, 2004; Stack, 2015; Van Scyoc & Gleason, 1993). Age was also identified as a variable in some studies that predicted student academic success (Hall et al., 2012). However, most studies that controlled for

student characteristics reported equivalent academic outcomes. The present study found some differences in students who enrolled in the five-week hybrid courses in comparison with students enrolled in the 11-week traditional courses. In addition to being older and having more family responsibility, students enrolled in the five-week hybrid format had taken more prior credits, had higher cumulative GPAs, were more likely to be part-time, and had slightly lower COMPASS placement scores. In order to account for these differences in student composition between the formats, these variables were considered together in a regression analysis in this study. Even controlling for these differences in student composition, there was no statistically significant relationship between format and academic success. Students in the five-week hybrid courses did not perform significantly better or worse than those in the traditional format, as measured by grades and passing status.

Although this study found that course format was not predictive of student success, certain student characteristics were associated with student performance as measured by grades. An initial regression analysis comprised of course format, age, part-time/full-time status, prior credits, COMPASS math score, and cumulative GPA found that only cumulative GPA predicted the student grade, and cumulative GPA was by far the strongest predictor of student success in this area ($p < .001$). However, because cumulative GPA was so strongly correlated with COMPASS math scores, two regression analyses were added and run separately, one including cumulative GPA but not COMPASS math scores, and the other including COMPASS math scores but not cumulative GPA. The regression analysis using the cumulative GPA variable along with age, part-time/full-time status, and prior credit found that only cumulative GPA

was predictive of the student grade in the course ($p < .001$). The next regression analysis using COMPASS math scores and the other four variables found several statistically significant relationships. Part-time/full-time status was predictive ($p = .007$); age was predictive ($p = .013$); COMPASS math scores were predictive ($p = .021$); and prior credits taken were predictive of student course grades ($p = .052$). However, in every regression analysis, course format was not predictive of student performance. The findings in both regression analyses made clear that format did not influence student success as measured by grades, even when controlling for other variables. This finding implies that when instructor and course attributes are the same and student characteristics are controlled for, the alternative five-week hybrid format produced equivalent academic outcomes for students.

An additional student characteristic explored by this study was the ability to access the internet and to use technology. Although this characteristic is not linked specifically to nontraditional students, it emerged as a potential barrier to educational access. The literature reported technology difficulties as a common weakness in alternative formats that feature online and hybrid instruction (Stewart & Scappaticci, 2005; Vignare, 2007). Technological access and ability were measured through the student survey and instructor interviews as a student characteristic. Significant differences between the student groups were anticipated in this study, since the intensive hybrid format consisted of 50% of course delivery in an online venue. There were four questions on the student survey related to this topic; however, no statistically significant differences in access or ability to use technology were reported between the formats in any of the survey questions answered. Students had fairly

similar access to the internet at home regardless of format, with the five-week hybrid students reporting only a slight advantage in this area. However, every instructor in the five-week hybrid format described giving a tutorial or training on how to navigate the online portion of the course. This suggests that although technology differences may not be significant between the two formats, technology training for students is an important instructional practice in the intensive hybrid format.

Course effectiveness of intensive hybrid course formats. Course effectiveness of the intensive hybrid format was examined using data gathered from the Department of Institutional Research, pretest/posttest results measuring knowledge of subject material, the student survey, and instructor interviews. Assessments were made by comparing the two course formats in terms of student grades, C or better passing rates, pretest and posttest knowledge gains, student perceptions about course rigor, and instructors' assessments of course effectiveness. The triangulation of data used to evaluate course effectiveness improved the validity and provided a more complex understanding of the different indicators of effective courses. It is important to note that because this study controlled for student characteristics, student success indicators were not the result of preexisting differences.

Student grades and C or better passing rates are common measurements of student success in many educational settings (Anastasi, 2007; Gonzalez, 2014; Tallent-Runnels et al., 2006), including the college where this research was conducted. This study compared the grades received and C or better passing rates between the two course formats to assess for differences and to assess course effectiveness. The five-week hybrid students had a slightly higher mean grade (3.10) when compared to the

11-week traditional format (2.97), although the difference was not statistically significant ($p = .640$). Additionally, students in the five-week hybrid had a slightly higher C or better passing rate, with 84.4% of student passing versus 83.7% in the 11-week traditional format. Although also not statistically significant ($p = .851$), this finding is similar to the majority of the literature. Studies reported that students enrolled in either intensive or hybrid formats tended to have equivalent or higher achievement (Anastasi, 2007; Estelami, 2012; Hall, et al., 2012; Lovett et al., 2008, Shachar & Neuman, 2003; Stack, 2015; Vignare, 2007).

The pretest and posttest measurement of subject knowledge gains allowed for additional comparison of course effectiveness between the two formats. This study found no relationship between subject mastery gains and course format. Three of the four matched pair courses reported greater subject knowledge gains for five-week hybrid students. One matched pair course reported greater subject knowledge gains for the 11-week traditional format. Although few studies have conducted pretest and posttest evaluations, this study aligned with the findings of a small number of studies that reported similar or higher academic achievement in intensive courses as measured by final exam grades or performance on subject mastery tasks (Anastasi, 2007; Hall, et al., 2012; Lovett, et al., 2008). Equivalent pretest and posttest results were a strong indicator of academic consistency between the two formats and presented an important aspect of academic quality in the five-week hybrid format studied.

In addition to quantitative data that examined course effectiveness, specific questions on the student survey asked respondents to describe attributes of course rigor and demand. Students rated course difficulty, the amount of reading, and the

amount of effort needed for each class. Speculation in the literature postulated that alternative course formats may not be delivered with equivalent academic rigor (Lutes & Davies, 2013; Means, et al., 2009; Petrowsky, 1996). Lutes and Davies specifically argued that course rigor in intensive formats was inferior, despite reporting equivalent test scores for students in either format. In the present study, students in both formats gave similar responses for almost all questions related to course rigor and demand. There were no statistically significant differences recorded between the two formats in student perceptions about the difficulty, amount of reading students completed, or amount of effort students exerted in the courses. The only area that showed a statistically significant difference was that students enrolled in the five-week hybrid format reported significantly greater amounts of reading ($p = .005$). This finding is not surprising, because students in the five-week hybrid had to complete an equivalent amount of reading in half the time of a traditional format.

During the interviews, instructors gave mixed reports on the quality of student assignments and class discussions, which is another aspect of course quality. The art, health, and sociology instructors all reported the ability to go deeper in to discussions in the online discussion boards of the classes, and explained that assignments were turned in on time to a greater extent. These findings aligned with the literature that specifically addresses hybrid courses (Welker & Beradino, 2006). However, the computer science and geology instructors reported reduced quality in the online portion of the class and that assignments were submitted less-than-complete. The inconsistency in the findings from this study suggested that the set up and organization of discussion boards and assignments may have a greater effect in an intensive hybrid

modality, and therefore required additional instructional preparation and attention to maintain academic standards. The potential for greater in-depth student coursework is a powerful potential benefit; yet, arranging the course in a way that creates the environment in which this is possible is elusive at times.

The study findings were consistent with the majority of the literature that reported equivalent academic outcomes and rigor in both intensive and hybrid formats (Shachar & Neuman, 2003; U.S. Department of Education, 2010; Vignare, 2007). The present study's findings suggest that course content in the five-week hybrid formats was likely equivalent to traditional formats. This is a positive indicator regarding the maintenance of academic standards relating to coursework. Because academic equivalency is an essential aspect in the examination of alternative course formats, these data and findings support intensive and hybrid formats as viable options to course delivery.

Effective instructional practices for teaching intensive hybrid courses. The literature review and findings from this study also described effective instructional practices in the intensive and hybrid formats. Recommendations in the literature for effective instruction in both modalities emphasized the potential for high quality, transformational teaching in alternative formats, and the recommendations aligned with the literature on adult learning theory. The central theme that emerged was that class activities and assignment structures were best adapted when they acknowledged and maximized elements of the course modality and environment (Garrison & Kanuka, 2004; Gleason, 2013; Graham & Robinson, 2007; Kretovics, et al., 2005, McGee & Reis, 2012; Scott, 2003; Shea, 2007). Successful instructors determined

which tasks were taught most effectively based on the resources presented in each alternative format (Gleason, 2013). Student and instructor responses in this study provided examples and strategies that could be implemented in these formats, and reinforced recommendations in the literature.

Adult learning theory argues for an instructional approach that encourages students to be reflective, self-directed, and less reliant on passive learning (Knowles, 1980; Merriam et al., 2007; Wldokowski, 2008). Self-directed learning focuses on problem-based tasks, with the instructor providing resources and opportunities that align with students' direction (Jarvis, 1985). Consistent with the literature on adult learning theory, instructors in this study reported that the older age and maturity of students enrolled in their five-week hybrid courses reflected these learning traits. Students were more likely to be self-directed and self-motivated, and possess more self-discipline in their completion of assignments. The Health Instructor remarked that his students related course information directly to their lives and asked more follow up questions that delved deeper into the course content. Instructors also gave examples of how they modified coursework to take advantage of the opportunities presented in the online and intensive course formats. The Sociology Instructor described working with students online to modify research assignments that linked to students' life experiences more directly. This instructor also remarked that his mature students were more likely to turn in assignments on time.

The literature on best instructional practices in both the intensive and hybrid course formats was well aligned adult learning theory. Recommendations for the intensive model promoted class activities that took advantage of longer blocks of time,

with student-led activities and relationship building that was possible in the intensive format (Davies, 2006; Scott, 2003; Wlodkowski & Ginsberg, 2010). Scott (2003) argued that intensive courses are actually experienced differently by students, and adaptation of instructional design is essential. Instructional practices in the hybrid course format were complementary to the intensive course strategies. Hybrid instruction encouraged active learning that incorporated reflection, student-led research, self-testing exercises, simulations, and case studies (McGee & Reis, 2012; Vaughn, 2007). Self-directed and individualized coursework was common by using the vast resources available on the internet (El Mansour, et al., 2007). In the hybrid environment, McGee and Reis (2012) called for a “radical transformation of pedagogy” (p. 8, 2012), that shifts learning away from a teacher-centered model to require learners to construct their learning from a larger base of online sources. All these strategies improve student engagement and satisfaction with the learning experience, which has been shown as an important element of effective instruction (El Mansour, et al., 2007).

Instructors in this study discussed the strategies they used in the five-week hybrid, and their instructional practices reflected the literature. Instructors described course adjustments that maximized the options presented in the five-week hybrid modality and actually improved the effectiveness of the course. The Art Instructor described her reconstruction of the central portfolio assignment to incorporate online art images, international museum resources, and technical vocabulary in to the assignment. The Health Instructor merged subject content with an understanding of how to evaluate the validity of health resources on the internet, as a way to teach

students lifelong health research strategies. The Psychology Instructor described longer course discussion times that allowed for full exploration of a topic, with follow-ons later online. In each of these examples, instructors took advantage of the five-week format that included longer time blocks, online resources, and new methods of instruction. All these examples encouraged students to take a more active role in their learning. Instructors discussed the care they used to adjust and select course materials for each segment of their five-week hybrid courses. In this way, their instructional practice reflected strategies presented in the literature.

The student survey addressed instructional practice with the question, “In what ways did your instructor support your learning in this course?” Although student comments did not directly address the integration of online and face-to-face aspects of the classes, students described instructional practices that aligned with the literature and the instructors’ discussion. The students identified four instructional methods as most important: instructor feedback, explanation of course content, engagement of instructor, and clarity of course assignments and expectations.

Feedback from the instructor emerged as the most important instructional practice mentioned by students in the survey responses. Instructors also noted that a large amount of feedback given in a prompt time frame was essential for students to progress. The Health Instructor remarked that he never waited more than a couple days to respond to students, and noted that this is particularly important because of the short time frame of the class. The Art Instructor commented that the need for feedback to students was ever-present, and she reported that the urgency of student feedback could be overwhelming. Instructors also described additional communication tools

used in the five-week hybrid courses. For example, the Geology Instructor used the Google hangout tool as a way to increase her accessibility to students. Previous studies found that although hybrid instructors occasionally expressed concern that the course structure would reduce communication with students, high levels of student interaction and connection were reported when intentional use of all course tools and services were implemented (Aycock et al., 2002; Vaughan, 2007). Grady's research described the importance of frequent and supportive feedback as particularly critical for intensive online courses (2013). Results from the student survey did not show differences between the two formats in terms of student perception about the amount of instructor feedback received or the helpfulness of the feedback. Because the survey examined matched pairs of courses, it was possible to compare the two formats on the same questions. However, instructors commented that this variable seemed more important in the intensive hybrid format due to the time-compressed nature of the course. These descriptions reinforce the literature about the importance of instructor feedback, and highlight the greater importance of immediate feedback in course formats that are intensified in time frame and hybridized.

Explanation of course content was the second most important instructional practice as described in the student survey. This is a common sentiment in most teaching evaluations, and there was no difference between the two formats in the student responses in this category. Engaging and interactive instructor qualities were reported as the third most important instructional practice. Scott (2003) argued that instructor qualities, such as enthusiasm and student orientation, are even more important in an intensive format with condensed blocks of instructional time. The final

category of instructional practice reported by students described the importance of clarity of instructions and expectations. The art and computer instructors provided examples of this concept in their descriptions of the effort they used to provide detailed vocabulary and instructions. These student reports were consistent with the literature and examples given during the instructor interviews.

During the instructor interviews additional strategies were described that reinforced effective course delivery in the five-week format. Technology coaching was consistently mentioned by instructors, despite very little comment from students in this area. Technology has the potential to disseminate information in an efficient and engaging manner (Stack, 2015; Stewart & Scappaticci, 2005), but to do so it is essential for faculty and students to have training and mastery of technological skills. The literature described technology difficulties as a common weakness of hybrid courses (Stewart & Scappaticci, 2005; Viganre, 2007). Although instructors did not describe differences in the technological abilities of their students in either format, all instructors remarked that they provided some sort of technology coaching. The art, health and psychology instructors gave formal presentations on this element of the class at the first session. Instructors noted that because the time schedule was compressed in the five-week hybrid, students could not afford to get delayed due to technology problems. Due to this fact, technological proficiency and access was perceived to have greater importance in an intensive hybrid course format.

The literature also discussed the difficulty that faculty sometimes had in making adaptations from traditional course formats to alternative formats (Daniel, 2000; Kretoivics, et al., 2005; Marques, 2012; Wlodkowski, 2003). Therefore, it is important

to acknowledge that course adaptation and redesign is an enormous challenge.

Instructors who participated in this study commented on the amount of work needed to deliver high quality coursework properly in an alternative format. One instructor described the constant revision she did on her five-week hybrid course as an example of the ongoing vigilance this instructional method required. All instructors commented on the incessant community they maintained during the five-week time frame of their classes. Results from this study demonstrate that equivalent outcomes are possible for the alternative format of the five-week hybrid model. However, the demands placed on instructors teaching in this format are high. Careful selection of instructors is an additional element that must be addressed in alternative course redesign and delivery.

Limitations of the study

This study only investigated courses and students enrolled in a community college setting in Oregon; no data were collected from other institutions or other geographic areas. Therefore, the student survey sample group had some demographic homogeneity that might have affected results and generalizability. Because the study required paired courses with same instructors teaching in both course formats, the study sample size was limited, and there were not enough courses to conduct a randomized sample. The study was comprised of ten courses and 455 students. However, only six pairs included student survey and instructor interview data, and only four pairs included pre and posttest data. These limitations reduced the amount of data collected from students and instructors. Additionally, although the study was comprised of a variety of courses, it did not include the key academic areas of math and writing. The study only examined five-week hybrid courses in comparison to full

term traditional courses; therefore it did not produce information on hybrid courses effectiveness in other time frames.

Because the researcher serves in a supervisory role at the community college, candid discussion could have been limited. All instructors who participated in the study did so voluntarily; however, they were all supervised by the researcher.

Implications for Action

This study and the related literature provide evidence that an alternative five-week hybrid course format provides effective academic options and could increase access to education for nontraditional students. Educators can take action to innovate course delivery methods at their academic institutions as a way to expand access to higher education. Course redesign that maximizes the resources and opportunities presented in alternative formats is critical. Instructional methodology that harnesses adult students' ability to learn actively and in a self-directed manner is recommended and could provide the "radical transformation of pedagogy" (McGee & Reis, 2012, p. 8) described in the literature that would support academic quality. Heightened attention to instructional practices that promote student learning are suggested, including a greater need for instructor feedback, clear explanation of course content, engaged and highly interactive instruction, and clarity of course expectations and assignments. Additional technology coaching is also recommended to assure that all students have the ability to participate fully in all aspects of the course. Because the five-week hybrid format is held in a compressed time frame with reduced face-to-face instruction, the need for positive instructional practices is magnified. This heightened emphasis on both course design and instructional practice presents additional demands

on instructors, and great commitment and care is required of faculty teaching in alternative formats.

All findings from this study will be shared with the administration and faculty at the college study site. Insights gained from the study could identify areas where the college both excels and needs improvement. It is assumed that information from this study may present new ideas of promote implementation of changes in some classroom practices, especially in the five-week hybrid format. Quantitative data presented in this chapter could be used by other academicians to evaluate similar course delivery systems and programs to better serve students in other institutions.

Ultimately, the future of expanded access to higher education rests in the innovations that faculty and administrators can implement. Continual development of new instructional techniques will likely evolve as modalities continue to develop. With astute care, instructional delivery will continuously improve.

Need for Further Research

Despite numerous studies on intensive learning formats and hybrid formats, more research is needed to study course effectiveness where both intensive and hybrid modalities are used together. Greater information in this area could inform educational course and program developers who seek to construct innovations in this instructional delivery method. This delivery mode could increase access to higher education.

More study of community college student performance in alternative course formats is also needed. Although research has been conducted to test the effectiveness of intensive and hybrid courses, this research has been almost entirely confined to four-year university students, often at the graduate level. Study that examines student

characteristics in conjunction with academic performance in alternative formats is needed, particularly in the community college setting. Most research has failed to examine the influence of learner characteristics and demographics, and how nontraditional student characteristics relate to course format effectiveness (Seamon, 2004). The possibility that differences in life circumstances and academic preparation may affect performance in an alternative course structure has not been fully investigated, specifically for students with lower ability levels in reading, writing, and computation skills. The relationship between technological access and success in intensive hybrid course formats also has not been fully explored. Additionally, technological access and ability has been linked to socioeconomic levels, and therefore socio-economic status could influence student success in some innovative formats.

Conclusion

This study adds knowledge to the field by showing that the alternative format of a five-week hybrid course can produce positive academic outcomes for students in a community college setting. Course effectiveness, as measured by student grades, passing rates, knowledge gains, student perceptions, and instructor accounts, was not statistically significantly different in the five-week hybrid when compared with an 11-week traditional format. The study controlled for student characteristics that could affect performance. Therefore, reservations about the academic quality of five-week hybrid courses in the subject areas included in this study appears unjustified and is not supported by existing evidence from this study. By controlling for academic quality

within the bounds of this study, the five-week hybrid course format provides a promising alternative model to educational access in a community college setting.

Current legislation and social trends suggest that increased demand for higher education is likely, particularly at the community college level (Jenkins, et al., 2010; Obama, 2015; OECD, 2014; Oregon Senate Majority Office, 2015, U.S. Department of Education, 2015b). Community colleges have historically promoted accessibility and service to nontraditional students. The literature has also reported a recent increase in nontraditional students pursuing higher education (Dougherty & Townsend, 2006; Kasworm, 2008; Provasnic & Planty, 2008). Therefore, expanded educational access through courses that provide greater flexibility of time and location is warranted and will better meet the needs of nontraditional students. Community Colleges are the ideal vehicle to expand educational access through innovative course formats that serve a greater range of students.

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Appendix A
Letter of Institutional Support



January 5, 2015

To: University of Portland
Graduate School of Education

From: Chemeketa Community College

Subject: Support for research regarding 5-week intensive courses

This memo is to demonstrate support for research to be conducted regarding the effectiveness of the 5-week hybrid course model. The 5-week hybrid model has been used at Chemeketa for the past 5 years, and was originally based on informal study. Although the format has shown promising results for students at Chemeketa, a thorough and scholarly investigation of the format is important and fully supported by the institution.

The information generated from the study could help make improvements to the format to better serve students. This collaboration between Chemeketa Community College and the University of Portland is appreciated, and we look forward to learning from the study results.

Sincerely,

[Redacted Signature]

David Hallett
Executive Dean
General Education and Transfer Studies

1/5/15
Date

[Redacted Signature]

Jim Eustron
Chief Academic Officer
Interim Vice President

1/5/15
Date

Location: 4000 Lancaster Drive NE, Salem, OR
Mailing Address: PO Box 14007, Salem, OR 97309-7070
General Information: 503.399.5000

chemeketa.edu

Appendix B

Student Consent Letter



Dear Student,

The survey attached is designed to gather information about your experience in the class you are currently attending. The information will be used to make recommendations for future Chemeketa Community College courses, and is part of a doctoral research study. We would appreciate your assistance by completing the survey below.

If you do not wish to complete this short questionnaire, which should take about 10 minutes, simply discard it. Responses will be anonymous and confidential. Completing and returning the questionnaire indicates consent to participate. If you have any questions regarding the survey, contact Cecelia Monto, Dean of Evening and Weekend Programs at cecilia.monto@chemeketa.edu.

Thank you for your help.

Location: 4000 Lancaster Drive NE, Salem, OR
Mailing Address: PO Box 14007, Salem, OR 97309-7070
General Information: 503.389.6900

chemeketa.edu

Appendix C

Student Survey

Please respond to the questions on both pages. Your responses are important!

1. What is your gender? Male ____ Female ____
2. What is your age? _____
3. How good is your access to the Internet at home?
 - Poor
 - Fair
 - Good
 - Excellent
4. How often do you use the Internet?
 - Less than once a week
 - A few times a week
 - About once a day
 - Several times a day
5. For this class, how easy to use were the online course materials?
 - Difficult to use
 - Somewhat difficult to use
 - Somewhat easy to use
 - Easy to use
6. How would you describe your computer abilities?
 - Weak
 - Somewhat weak
 - Somewhat strong
 - Strong
7. In general, how many hours per week do you work for pay?
 - None
 - 1-15 hours
 - 16-30 hours
 - 31 or more hours
8. How much responsibility do you have to care for children or other family members?
 - No responsibility
 - Light responsibility
 - A moderate amount of responsibility
 - A great deal of responsibility
9. How many hybrid or online courses have you taken?
 - None
 - 1-2 classes
 - 3-4 classes
 - 5 or more classes
10. How difficult was this course in comparison to other courses you have taken at Chemeketa?
 - Easy
 - Somewhat easy
 - Somewhat difficult
 - Difficult
11. How much reading was required for this course in comparison to other courses you have taken at Chemeketa?
 - Much less
 - Somewhat less
 - Somewhat more
 - Much more
12. How much of the assigned reading for the class did you complete?
 - None or very little of it
 - Some of it
 - Most of it
 - All of it
13. How much effort did you personally put into this course?
 - Very little effort
 - Some effort
 - Pretty much effort
 - A great deal of effort
14. Describe the amount of feedback you received from the instructor during this course.
 - No feedback
 - Very little feedback
 - A moderate amount of feedback
 - A lot of feedback
15. How helpful was the instructor's feedback?
 - Not helpful
 - Somewhat helpful
 - Very helpful
 - Extremely helpful
16. How many students in this class do you know by name?
 - I don't know any students by name.
 - I know a few students by name.
 - I know many students by name.
 - I know all or almost all of the students by name.

17. How likely are you to register for a class or classes at Chemeketa or any college next term?
(If you are graduating after this term, please skip this question.)

- I won't register for a class next term
- I probably won't register
- I probably will register
- I definitely will register

18. How certain are you about your academic major?

- Very uncertain
- Somewhat uncertain
- Somewhat certain
- Very certain

Please provide written answers to the following questions.

19. Why did you enroll in this course?

20. What student services, if any, were most helpful to you for this course? (Such as the writing center or library; you may list more than one service).

21. What advice would you give to students taking a course like this?

22. What were the challenges of this course?

23. In what ways did the instructor support your learning in this course?

Appendix D

Art Pre-Test Post-Test

Comparison of Hybrid Art 101 and Face-to-Face Art 101, Pre-Test and Post-Test scores

Students were given questions based on the work of Vincent Van Gogh, *The Sower*, 1888



The questions were:

What is the medium of this work? How is the medium being used?

What is the color scheme of the work? How does color affect the viewer?

Discuss the symmetry of the work. What kind of symmetry is the work using? Explain how you see the symmetry.

Does the work use perspective? How?

What other formal/compositional elements is the work using? How?

What is the content of the work?

Based on these 12 questions, or requested observations, students are given a score, the highest score possible is 12.

Successful submissions of the post-test indicate that students have demonstrated the first three performance based learner outcomes for Art 101:

1. Describe formal elements, principles of composition, style, technique, and medium using art-specific vocabulary.
2. Interpret content and meaning as revealed through subject, formal elements, and principles of composition, style and technique.
3. Analyze works of art using art-specific vocabulary.

Face-to Face Results

30 students in the traditional face-to-face class took the pre-test. The aggregated score of students from this class is 88.

The average score on the pre-test is 2.9.

30 students in the traditional face-to-face class took the post-test. The aggregated score of students from this class is

276. The average score on the post-test is 9.2.

The lowest score on the post-test in the face-to-face class is 4. Note that this student missed more than a quarter of the class.

Hybrid Results

16 students in the hybrid class took the pre-test. The aggregated score of students from this class is 47. The average score on the pre-test is 2.9.

14 students in the hybrid class took the post-test. The aggregated score of students from this class is 144. The average score on the post-test is 10.2.

Note that one student's assessments were omitted. Both the pre-test and the post-test from this student are illegible.

Appendix E

Geology Pre-test Post-test

1. Where is the highest velocity of a river?
 - a. Along the edges of the channel
 - b. Along the entire surface
 - c. At the deepest point of the channel
 - d. Near the very top and center of a channel

2. Which of the following is defined as a terrace that is formed as a stream cuts down through unconsolidated sediments?
 - a. Strath Terrace
 - b. Fill Terrace
 - c. Paired Terrace
 - d. Unpaired Terrace

3. Which of the following is the approximate discharge for a creek that has an area of 26ft^2 and a velocity of 1.88ft/s ?
 - a. $27.5\text{ft}^3/\text{s}$
 - b. $35.4\text{ft}^3/\text{s}$
 - c. $39\text{ft}^3/\text{s}$
 - d. $49\text{ft}^3/\text{s}$

4. Which of the following rocks would most likely be associated with a landslide deposit?
 - a. Breccia
 - b. Granite
 - c. Limestone
 - d. Conglomerate

5. What type of drainage is associated with fault and joints and contains beds of 90 degree bends?
 - a. Dendritic
 - b. Trellis
 - c. Rectangular
 - d. Parallel

6. Which of the following karst landforms is created when a river emerges from its underground?
 - a. Doline
 - b. Uvala
 - c. Polje

- d. Pocket Valley
7. Which of the following sand dunes has many different slip faces?
- a. Parabolic
 - b. Barchan
 - c. Star
 - d. Linear
8. What portion of the underground has water and air filling the pore space?
- a. Zone of Saturation
 - b. Zone of Aeration
 - c. Zone of Infiltration
 - d. Zone of Dispersion
9. How much of the world's freshwater is locked in the Antarctic Ice Sheet?
- a. 20%
 - b. 50%
 - c. 80%
 - d. 100%
10. What is the name for a mass wasting event that moves in distinct backward rotating blocks?
- a. Debris Slide
 - b. Debris Flow
 - c. Debris Slump
 - d. Debris Topple

Appendix F

Psychology Pre-test Post-test

Pre and Post Test for Cecelia Monto

Psy 104 Spring Term 2015; Eleven week and Hybrid

PRE TEST

1. What did you know about “Workplace Psychology” before the very first day of this course?
2. What do you expect to learn in this course?
3. Name at least three psychological concepts that you believe are important in how a workplace functions.
4. How do you suppose psychological concepts affect YOUR life in the workplace?
5. How do you think laws such as Sexual Harassment, Equal Rights and Family Leave laws affect the psychology of the individual?

POST TEST

1. What do you now know about “Workplace Psychology” that you did not know before the first day of this course?
2. Did you learn what you expected to learn from this course? If yes, how did it meet your expectations? If not, how did it differ from what you were expecting?
3. Name at least three psychological concepts that you believe are important in how a workplace functions.
4. How do you believe that psychological concepts affect YOUR life in the workplace?
5. How do you think laws such as Sexual Harassment Laws, Equal Rights and Family Leave Laws affect the psychology of the individual?

Appendix G

Sociology Pre-test Post-test

Sociology 204 Post Test

Name _____

Date _____

1) One of the most important *social phenomena* occurring during the initial development of sociology was:

- A) The movement of large populations from the central cities to the suburbs
- B) The Industrial Revolution
- C) The five day work week
- D) Increased leisure time for women and children

2) The sociological perspective of *structural-functionalism* often views society as:

- A) A battle between the *haves* and the *have-nots*
- B) An interconnected and balanced organism
- C) Primarily made up of symbols, gestures and language
- D) Unknowable

3) The sociological perspective of *conflict theory* views society as a *struggle for resources* between:

- A) The religious and non-religious
- B) The young and old
- C) The *haves* and the *have-nots*
- D) The socialists and the communists

4) The sociological perspective of *symbolic interactionism* is different from functionalism and conflict theory because it is an example of:

- A) Latent function
- B) Manifest function
- C) Macro sociology
- D) Micro sociology

5) Using the *Sociological Imagination* might include:

- A) Asking "what, when, why, and where" something happens
- B) Asking "how" something happens rather than asking "why" something happens
- C) Imagining relationships between individual people
- D) Imagining relationships between groups of people

6) *Xenophobia* is:

- A) Fear of learning too much about another culture
- B) Fear of other cultures
- C) Fear of losing yourself in the research of other cultures
- D) Fear of thinking too highly of another culture

7) In the U. S. it is very common for people of the working class or middle class to move up to the *elite upper class* through hard work and initiative.

- a) True
- b) False

8) *Gender roles* are:

- a) Ignored at birth in most cultures
- b) Flexible in most cultures
- c) Given high socialization priority in most cultures
- d) Given low socialization priority in most cultures

9) *Racism* is:

- a) A natural human instinct
- b) Discrimination based on physical characteristics, especially skin color
- c) Discrimination based on genetics (science)
- d) A way of distributing social power equally

10) *Deviance* is:

- a) Found in all cultures
- b) Found mainly in highly developed cultures
- c) Always associated with lower social classes
- d) Always associated with certain races