Blended Learning: A Mixed-Methods Study on Successful Schools and Effective Practices

by

Anne Mathews

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The Undersigned Faculty Committee Approves the

Dissertation of

Dr. Anne Mathews

Blended Learning: A Mixed-Methods Study on Successful
Schools and Effective Practices

Cheryl James-Ward, Chair
Department of Educational Leadership

James Marshall
Department of Educational Leadership

Olympia Kyriakidis
Lakeside Union School District

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by

Anne Mathews
ABSTRACT

Blended learning is a teaching technique that utilizes face-to-face teaching and online or technology-based practice in which the learner has the ability to exert some level of control over the pace, place, path, or time of learning. Schools that employ this method of teaching often demonstrate larger gains than traditional face-to-face programs due to their increased ability to differentiate, scaffold, and assess students using a variety of methods. This study sought to determine ways blended-learning models, as perceived by administrators and teachers, contribute to student success; to what extent practitioners in blended models attribute their students’ success to the models they employ; how blended-learning schools are measuring student success; and how administrators are supporting teachers in their use of blended techniques.

In this mixed-methods study, the researcher collected survey data from 230 teachers and 43 administrators in blended-learning programs, interviewed teachers and administrators at two school sites in the Southwestern most region of the United States, conducted classroom observations, and conducted reviews of participating schools’ Local Control Accountability Plans and mission statements. Results yielded five consistent themes: an understanding of the needs of students to drive individualized instruction, varied and individual success criteria, strong relationships with students tied to decision-making that fosters individual achievement, student needs as a driving force behind the development of school structures and programs, and an increased level of student choice to combat low levels of motivation.
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CHAPTER 1—INTRODUCTION

Background to the Study

Even before the accountability that accompanied the implementation of the No Child Left Behind Act in 2001, practitioners in K-12 education have been trying to close the achievement gap and accelerate student learning across all student demographics. Before the rise of school accountability and state testing, educators were already searching for ways to help learners of all ability levels. A quick look into the history of public education in the United States gives us a context for these efforts. K-12 academic programs in the United States originated in the one-room schoolhouse and were specific to the needs of each particular state or region. Thus, educators had to take on the task of knowing and understanding the various needs of their different learners. Around 1900, the concept of differentiation first became widespread and educational researchers increasingly saw the need for multiple learning tracks for various learners (Search, 1900). Educators began to see the need for offering different assignments to students based on their various aptitudes, and to either accelerate or remediate learning based on their progress. This practice led to better learning results among students and thus, in the beginning of the 20th century, differentiated teaching became a widely-used teaching technique in schools across the United States (Search, 1900).

Almost a century later, in the late 1900s, in an attempt to accelerate student learning and introduce technology to school-aged students, computers were introduced into U.S. classrooms (Merrill et al., 1986). Schools began implementing practice through the use of computers more regularly in the 1980s, and doing so resulted in higher levels
of engagement and a higher quality of work from students, specifically in the area of writing (Merrill et al., 1986).

Now, as technology use around the world has expanded over the past two decades, so have the uses for technology in the classroom. Today, students use technology such as iPads, Chromebooks, laptops, tablets, and interactive devices for learning that allow them to explore content and receive immediate feedback on their progress. Over the past 10 years especially, with the addition of technology-assisted teaching, both learners and educators have more options than ever in the learning process. Thus, recent research in using technology in the classroom has led educators to design technology-rich pedagogical techniques to meet the evolving needs of students for a 21st century education. According to the national nonprofit organization, Partnership for 21st Century Learning, such an education is built upon an exposure to and education in life and career skills, learning and innovation skills like critical thinking and communication, media and technology skills, and core subject skills. To ensure students are exposed to opportunities to develop these skills, increasingly educators are incorporating blended learning because environments that promote the ability to create classrooms that are “technology-rich where students and teachers have the tools needed to enact better interactions, inquiry, and feedback” (Brengard, 2016).

Thus, initiatives such as flipped teaching and distance learning are at the forefront of educational technology research, and both have been used in the development of what practitioners refer to today as blended learning (Staker & Horn, 2012). All of these teaching techniques, though, are proving to help students achieve success because they offer educators the ability to differentiate and to offer multiple ways of learning for
different learners at the same time. To understand how blended learning works and its possible benefits over other types of educational technology initiatives, we first need to take a look at some uses of technology in education today, as many of these are components of strong blended-learning programs in K-12 schools around the United States.

Flipped teaching, an example of one technology-enhanced instructional technique that can be used in blended-learning programs and allows for differentiation opportunities, has taught us that students spending more time on task while in the classroom with a qualified teacher and watching or listening to lectures at home to prepare for class, increases overall student achievement (Fulton, 2012). Students practice new concepts with the expert, the instructor, in the room at school, and learn new content on their own outside of class, bringing their new knowledge to class the next day ready to engage in practice with the instructor. Using this approach may allow instructors to more easily differentiate student lessons and pay attention to struggling learners more efficiently (Fulton, 2012). As a result, flipped teaching has become a useful pedagogy for helping learners of varying ability levels attain levels of success they may not see in a traditional classroom.

The difficulties with flipped teaching, however, sometimes outweigh the benefits (Horn, 2013). In order for this pedagogical technique to work, students must have access to technology at home. In 2013, 83.8% of Americans reported having computers at home, and 74.4% reported internet use at home (File & Ryan, 2014). The majority of households with reliable internet reported relatively high incomes and were predominantly white (File & Ryan, 2014). Thus, more minorities and families in poverty
may not have access to the tools of education that make flipped teaching and learning successful. Additionally, students who are underachieving and below grade level may be less likely to complete assigned homework in a flipped program because of a lack of motivation or other home responsibilities that pull them away from the time necessary to complete this type of program. Because flipped teaching relies heavily on the learner to watch or listen to lectures at home or complete assignments on his or her own, and requires a reliable internet connection and access to technology, it is not a perfect fit for every student.

Distance learning is another educational movement that relies on technology to reach students of various backgrounds and ability levels. Although distance learning has some of the same challenges as the flipped classroom, several distance-learning programs have enrolled students in Kindergarten through Grade 12 and tout impressive results. According to the National Center for Education Statistics (as cited in Picciano, Seaman, Shea, & Swan, 2012), with 55% of public school districts reporting having students in distance education courses and 1,816,400 online course enrollments during the 2009-2010 school year, more students than ever are participating in technology-driven educational programs, leaving blended and online learning as a large component of education in U.S. schools today. With the assistance of a virtual teacher via the internet, students participating in distance-learning courses can watch lectures, complete practice activities, take assessments, and complete assignments without ever leaving their homes. To receive credit for their coursework, students meet with a certificated or licensed teacher at scheduled times, but complete the bulk of their coursework away from campus.
While this method of learning is often convenient for the learner, it is primarily used among high school aged students, as it requires the supervision of an adult at home for young learners, such as those in Kindergarten through middle school. Additionally, since learners have almost complete control over the pace of their coursework, this approach also relies heavily on the motivation of the learner to complete coursework. For struggling students, younger students, or for those below grade level, this can be difficult. Additionally, as with flipped teaching, but even more so with distance learning, students can only complete assignments if they have access to a computer with reliable internet at home. Though distance learning does offer convenience, it does not offer the assistance or motivation that an instructor at a school site can offer or the opportunity for socialization and to develop interpersonal skills as is present at a brick-and-mortar site.

When we look at the purpose behind the creation of these special pedagogical approaches, we see they all offer the capacity for differentiation and individualization. They are built upon the belief that students who are able to exert some level of control over the time and pace of their studies, or who are able to work at their individual learning level, may ultimately be more successful learners. To address the abovementioned issues with distance learning and flipped classrooms and to capitalize on the use of technology and the rich technology-based educational programs that exist today, more schools and districts are turning to a blended-learning approach. The focus of this dissertation is to ascertain what levels of success blended schools are attaining and to determine to what practitioners attribute this success.
Problem Statement

Because blended learning can be a viable alternative for students who have not experienced success in a traditional school setting, it is in practitioners’ best interest to study and learn from those achieving success in blended-learning programs to determine what is replicable and may help students at sites that are considering or could benefit from implementing blended learning. It is the researcher’s belief that when blended-learning techniques are integrated into traditional classrooms, teachers can more easily differentiate for students and assess their progress. These benefits can reach students who may have needs that are not addressed in nonblended learning classrooms, such as difficulty with concentration, delayed processing, behavior challenges, or students who work at an advanced pace and tend to get bored or slowed down by whole-class lessons and routines that are common in face-to-face, traditional classrooms. Blended-learning techniques may help tackle some of the other reasons for lack of student success in a traditional school setting as well, ranging from a nontraditional schedule, distractibility, or extreme medical issues.

The main argument for blended learning as a better method for teaching than solely face-to-face instruction is that a typical blended-learning program allows for several students to practice and learn simultaneously, while still experiencing differentiation and targeted instruction at their own learning level. For example, a group of students may be practicing a particular skill using the assistance of laptops or tablets, while the teacher works with a small group of students teaching a particular concept or practicing a particular skill. This set-up and others like it allow students to work at their own pace. Students can do so by completing some work at home on their own prior to
attending class, or by using a technology-based instructional delivery system to replay or reread content as many times as they need to attain mastery. Blended-learning designs can also allow students to work more easily in smaller groups with a teacher than in traditional whole-class settings by allowing for a classroom set-up that includes station work in which one group of students works independently, another practices using technology via an online system, and another small group works with the teacher on a targeted lesson. Technology is necessary for these tasks and classroom practices because it helps instructors organize, alter, and deliver course content to different learners within the same class at the same time—a task that teachers often struggle to master in primarily face-to-face classrooms.

Blended learning can also be a viable option for English Language Learners and students hoping to learn a second language. Though the needs of these two classifications of students differ, blended practices can offer both types of students the chance to learn at their own pace and practice language in multiple ways, thus creating an individualized educational path for each learner. If coupled with the assistance of a highly-trained instructor, this type of learning has the potential to help learners experience success by building on their strengths and addressing their weaknesses, instead of teaching to the needs of the class as a whole, which is what most often occurs in primarily face-to-face classrooms.

Highlighting this claim, in a study of public school students ages 13-14 years old, who used a customized open-source course management system to build vocabulary and assess learning in an English acquisition course, Jia, Chen, Ding, and Ruan (2012) found that vocabulary assessments showed greater gains in courses using a blended approach.
than in control-group courses using a strictly face-to-face approach without the use of technology. In this study involving 16 classes and 768 students, Jia and colleagues (2012) used pre- and posttests to measure student success in this 20-week experiment. Results indicated that although over half of the students were new to this type of learning management system, most did not find it difficult to use, and survey results indicated that students found benefits such as increased concept retention and engagement from participating in the program.

Blended-learning programs are on the rise in the United States. According to the National Center for Education Statistics, 59% of districts in the United States indicated that they had students in courses that used the internet for instruction during the 2009-2010 school year and, in 2010, over 74% of districts with blended learning or online programs indicated that they intended to expand over the next 3 years. Blended learning has gained popularity as families experience the freedom to tailor their child’s education around his or her own individual needs. Research into the topic of blended learning is incomplete, however, because much of it focuses on the interactions and experiences of the educators, and not those of the learners in blended-learning programs, especially those in the primary and secondary school arena. Less research has been conducted to explore the experiences, perceptions, challenges, and academic outcomes of students, especially those in elementary and middle school.

Research has been conducted on how instructors plan and collaborate for blended courses (Carbonell, Dailey-Hebert, & Gijselaers, 2013), as well as on how they choose which activities to conduct through the use of technology and which to conduct face-to-face (Singh, 2003), but this research has mostly been conducted at the postsecondary
level. Additionally, research has not been widely conducted on how these decisions affect student-learning outcomes, such as performance on state tests and course pass/fail rates, or how school administrators help staff make these important decisions.

Furthermore, research has been conducted on learner satisfaction within blended-learning programs (Toth, Amrein-Beardsley, & Foulger, 2010), but it has been conducted mostly at the postsecondary level, not in the K-12 public school arena. Research into successful K-12 programs and the leadership practices and structures that are most successful in blended-learning programs is necessary to see what school leaders can do to lead the charge in creating these successful alternatives to traditional educational paths.

More students are working in blended-learning environments for the first time than ever before (Picciano et al., 2012). As a result, both students and teachers may find themselves facing teaching and learning challenges for which they are unprepared. While colleges and universities have been employing blended learning for several years and collegiate-level instructors use blended teaching methods that fare better learning results than traditional face-to-face instructional methods (Allen, Seaman, & Garrett, 2007), this pedagogical technique has just recently been introduced into K-12 schools in the United States. Still, numbers of blended-learning program participants have been steadily increasing. In 2010, 55% of public school districts had high school students enrolled in blended- or distance-learning programs, almost 20% more than in 2005 (Queen & Lewis, 2011). In 2013, 6.7 million students reported having taken at least one online course, and the current yearly online course enrollment growth rate is 9.3% overall (Allen & Seaman, 2013). The use of blended learning in high schools has already trickled down to middle and elementary schools with forerunners in this field being charter schools that have
implemented innovative programs in attempts to set themselves apart from others and
attain increased learning results. Because more and more high school, middle school,
and elementary-aged students are enrolling and participating in these blended-learning
programs, administrators would benefit from understanding the unique needs of their staff
and students in these blended programs to best serve them at each stage of their academic
careers and achieve desired learning results.

Research in this area continues as the field of blended learning expands. Researchers have looked into teacher perceptions about technology use in the classroom (Palak & Walls, 2009), and student views about their own use of technology in the classroom (Parker & Martin, 2010). Researchers are continuing to research this field to find student and staff views about blended-learning programmatic effectiveness on a whole-school level, and the implications that blended-learning protocols have on student achievement in elementary, middle, and high schools. Research into this subject shows attempts to answer the question of what is the best “blend” of face-to-face and technology-dependent activities to allow students the most growth, and to present replicable programs that can be viewed as best-practice models among schools. Recognizing that this answer may differ for students in primary versus secondary schools, and at the university level, researchers have pointed out certain pedagogical guidelines derived from what practitioners would consider good teaching (in traditional face-to-face classrooms) and have applied them to the administration of blended-learning programs. This attempt is a step in the right direction in this newer area of education. However, it fails to identify common measures of student-success and guidelines for making whole-school programmatic decisions to which that success can be attributed. Again,
While much research has been done at the postsecondary level and in individual departments and classrooms, research into K-12 whole-school practices in blended learning is more difficult to find.

Additionally, while some researchers mention the importance of the role of the administrator in the execution of blended-learning programs (LaFrance & Beck, 2014), few researchers have pointed out what administrative supports are most needed at the primary and secondary level to most greatly affect student-learning success within a blended-learning environment. Several studies have attempted to prove the importance of teacher preparation courses that address technology in the classroom (Duhaney, 2012) and have exposed what teachers feel is most helpful in teaching blended classes (Ottenbreit-Leftwich, Glazewski, Newby, & Ertmer, 2010) but these are individual accounts and experiences from individual classes, not from institutions, and certainly not from school districts as a whole.

All of these issues and discontinuity in blended-learning research may justify the need to further study this area of education. If researchers and practitioners can get a firmer grasp on this new field of education, both can more effectively work to better our online and blended-learning landscape in public education.

**Purpose of the Study**

The purpose of this study is to research practices within classroom-based and whole-school blended-learning programs that school leaders and teachers believe positively impact student success, how these practitioners implement these practices, and how school leaders support and lead the implementation of these structures. The researcher notes that these measures of student success may vary among blended-learning
sites. However, this difference in definition from site to site may shed light on the overarching goals of practitioners in blended-learning programs and help identify the strategies they use to reach them.

**Significance of the Study**

This study will research how blended-learning models may be helping students become more successful and how practitioners believe blended learning both as a classroom model and as a whole-school program can serve as a better way than traditional models for schools to meet the needs of students who require differentiation and assistance.

**Research Questions**

The research questions for this study are:

- In recognized blended-learning schools, in what ways do the blended-learning models, as perceived by administrators and teachers, contribute to their students’ success?
  - To what extent do schools that utilize blended-learning programs attribute their success to these blended programs?
  - How are administrators and teachers of schools that utilize blended-learning models using blended learning to help their students attain success on established outcomes?
  - How are administrators supporting teachers in their use of blended-learning models?
  - How are blended-learning schools measuring student success?
Hypothesis

It is hypothesized that students engaging in blended-learning activities may fare better than those who continue to be exposed to solely face-to-face teaching. Furthermore, the researcher believes that there are specific actions and procedures that school leaders of blended programs may put into place that contribute to the success of their students. The researcher hypothesizes that these students may demonstrate more impressive results on measures of success adopted by the blended-learning programs included in this research.

Objective and Intended Outcomes

The primary objective of this study is to answer the question of how schools that employ blended learning are using blended programs to further student success. This research will also seek to uncover what blended-learning schools are doing to meet the unique academic needs of students enrolled in their programs and how these actions are directly or indirectly related to student achievement. Because students in blended programs have the capability of experiencing differentiated teaching approaches (Means, Toyama, Murphy, & Baki, 2013; Singh, 2003), it would be logical to infer that these students would able to perform better academically because their individual academic needs are being met. Not being hindered by having to keep pace with a classroom of learners who may be above or below their own academic level, students in blended programs have opportunities that their peers in traditional programs do not experience, such as a differentiated academic path and the ability to exert some level of control over the time and/or pace of their studies.
Overview of Methodology

To research this topic, this study will employ a mixed-methods methodology, utilizing data from surveys, interviews, observations, and document analysis to compile findings. Quantitative data were first collected from the administration of surveys to school leaders and teachers. The researcher emailed surveys to administrators and teachers of blended-learning schools with the intent to collect at least 50 administrator responses and 100 teacher responses to gain insights into the beliefs and overall goals of practitioners within these programs. Based on survey data, the researcher reached out to three schools currently using blended-learning techniques to participate in a case study during which the researcher conducted administrator interviews, teacher interviews, observations, and analysis of school documents such as Local Control Accountability Plans and school mission and vision statements. These data were collected and compiled with the intent of publishing in-depth information about what actions practitioners in these schools perceive as contributing to their programmatic and student success.

Rationale for Research Design

This research design is intended to yield results that will highlight successful blended-learning programs and what they do that can be generalized, as well as the leadership supports that school leaders and teachers believe are most useful to teachers implementing these techniques. By studying these types of schools, the researcher hopes to add to the body of knowledge regarding blended learning and the intentional decisions made by practitioners in this field.
Definition of Key Terms

The following terms are defined in the interest of clarity for the purposes of this study:

*Blended Learning:* A teaching pedagogy in which the learner is able to exert some level of control over the time, pace, and/or types of activities that he or she completes within his or her academic program of study via the use of technology.

*Blended-Learning A-La-Carte Model:* A blended-learning model in which students take an entirely online course to supplement learning that takes place at a brick-and-mortar site. Typically, these programs would be used for credit recovery or acceleration for students at a traditional school site.

*Blended-Learning Flex Model:* A blended-learning model in which students learn online, meet onsite with a teacher for some activities, and experience an individually customized program. This type of program is most widely used in nonseat based and independent study schools.

*Blended-Learning Rotation Model:* A blended-learning model in which students rotate among different stations in the classroom. This model is most widely used at brick-and-mortar sites and can be offered to students within a traditional school day program.

*Blended Programs:* Whole-class or whole-school systems that have been put into place that incorporate the use of technology that allows learners to exert some level of control over the time, pace, and/or types of activities that they complete within their academic program, and that provide instruction and opportunities for learners to practice in both face-to-face and online (either synchronous or asynchronous) formats.
**Digital Natives**: A person born or brought up during the age of digital technology and is therefore familiar with computers and the Internet from an early age.

**Distance Learning**: Any K-12 educational program that allows the student to access and submit material via the internet or by using a combination of online and face-to-face methods. While public educational state laws vary on the amount of time that students must participate in learning activities on or off campus in distance learning programs, students in these programs complete the majority, if not all of their work at home via the use of technology.

**Enriched Virtual Blended-Learning Model**: A program in which students have required individual or small group face-to-face learning at times determined by the student and instructor, and complete the rest of their courses at home. This program may have predetermined coursework and/or meeting times set up for students.

**Face-To-Face Teaching**: Refers to the largely employed, more traditional form of teaching in which one teacher is assigned to teach one class of students at a time, usually ranging in size from 15-35 students, and conducts the teaching primarily in person in the classroom through lecture, and/or other various teaching techniques that do not allow the learner control over the time, pace, and/or content of their academic studies.

**Flipped Teaching**: A pedagogical framework in which the instructor assigns students work to complete at home in which they are required to watch a video, or obtain the content being taught or the majority of the content-specific information being taught through reading or through the use of technology. Students are expected to come to school the next day after completing their assigned reading or watching their assigned video and practice the concepts that were taught. The basic rationale behind flipped
teaching is that it allows students the luxury of practicing the skills they have learned in the classroom during the school day with the teacher present and available to help and remediate when needed.

**Individualized Educational Plan (IEP):** Students who have an individualized educational plan (IEP) receive special education services and must meet certain academic targets set forth by an educational specialist and agreed upon by members of the IEP team.

**Lead Education Agency (LEA):** A public board of education or other public authority legally constituted within a state for either administrative control or direction of, or to perform a service function for, public elementary schools or secondary schools in a city, county, township, school district, or other political subdivision of a state, or for a combination of school districts or counties that is recognized in a State as an administrative agency for its public elementary schools or secondary schools.

**Local Control Accountability Plan (LCAP):** The Local Control and Accountability Plan or LCAP is a part of California’s new Local Control Funding Formula (LCFF). It is a 3-year, district-level plan that is updated annually that describes the school district or LEA’s key goals for students as well as the specific actions with expenditures the district will take to achieve the goals and the metrics used to measure progress.

**Local Control Funding Formula (LCFF):** The local control funding formula was enacted in 2013 to replace the previous Kindergarten through Grade 12 finance system that had been in existence for about 40 years. The LCFF establishes base, supplemental, and concentration grants in place of previously existing K-12 funding streams, including revenue limits, general purpose block grants, and other categorical programs.
Traditional Learning Pedagogies: Instructional practices that rely on purely face-to-face interactions between the instructor and the learner(s), and in which the teacher is the main provider of instruction and content, and the delivery of instruction occurs primarily within the school day and/or designated class period.

Traditional Schools: Refers to the term given to schools that employ traditional teaching techniques and programmatic structures most often seen in the majority of educational institutions in the United States.

Organization of the Dissertation

Chapter 2 of this dissertation includes a review of the literature related to blended learning. The researcher would like to note that, although the majority of literature published on this topic is couched in postsecondary education, some of the results may be extrapolated to secondary or primary educational programs. Chapter 3 presents the methodology that will be used in this study, including descriptions of the participants, the research tradition and tools employed, and methods for collecting data. Chapter 4 describes the results of the research, and Chapter 5 describes its implications for practitioners and educators.
CHAPTER 2—REVIEW OF LITERATURE

Introduction

The purpose of a K-12 education is to prepare students to become college and career ready. Since technology has become an ubiquitous force in our lives, this means that schools must prepare students for a 21st century, technology-rich world (Marsh, 2012). With the rise of technology in both the workplace and in schools, and with the appeal of the autonomy that blended learning can offer, the number of K-12 students enrolling in both online education and blended-learning programs is growing (Corry & Carlson-Bancroft, 2014). With educators working to close achievement gaps among underachieving students, within the past decade blended learning has become an answer for meeting the needs of 21st century learners.

Today, the use of technology and online learning at school and in the workplace has become commonplace. Not only has knowledge become decentralized from classrooms and schools, but, in addition, more people now create identities for themselves than ever before based on social media platforms and through online communities (Greenhow, Robella, & Hughes, 2009). “Blended learning research, although relatively new, is related to both educational technology research and distance education research” (Graham, Henrie, & Gibbons, 2013, p. 13). While several researchers have defined blended learning in various ways, and while recent research in blended and online learning focuses on emerging technologies and students’ learning aptitudes, few studies have explored the impact of blended-learning environments on authentic human learning and how school leaders today can harness this technology to best educate students. More research is needed in how students fare in blended-learning...
programs with particular focus on varied levels of learning outcomes, such as facts, concepts, comprehensions, and problem solving skills (Chen, 2012).

A review of the literature on blended learning begins with establishing a definition of blended learning, followed by definitions of its precursors and their assorted applications. Purposes and applications of blended learning are presented, as well as modifications made by practitioners to this pedagogical approach within the past decade. Next, adaptations for various types of students will be presented, followed by researched methods to develop a personalized blended-learning education plan in ways shown to increase student outcomes. This is followed by required programmatic structures for success, and, finally, an exploration of what the duties of administrators of blended-learning programs are, along with expected cautions and what practitioners can do to facilitate the success of students and teachers at blended-learning school sites. As this review of the literature suggests, blended learning is an emerging field of study, and one that offers us insights into how to best address the needs of our 21st century learners.

**Definitions of Blended Learning**

The first commonly accepted definition of blended learning was that it is a pedagogical approach that blends computer or online-learning activities with face-to-face instruction provided by an instructor (Staker & Horn, 2012). This type of approach may allow students higher levels of autonomy, relevance, and connectivity, which are important to 21st century learners (Lemley, Schumacher, & Vesey, 2014). With the focus on the student and his or her particular needs and skill development, “blended-learning technologies can help . . . by enabling teachers to create lessons for both inside and
outside the classroom that benefit the student, helping them to become a fully functioning
global citizen” (Jimison, 2011, p. 67).

While research in this area is still new, several current theories offer more
extensive definitions of and classify specific learning actions within blended-learning
programs. Picciano (2009) stated that blended learning can take on many configurations,
but that all must employ both face-to-face and online instruction that includes content
delivery, social/emotional engagement, dialectic questioning, synthesis of information,
and some form of collaboration. Additionally, Alonso, López, and Manrique (2005)
deefined an instructional model for technology-assisted teaching that named seven aspects
of learning and teaching. They stated that instructors of blended-learning programs go
through several phases while teaching students using technology or web-based
instructional methods: analysis (of the learning task), design (of the learning process, or
lesson), development (of concepts), implementation (creating lessons), execution
(interacting with the learner via the online portal), evaluation (of learner’s progress and
data collected during lessons), and review (with the intent to refine the learning process
for subsequent lessons). Finally, Jimison (2011) described blended learning as
instruction in which traditional teaching is mixed with digital learning and contains five
stages of teaching and learning: engagement, exploration, explanation, elaboration or
extension, and evaluation.

Although there are many definitions of blended learning in research and
educational publications, Staker and Horn (2012) have published a widely-accepted
definition of the term that describes a crucial element of blended learning: the ability of
the learner to exert some level of control over the time (learning is not restricted to the
school day or the school year), place (learning is not restricted to a classroom or single school location), path (learners use adaptive technology or can choose from a menu of activities to demonstrate content mastery), and/or pace of instruction (learning occurs at the learner’s own pace, not that of a classroom comprised of multiple learners). In true blended-learning models, “learning is no longer restricted to the pedagogy used by the teacher. Interactive and adaptive software allows students to learn in a method that is customized to their needs” (Staker & Horn, 2012, p. 6).

Building upon this widely accepted definition of blended learning, Taylor and Newton (2013) surveyed 3,386 students from various degree programs enrolled in blended-learning courses at eight different colleges, as well as 39 faculty members and 10 support staff members. When asked about their perceived responsibilities as faculty members and support staff, respondents replied that their goals were to create a range of delivery designs for learning opportunities, to strengthen their teaching pedagogies, to allow for equity in content delivery despite students’ geographical location, and to provide a flexible course delivery model in a responsive 21st century program (Taylor & Newton, 2013). In analyzing response data, researchers asserted that a successful blended-learning model must have the following: clear directions created by thorough planning from instructors, analysis and clear understanding of the technology needs and skills dictated by the chosen program(s) to meet learning needs, the development of a streamlined and seamless content delivery process, and reliable teaching technologies (Taylor & Newton, 2013). Through this study, researchers made clear that the goals of blended-learning courses often focus on both the learning task and on the needs of the individual learner.
It is important to note that there are two types of online learning that can take place using a blended-learning approach: synchronous and asynchronous. Synchronous online learning occurs when multiple students engage in the same learning activity at the same time (facilitated by an instructor in real-time), but in separate locations. Asynchronous online learning takes place when a student uses a previously created program or learning activity (without an instructor present as an active moderator) in which he or she has some level of control over the time and/or pace of the activity. One or both of these techniques may be used within a blended-learning program.

Related to blended learning, and often confused with it, are several other types of technologically advanced pedagogical approaches such as flipped teaching, technology-rich instruction, and online (also known as distance) learning. Flipped teaching is an instructional model in which students experience a portion of their learning at home or on their own, and spend the majority of their time in class practicing with the aid of an instructor. Steed (2012), author of “The Flipped Classroom,” describes flipped teaching as a classroom model that involves the teacher delivering the “taught” element outside of the classroom. Students complete this element of their learning prior to attending the lesson. This allows the teacher to spend more one-on-one time with students consolidating their learning and allowing them to more quickly progress to more challenging tasks (Steed, 2012).

This instructional model has gained popularity over the past decade because it allows teachers to more successfully differentiate for the oscillating needs of various learners in their class by allocating classroom time for practice, individualized small group work, and one-on-one instruction or remediation rather than whole-group
instruction in which students must all move along at the same pace (Steed, 2012). Successful flipped teaching, however, largely depends on students’ abilities to self-regulate their learning at home while watching the lessons prepared by the teacher, as well as access to the internet at home, which not all students have (Horn, 2013). Flipped teaching is one particular brand of digital learning and may be one component of a blended-learning program, but on its own may not be a viable solution for unmotivated students or students without access to technology in the home (Horn, 2013).

Technology-rich instruction is another pedagogical technique that has gained momentum with the incorporation of technologies such as computers, smart boards, tablets, and iPads into daily classroom activities. The purposes for technology use in the classroom can vary greatly from the use of an online learning program for practice or skill assessment to creating interactive lessons with students in which learning and synthesis occurs through completing a finished product, such as a power-point presentation or a webpage. In the technology-rich classroom, students use and interact with computers and/or tablets, but the main portion of their learning and/or the teacher’s lesson is still conducted in the classroom face-to-face during regular class time. The amount of time spent on technology and the type of technologies used to enhance the educational experience depends on the individual teacher and his or her level of comfort and expertise with using technology tools (Heilesen & Josephsen, 2008). In a blended-learning program, however, the technology and educational tools used should be intentionally planned to meet the needs of the learner and be highly differentiated for each individual.

Technology-rich instruction is helpful to some, but still may lack the cohesiveness of a purposeful blended-learning program. Additionally, if program success depends on
the individual strengths of the teacher as opposed to the cohesiveness and structure that goes into a thoroughly-planned blended-learning program, students may not be any better off than in a purely face-to-face classroom. Through observing and interviewing students and instructors in three different semester-long technology-rich chemistry courses at Roskilde University in Denmark, researchers found that the adoption of information and communication technology in the classroom depended on factors involving the “world-view and sense-making of the individual” (Heilesen & Josephsen, 2008, p. 525). This study indicated that students may be more successful in blended-learning courses when instructors offer guidance on how to use the technologies students have available for learning and how the learning that takes place online relates to their every day lives. Thus, connecting learning to real world experiences through a cohesive and purposeful program may be the best path for learners. The question that this research raises is how can schools begin the process of purposefully integrating technology into a program to blend the best of face-to-face teaching and online resources?

According to Inan and Lowther’s (2009) research in 54 Tennessee Title I and II K-12 schools, teacher’s readiness had the highest effect on the integration of technology in the classroom, followed by teachers’ demographic characteristics (such as number of years teaching and level of education). Through administering a teacher technology questionnaire to collect teacher perceptions of computers and information technology integration to 1,382 teachers in Tennessee K-12 schools and collecting data on state testing, Inan and Lowther asserted that in the technology-rich classrooms they studied, because teacher use of technology varied with each individual, there was little empirical evidence that student access to technology enhanced student learning or improved the
quality of instruction. Technology-rich education may help some students but cannot be effectively measured and may vary from site to site.

Online education, also known as distance learning, provides students the opportunity to take courses online rather than attend a brick-and-mortar school. This type of coursework might often be completed by students participating in home-school programs or students in need of a more flexible school schedule. Online courses may be taken from a variety of accredited schools and only require students to check in with an instructor occasionally. However, students must carefully consider this instructional approach before enrolling in a distance-learning course, as face-to-face contact with an instructor is mainly limited. As Tamim, Bernard, Borokhovski, Abrami, and Schmid (2011) found through conducting a meta-analysis of 37 empirical research studies in blended learning (after vetting 429 articles), technology that supports education (such as programs that reinforce skills through practice or repetition) had a higher correlation to student learning success indicators than technology that provided the primary mode of instruction. Thus, a program that incorporates online practice with individualized face-to-face instruction may help students achieve more impressive results. While these approaches may be used in a blended-learning model, they do not constitute a blended-learning program. Blending one or more of these approaches with face-to-face or traditional instructional techniques is the optimal arrangement to maximize learning results.
History

The One-Room Schoolhouse

A look into the historical contexts of teaching and learning reveal several components of traditional learning theory that can possibly be expanded upon through using a blended-learning model. Before the use of computers in the classroom, teachers solely used textbooks and print materials to teach content. Students read the textbook at home or in class, the teacher lectured the class on specific points that were of particular importance, and students were responsible for retaining the information presented. Students demonstrated their mastery of concepts presented by the teacher through performance on tests, essays, and projects. Learning took place largely on an individual basis and information delivery primarily flowed in one direction: from the teacher to the student.

Integration of Collaboration and Inquiry

As time passed, and learning theorists began studying the effects of socialization on the learning process, the educational community adopted a new pedagogical approach: collaborative learning, which allowed students, often of varying ability levels, to interact with one another while engaged in a learning activity, often creating a common product that represents the efforts of each student, as well as the efforts of the group as a whole. With this, pedagogical changes were largely associated with student-centered learning outcomes (Kalmbach, 1996). Within this approach, students were encouraged to work together to solve complex problems. Inquiry-based learning, in which students were allowed to use critical thinking skills to discover content through guided questioning and exploration, began to emerge and students became discoverers of information instead of
just recipients. Learning became an exchange between students and teachers, and information delivery flowed back and forth between students and the teacher. Just as collaboration among students had produced increased academic results over the years, now the power of collective learning has been harnessed along with technology so that collaboration and higher-order thinking skills can also be enhanced through a more individualized approach, such as in blended learning. Highlighting this idea, through collecting achievement data on 40 fourth and fifth grade students and measuring critical thinking levels through linguistic analysis during interviews, Simpson (2010) found that students who participated in online discussions about their work demonstrated a higher critical thinking level in those online discussions than in face-to-face activities.

**Learning Needs of Students Today**

Today, learning environments that are most successful are those that focus on the delivery of differentiated curriculum. A curriculum that can be diversified for the needs of all students in a particular class or school is important because it enables each student to work toward individual measures of success. The ideals of differentiation address the learning levels of all students, and with a focus on collaboration to prepare students for the demands of the 21st century workplace, technology-based teaching methods have emerged as a way to target individual skills. Via technology, educators can purposefully incorporate inquiry-based learning and collaboration into educational programs with the use of tools such as wikis, websites that allow collaborative editing of content so students can collaborate either virtually or in person using internet-based tools, and other exploration-based programs, without compromising instructional delivery for the class. Just like the introduction of typewriters into the classroom in 1929 to improve student
interest and ability in writing (Kalmbach, 1996), teachers today look to technology to enhance student learning. Additionally, since teachers need to provide individual learning experiences for all students, and it is difficult to do so on their own with multiple students at once, technology has emerged as the predominant assistance tool used to both streamline and differentiate education for students. Consequently, using a pedagogical approach that includes technology use to differentiate for the individual student along with face-to-face instructions can maximize learning time and cut down on student passivity, as well as time in class wasted on operational activities, such as note-taking, grading, and offering feedback (Flumerfelt & Green, 2013).

**Blended Learning as an Innovative Pedagogical Approach**

Blended learning today can be used for several aspects of teaching and learning. Often, students prefer blended techniques because they offer immediate feedback, which can help them assess their own learning and set a path for improvement. Borup, West, and Thomas (2015) found through studying text versus video assessment and feedback, that students preferred the efficiency of individualized video feedback instead of feedback written by the instructor on the assignment because it helped them narrow the gap between their current level of performance and desired level or performance on assessments and writing assignments. By interviewing and administering scaled survey questions to 30 university students and 9 university instructors asking them to compare video feedback with feedback received through writing, researchers found that feedback via recorded video was more supportive and tended to be longer in length, thus offering students more insights into their strengths and ways in which to improve (Borup et al.,
This example of differentiation is one type of individualized feedback and can offer students more specificity when working toward improvement.

**Current Uses**

Research into blended learning is most abundant at the postsecondary level primarily because this is where blended learning has been used for the longest amount of time thus far. Since blended-learning’s introduction to education, colleges and universities have been on the frontline of adopting emerging technologies to meet the needs of diverse learners across geographical barriers (Chan, 2010; Lam, 2014; Lee & Dashew, 2011; McKeown, Banerjee, Madaus, & Gelbar, 2014; Parker & Martin, 2010; Toth et al., 2010). Blended-learning programs in higher education offer students differentiated instruction and more autonomy so that, by having some level of control over time or pace of content delivery, students can learn more efficiently. Additionally, “the current environment in higher education requires the consideration of online technology in confronting a number of issues related to teaching . . . blended-learning increasingly is seen as one of the important pedagogical approaches that can help in this regard” (Picciano, 2009, p. 9). Since educators at colleges and universities have been working with blended programs for years, exploring the use of blended learning in postsecondary education may provide insights into best practices for blended-learning schools at the primary and secondary education levels, where research is scarce.

Some best blended-learning practices for K-12 education may be gleaned through looking into blended-learning successes in colleges and universities. In creating what researchers referred to as an “E-Toolbox” for online learning (a model for effective learning via the use of online resources), McKeown and colleagues (2014) surveyed
faculty members of a first-year blended-learning model at the collegiate level and found that while a lack of face-to-face interactions posed complications, online learning increased instructors’ ability to assess students, to provide meaningful feedback, and to guide student participation. By eliminating the need to confine learning, coaching, and assessment to class hours, instructors of blended-learning programs were able to specialize their feedback and instruction for individual students, thus minimizing unconstructive class time spent on attempting to generalize feedback and content delivery for an entire class.

In addition to personalized assessment, feedback, and coaching, practitioners in higher education have learned to support students with online-learning technologies to improve class participation and combat low attendance rates (Chan, 2010). Through surveying students in Melbourne, Australia regarding the use of Blackboard, an online learning portal to manage and provide learning experiences for college students, Chan (2010) found that technology can offer an online learning environment where staff and students feel comfortable to discuss and collaborate and participation is not contingent upon attending a regularly-scheduled class. For students whose busy lives are not compatible with physically attending class every day, using technology to create a hybrid between face-to-face learning experiences and online content can increase the likelihood that students will complete coursework.

Furthermore, asynchronous learning in particular can provide students as much time as they need to access material, study, reflect, and complete assignments because they have access to course materials both at home and at school (Toth et al., 2010). Calderon, Ginsberg, and Ciabocchi (2012) found that students both prefer the flexibility
of blended-learning courses, as well as the increased opportunity blended learning offers them to interact with both their peers and instructor through discussion boards. By surveying and interviewing 24 university administrators and 24 university faculty members teaching 37 blended-learning courses throughout the course of one academic year and 107 of their participating students, researchers found that although students did struggle more with time management and work-load in blended-learning courses over traditional face-to-face courses, they found that the course materials in the blended courses they took were organized and of high quality, as well as overall helpful (Calderon et al., 2012).

In order to create truly meaningful learning experiences through a blended-learning format, however, some researchers argue that not all technology-based teaching methods are right for all learning situations (Lee & Dashew, 2011). At the core of blended learning is the ability to differentiate for the individual learner. Thus, considering each learner’s situation and needs can help guide instructors and administrators overseeing blended programs toward creating the most beneficial curricula for their students.

In looking at a blend of various teaching techniques using technology within higher education courses, Lee and Dashew (2011) presented a model for conceptualizing course redesign efforts by focusing faculty members in charge of blended courses in three areas: learner-content interactions, learner-instructor interactions, and learner-learner interactions. All activities within a blended learning program rest within these three areas and should be paired frequently with one another for students to successfully access information, analyze, and contextualize it to meet the learning goal (Lee & Dashew,
2011). Through emailing surveys and digitally recording responses from faculty members at 14 colleges and universities who were taught to redesign their teaching techniques using blended-learning methods to make courses more interactive and student-centered than their traditionally taught courses, researchers found that by approaching learning through the context of meaningful interactions between students and faculty members via online discussions and internet-based activities, instructors could promote deeper thought and more meaningful interactions among students in a blended environment (Lee & Dashew, 2011). In addition, Toth and colleagues (2010) found that using technology to deliver coursework also helped instructors by enabling them to use a hybrid of online and in-person content delivery to provide more prompt feedback and develop a respect for students’ diverse talents and ways of learning.

**Learner-Content Interaction**

Within blended learning models, opportunities exist for learners to interact with academic and subject area content in a variety of ways. Repetition, practice, inquiry, writing, video conferencing, auditory and visual input, note-taking, and self-assessment are just some of the ways in which learners in blended programs interact with the content they are learning in online formats. Ideally, these technology-based interactions are then coupled with face-to-face interactions with the instructor and/or content in ways that enhance opportunities to make connections to prior learning, engage in critical thinking, and information retention.

**Learner-Instructor Interaction**

As seen in several empirical research studies, students who participate in blended-learning courses experience better outcomes than those in purely online courses and just
as good or better outcomes as those in purely face-to-face courses. This is due to the fact that learners experience a hybrid of face-to-face instruction from a teacher and technology-driven instruction and practice online. The result is a more differentiated course of study than in other models. The instructor is able to plan for and tailor his or her interactions with the learner to maximize productivity and learning, often based on prior performance, while interacting with content via technology. Interactions between learners and instructors are highly differentiated and student-centered.

**Learner-Learner Interaction**

Critics of blended learning cite a lack of collaboration and peer interaction as a downfall of blended learning. Thus, practitioners in blended-learning programs are finding new ways for learners to interact with one another in meaningful, content-driven ways to enhance their learning and build online communities to enhance the learning experience for students. Peer interaction in blended-learning programs can enhance students' critical thinking skills and increase learner satisfaction with their online learning experiences. Online platforms such as shared workspaces that allow students to collaborate on work (google, wikis, etc.), online discussion platforms, chat rooms, and audio or video conferencing are a few of the tools educators use to facilitate interactions among learners in a blended environment. In his study of 93 third graders participating in blended-learning and online programs, Chen (2012) found that students learning in blended environments performed significantly better when asked to recall facts and information. Students in the study all accessed the same material, but were split into three groups for their learning activities: one that included independent online learning only, one that included online learning and peer-to-peer interactions, and one that
included online learning and peer-to-teacher interactions. After analyzing pre- and posttests, Chen found that students who had access to interact with their teacher or peers performed significantly better than those who only access online material independently. This study helped demonstrate the possible learning augmentation that can occur when students are able to interact with one another as learners to enhance their learning experience.

Rationale for the Use of Blended Learning

Blended learning is on the rise due in part to the fact that technology has almost fully permeated all aspects of our lives in the United States. Today, children learn how to use technology at young ages and are accustomed to using it for everyday tasks. It would make sense that this same technology that students use in their personal lives be utilized for improved instruction in their academic lives. The term “digital native” has been coined by many researchers to illustrate the ease with which today’s students access technological tools. Unfortunately, many times, there is a mismatch between the technological access or knowledge of students and the extent to which instructors use technology to enhance learning experiences for their students.

Focusing on this topic, Gallardo-Echenique, Marques-Molias, Bullen, and Strijbos (2015) performed a review of literature including 127 research studies in an attempt to categorize learners today and their attributes. After clustering texts into 48 themes, researchers found that students today can be categorized as “digital learners,” meaning they are able to access technology for learning easily because they have been exposed to technological tools for most of their lives. Gallardo-Echenique and colleagues report that students are not “digital natives” because they are not necessarily born with the ability to
use technology or are predisposed to its use, but rather have learned how to use it in their everyday lives and, as a result, are able to seamlessly integrate technology tools into their learning and academic studies. This research contributes to practitioners’ knowledge of the students with which they are working and can help guide instructors as they begin the practice of planning lessons and learning in blended programs that will best suit the needs and learning styles of the “digital learners” they teach.

To further illustrate the comfort with which students are able to use technology in academia today, Ting (2015), conducted a mixed-methods study with 36 students (3 seniors and 33 juniors) enrolled at an engineering course at a vocational school. Students were presented with a project to complete that required collaboration and research. During the course of completing the project, students were surveyed and reported using Facebook and other social media sites to collaborate and pose questions to one another, and web-based research tools to find information (Ting, 2015). When surveyed about their knowledge of multi-media tools though, students responded negatively, demonstrating that they did not know the detailed applications of the internet-based social media and research tools they were using. However, students still used the tools with ease, indicating that, because they had integrated them already into their daily lives, students had a great deal of knowledge about multimedia tools without having knowledge of their related technologies and theories. Thus, these students could be considered digital natives in that they naturally and instinctively used technology for socializing and learning (Ting, 2015). Instructors of students who can be categorized as digital natives, or students who innately use technology in their everyday lives, may benefit from this research because it demonstrates the comfort and ease with which
students access technology for learning. Therefore, guiding students through their learning using technology-based tools could lead to better learning results. Furthermore, re-analyzing traditional teaching methods and technology-based techniques could lead to more intentional decisions about when to best incorporate technology into blended-learning experiences for students.

**Applications of Blended Learning in K-12 Education**

To research the possible benefits of using technology to augment learning, researchers in Oakland, California collected data from four middle and elementary schools within the Oakland school district that had received grants to implement blended learning at their sites for the first time. All four schools were located in low socioeconomic areas and served students who lived in neighborhoods that experienced high crime rates. Funded by Education Elements, a company that creates and manages personalized online learning tools, the project required teachers to spend at least an hour a week collaborating and going through trainings, and supported instructors as they implemented a blended-learning model in classrooms in which students rotated through learning stations. Survey data collected showed that 70% of students were found to be “highly engaged while using the digital content” (Jacobs, 2014, p. 40), reading levels among fourth graders rose, and sixth graders outperformed the district’s average on the 2013 California Standards Test. In this particular 2-year study, blended learning showed to positively impact student interest and achievement.

As blended-learning pedagogies continue to expand in K-12 schools, educators are finding that these types of programs can fit the needs of traditionally underserved students and those who are not successful for a multitude of reasons in more traditional
educational institutions. Through the use of technology-based programs in blended-learning schools and classrooms, educators are able to customize curriculum for the unique needs of their students. The question is, do these programs offer more successful outcomes than those in more traditional settings?

Light and Pierson (2014) studied educators and students as they implemented a blended model for the first time at their school site. Through observing 25 math lessons in fourth through twelfth grade classrooms with the use of an observation guide to note student interactions with the program they were using and their reactions to it, as well as the actions and reactions of the instructors while teaching, Light and Pierson found that using Khan Academy (an online instructional delivery site in which the user watches short videos on a topic of their choice and engages in learning activities afterward) as the primary instructional delivery tool in fourth through eighth grade classrooms allowed students to work on tasks that were appropriate to their ability level regardless of their grade level. This helped students master more skills (as indicated through standardized assessments) and concepts than before the use of the program as they moved along the prescribed continuum at their own pace. Light and Pierson also found, through observations, that students spent more time on task when using the online program in the classroom and seemed more engaged than when engaged in solely face-to-face class interactions.

Through conducting a meta-analysis of over 1,000 technology and teaching studies, Tamin and colleagues (2011) found a small positive effect of technology in the classroom and e-learning activities over traditional classroom teaching without the use of or with minimal use of technology. Moreover, Lin (2007) surveyed 46 students in
preservice teaching programs who took an introductory course on technology integration in the classroom in three course sections at one university. Findings revealed that students felt a blended method accommodated individual learning styles more effectively than a purely face-to-face course, and that asynchronous discussion boards allowed students the ability to construct their responses before sending them to the group, thus enhancing the depth and thoughtfulness of their responses (Lin, 2007). Survey results also indicated that students felt the blended-learning format helped develop reciprocity and cooperation between colleagues and instructors, encouraged active learning, allowed instructors to give prompt feedback, emphasized time on task, held students to high expectations, and allowed faculty to show that they valued the diverse talents and learning styles of students (Lin, 2007).

Ellozy (2010) studied the practice of e-mapping (a graphical technique for taking notes or digitally representing thoughts in a visual manner) by surveying 70 students enrolled in three 100-level scientific thinking blended-learning courses at the university level. After collecting data over the course of two semesters, Ellozy found that students reported reading the assigned text more often before class in order to complete the digital map, which led to more in-depth class discussions. This study shows the possible impacts of using technology to enhance learning, and, more importantly, how technology can enhance the face-to-face interactions students have with their peers and instructors. Practitioners in K-12 institutions would benefit from viewing results from techniques such as these to develop blended programs for children in primary and secondary schools.
Blended Programs in K-12 Schools Today

The more technology becomes a driving force in our lives, the more it will be used to enhance educational experiences for students. Harnessing its ability for teaching and learning, instructors are using computers and tablets in new and innovative ways to enhance student success. In a meta-analysis of effective components of blended-learning course activities among learners ages 13-44, Means and colleagues (2013) found that, on average, students exposed to some type of online learning conditions performed better in classes than those just receiving face-to-face instruction. Means and colleagues stated that the cause for this could be due to the fact that many of the programs included in the analysis provided additional learning time, differentiation, and interaction among learners using technology. In an effort to expand students’ options through blended learning, today, educators at K-12 schools using blended models are looking for ways to improve learning processes for students and create school-wide structures for student success. Often facing a myriad of obstacles including funding, legislation, and an overabundance of diverse and challenged learners at their doorsteps, public schools must be innovative to not only differentiate and adapt curriculum for students, but to help students thrive in a changing 21st century environment.

Various content areas and age considerations may dictate what activities students encounter in blended-learning programs. Kenney and Newcombe (2011) conducted an action research study to determine the most easily digitized and most helpful activities used in a blended-learning format. They stated that the blend of learning activities will continue to foster content delivery via an online platform in an asynchronous environment with face-to-face interactive, higher-order learning activities that compliment and
reinforce content. Focusing on five areas of student experiences in a blended course (ability to improve learning, ability to increase engagement and involvement, tendency to prepare students for course demands and cognitive load, tendency to prepare students for face-to-face portions of class, and ability to increase overall interest in course material), Kenney and Newcombe surveyed and observed university students and found that 77% stated that the blended course format contributed to their overall learning. Additionally, 84% stated that the online assignments contributed to their learning and 59% stated experiencing an increased interest in course content (Kenney & Newcombe, 2011). When discussing the right blend of activities to most efficiently and successfully assist students in a blended program, researchers stated that the blend will continue to be learning course content online and using class time for interactive, higher-order learning activities that compliment and reinforce the content (Kenney & Newcombe, 2011).

Schools with blended programs often create learning experiences for students that specifically target desired learning goals through purposeful course design. Though these teaching techniques are still newer to the educational arena, blended-learning researchers state that instructors can start with what is known about effective teaching and learning when designing blended-learning instruction and incorporate varying methodologies pertinent to the learning situation (Kenney & Newcombe, 2011; Mason, 2005).

Innovations in K-12 learning with the use of technology demonstrate that blended learning is more than just an offer of more flexibility for students, but rather a purposeful restructuring of learning experiences to support authentic learning (Launer, 2010). These blended-learning programs have the ability to address the needs of students who are at risk of falling behind grade level through a student-centered pedagogy that allows
students to become self-reliant through asserting some level of control over their own learning (Muir-Herzig, 2004). Effective blended-learning programs are using technology to help students collaborate and increase their depth of understanding in different content areas. As Singh (2003) stated, online learning has changed from accessing online content similar to content offered in face-to-face lectures, to interacting with the online content and using it in such a way as to increase the effectiveness of the learning experience.

**Ingredients for a Successful K-12 Blended-Learning Program**

To create a successful 21st century blended-learning program in the K-12 public school arena today, educators are looking for ways to increase the use of higher-order thinking skills and inquiry through the use of technology. This can be done through purposeful planning and insights into what technologies can be best used to satisfy these pedagogical requirements. In a mixed methods comparative study to find out how technology affects students, Shapley, Sheehan, Maloney, and Caranikas-Walker (2011) conducted research over the course of 3 years on a one-to-one laptop initiative in Texas public schools. By collecting data from both control groups and treatment groups (with 42 schools total participating in the study), researchers administered pre- and posttests to students and collected data through surveys to monitor the extent to which skills and learning opportunities were augmented by the use of technology. Shapley and colleagues found that with technology integration into elementary, middle, and high schools, students received fewer disciplinary infractions and had slightly higher performance levels than those schools without technology. Although attendance tended to be lower in the technology-rich schools, learner-to-learner interactions and collaboration was higher
and students reported participating in a wider range of activities than at the control schools without technology-based programs (Shapley et al., 2011).

In an overview of successful blended and technology-rich programs, Launer (2010) stated that there are several components that go into a successful blended-learning program and that it all starts with the self-study phase. Through this meta-analysis of blended programs, Launer found that students in the self-study phase of the learning continuum tended to demonstrate higher learning outcomes because they were able to more thoroughly learn content as they read and progressed at their own pace. Individualized learning such as this can create a more authentic learning environment in which the learner is interacting with the content instead of acting as a passive learner, as they may in a classroom full of various students all receiving the same lesson at the same time and in the same way (Launer, 2010).

To create this type of blended-learning program, one in which students’ individual needs are met through well-planned pedagogical decisions and program-design using a hybrid of technology and face-to-face instruction, school leaders must raise awareness of the benefits of blended-learning approaches with stakeholders (Garrison & Vaughan, 2013). Through observations of students and educators participating in a first-time hybrid program in three sections of chemistry and communications courses at Roskilde University in Denmark, Heilesen and Josephsen (2008) found that successful implementation of blended-learning programs depends on both systematic factors and positive perceptions of students within the program. Furthermore, the researchers stated that practitioners should appreciate small changes and take into account the fact that all
participants, students, and instructors alike, need extensive training and support (Heilesen & Josephsen, 2008).

Creating successful blended-learning programs also, in part, depends on professional development that leads to long-lasting and meaningful change in schools that use primarily traditional face-to-face teaching methods. Palak and Walls (2009) studied the relationship between teacher beliefs and their instructional practices with using technology in the classroom. The researchers found that teachers were only successful in bringing in new technological supports and techniques to enhance their teaching after participating in professional development that specifically addressed creating student-centered lessons and activities (Palak & Walls, 2009). By surveying 138 instructors, with 113 respondents in grades Pre-K through 12, and observing classroom lessons, interviewing students, and analyzing lesson plans, researchers found that professional development, over access to an abundance of technology, had a larger effect on teachers’ instructional practices (Palak & Walls, 2009). Teachers, who took surveys during the course of this study: the inventory of philosophies of education and the perceptions of computers and technology survey, stated that the most important factors that facilitated changes in their pedagogies was their own confidence in using technology and their understanding of how technology can be used to integrate student-centered structures into their classrooms, such as project-based learning and cooperative learning (Palak & Walls, 2009).

In addition to meaningful professional development that demonstrates how technology can be used to drive student-centered learning, other crucial elements in instituting blended learning into traditional classrooms or schools include a context for
the change, a sense of urgency, financial support, collaboration, and a catalyst for change (Carbonell et al., 2013). In their study that included five administrators, one student, and 13 faculty members, researchers interviewed participants about their school’s leadership, climate, and teacher collaboration (Carbonell et al., 2013). They found that an incremental, bottom-up change process can best facilitate changes toward blended-learning practices (bottom up change refers to decision-making power about school changes being given to teachers rather than being made by administrators) and can lead to the development of blended-learning programs that best match the needs of students and faculty (Carbonell et al., 2013). In addition, research also points to teacher beliefs about technology and its uses in the classroom as factors that contribute to their use of technology.

In surveying and interviewing 12 teachers in K-12 classrooms, Ertmer, Ottenbreit-Leftwich, Sadik, Sendurer, and Sendurer (2012) found that teacher beliefs and attitudes about using technology were the strongest barriers to implementing a blended-learning program for the first time. Researchers found that in order for teachers to see value in learning how to integrate technology into their classrooms, they would benefit from second order changes (Ertmer et al., 2012). Second order change, such as implementing blended learning into a traditional school system, can be brought about through extensive, well-planned professional development and collaboration.

**Leadership in Blended-Learning Schools**

At the forefront of blended-learning programs that have the capacity to innovate education for students are administrators and educational leaders. Because educational leaders have such a high level of influence over program quality and innovation in
schools, whether they are blended learning schools, virtual schools, or traditional brick-and-mortar campuses, it is crucial to hire school leaders who are experts in the digital learning field and who are trained to create and maintain productive blended-learning programs for K-12 students. There is not an abundance of research in this area, however, and few administrative credential preservice programs in the United States offer experience in digital learning systems or blended-learning programs, leaving administrators of these innovative programs largely unequipped to handle the demands of such a developing area in education.

To guide work in this area, the International Society for Technology in Education (ISTE) created a set of standards for administrators in an effort to help develop leaders who are able to meet the demands of leading schools in the digital age. These standards are based on standards established in the widely accepted Interstate School Leaders Licensure Consortium (ISLLC, n.d.) standards that were developed by the Chief State School Officers and the National Policy Board on Educational Administration. The International Society for Technology in Education (ISTE, 2017) standards, though fairly new and only adopted in nine states so far, explain how leaders can maintain successful school programs. These standards are:

1. Visionary leadership
2. Digital age learning culture
3. Excellence in professional practice
4. Systematic improvement
5. Digital citizenship.
Anderson and Dexter (2005) make an argument for adopting technology standards for school leaders. In researching a study conducted in 1998, they point out several administrator actions that have a positive impact on successful technology integration in schools, including the principal spending at least 5 days each school year planning for technology, garnering district support for the integration of and training for technology, and providing staff development targeted toward successful uses of technology in the classroom (Anderson & Dexter, 2005). Anderson and Dexter also mention technology standards for leaders and state, “All of the literature on leadership and technology acknowledges either explicitly or implicitly that school leaders should provide administrative oversight for educational technology” (p. 51).

Chih-Hsiang and Tang (2014) also described administrator actions in successful blended-learning programs in their research and used the term “e-leadership” to describe school leadership that focuses on using technology for education. Chih-Hsiang and Tang stated that there are five categories of “e-leadership,” and they closely resemble the ISTE standards: vision and management, model and guidance, supply and support, evaluation and research, and communication and inspiration. From conducting semi-structured interviews with 211 administrators from 52 schools in Taiwan, Chih-Hsiang and Tang distinguished between school administrators who are technology leaders and those who are technology managers. They argue that while technology managers provide maintenance for and assistance with the use of technology, technology leaders help facilitate structures for successful technology integration and respond to changes in technology appropriately. These are the leadership qualities and actions that will be most helpful in setting up and maintaining structures for successful blended-learning.
To further explore the problem of the lack of technology training and blended-learning guidelines in administrative credentialing programs, LaFrance and Beck (2014) sent surveys to faculty members in the National Council for Accreditation of Teacher Education (NCATE) certified schools around the United States. NCATE operates a performance-based system of accreditation for colleges and universities who offer teacher-credentialing programs and is recognized by the U.S. Department of Education as a national accrediting body for teacher preparation. After open-coding 159 responses to surveys that included both closed- and open-ended questions about the daily operations of these faculty members’ organizations and the educational programs they offer, LaFrance and Beck found that only 9% of certified NCATE schools around the country offered experience in blended-learning or virtual school programs. Of those 14 schools, 7 had just started integrating blended-learning experience into their administrative preservice credential program the previous year (LaFrance & Beck, 2014).

LaFrance and Beck (2014) suggested that relevant administrative internship programs within blended learning or virtual learning programs were critical components of administrative service credential programs, largely due to the fact that the administrative and educational leadership duties that encompass running these programs are nuanced and best experienced firsthand. Furthermore, they stated:

Leaders must become comfortable collaborating as co-learners with colleagues and students around the world, and in today’s digital learning, culture administrators must have a vision of technology use to ensure the development of their own technology skills and those of others. (p. 170)
LaFrance and Beck stated that there is a need to integrate standards for blended learning program leadership into administrative credentialing programs in order to help educational leaders tackle the ethical, communication, and learning challenges relating to school culture in a digital environment. Leaders need to be more equipped to create and sustain digital learning environment, such as those in blended-learning schools to ensure students are both supported and challenged and teachers have the tools they need to lead student learning.

Researching the area of leadership in the midst of changing technologies, McLeod and Richardson (2011) stated that the implications of educational leadership and educational technology have created a need for a new field of study: school technology leadership. By understanding how technology leadership is framed and carried out, McLeod and Richardson stated that researchers can better understand the demands of leading in a technological age. This research could be important to practitioners of blended programs as they work to better the educational practices of the schools they lead. To better understand how technology leadership was being approached, McLeod and Richardson analyzed the content of conferences put on by the American Educational Research Association, the University Council for Educational Administration, and the National Council of Professors of Educational Administration from 1997 to 2009, and the most often cited journals in the *Journal of School Leadership and Education Administration Quarterly* from 1997-2009. They found that 2.94% of the conference topics at the University Council for Educational Administration involved technology and leadership, 2.12% existed from the American Educational Research Association, and 7.4% from the National Council of Professors of Educational Administration.
Furthermore, in searching keywords in journals, McLeod and Richardson found that in each year from 1997 to 2009, the percentage of articles pertaining to technology leadership in comparison to articles pertaining to other topics ranged from zero to 1.67%.

These data show that attention to technology as a part of leadership represents a small percentage of emerging research and information among professionals in the field. Yet, leaders of today’s schools are expected to be proficient with technology such that they are able to make informed decisions about its integration in schools—especially those with a blended focus. As McLeod and Richardson (2011) state, “We cannot keep marginalizing digital technologies to the fringes of theory and/or practice” (p. 236).

Other researchers claim that more study in the area of blended school and virtual school leadership is needed because these types of schools have differing and important needs, such as teacher development, collaboration, and program and schedule management. Based on their analysis of recently-published literature on the subject of school leadership in distance learning schools, Abrego and Pankake (2010) stated that emerging issues include the principal’s role, new kinds of and content for professional learning, and best practices in establishing and sustaining a successful learning environment.

Additionally, Abrego and Pankake (2010) argued that there are five areas to which leaders of online learning programs need to pay attention: preparation for student success, preparations for teacher success, interactive and flexible course design, monitoring and supporting teachers, and monitoring and supporting students. The researchers stated that successful leaders understand that not all students in virtual classrooms have the capacity to conduct the work needed in these types of courses and take advantage of quality
professional learning opportunities for staff to develop supports that tackle this challenge. Additionally, creating programs that embed collaborative project-based learning opportunities can help students succeed, as well as flexible course design for students on an individual basis. Finally, facilitating effective communication between teachers and students is important because these interactions encapsulate the majority of the interactions experienced by learners in these programs (Abrego & Pankake, 2010).

**Challenges in Blended Learning**

Challenges in implementing blended-learning programs can be generalized into two areas. The first area of difficulty includes technology interface challenges, and the second area is in social development. Challenges in this second area lie in finding best ways to maintain the social structures and peer interactions that are generally more developed in more traditional learning environments. As Draffan and Rainger (2006) state, to create meaningful learning experiences in a blended-learning program, practitioners need to ensure their course delivery takes into account “any challenges to the acquisition of knowledge, development of skills and experience” (p. 55). Furthermore, Draffan and Rainger believe that “it is important to take into account the full spectrum of learner characteristics. These include physical, sensory and perceptual skills, abilities, attitudes, and prior knowledge” (p. 55). Thus, learners can benefit from instructors identifying learning objectives and prerequisite knowledge or skills in order to appropriately develop student activities and programs that will be of most benefit to the individual learner at their current level of knowledge. Additionally, the blended-learning environment should meet the needs of the learner such that a “mismatch of educational provision and the learner’s needs can be avoided” (Draffan & Rainger, 2006, p. 62).
Also focusing on learner outcomes in a blended-learning environment, in a case study of online synchronous tutoring sessions involving six tutors and eight students including semi-structured interviews and surveys, Chi Ng (2007) found that social interactions tended to be hindered by students’ and faculty members’ online discussions and that both groups preferred to follow online discussions with face-to-face sessions. Tutors, when interacting with students in an online environment, felt that there were too many competing factors in an online setting and that they had not only a pedagogical and intellectual responsibility to students in the online forum, but also a responsibility to provide technical assistance and to guide the social interactions among students, factors they may not have to consider during face-to-face lectures (Chi Ng, 2007). Although this was a small study, Chi Ng set out to answer the questions, what factors facilitate or hinder opportunities for interaction and effective teaching using a blended model, and how do tutors’ roles change in an online synchronous environment versus a face-to-face model? This study shows that blended-learning courses may capitalize on student success by allowing learners to learn or practice new skills online and then follow-up with discussions and collaboration in a face-to-face format.

**Learning From Challenges**

If practitioners in primary and secondary educational programs can learn from the challenges and successes of blended-learning programs within colleges and universities, this may create possibilities for impactful learning at the K-12 level using a blended approach. Doing so, however, would require study into the unique needs of adolescent learners and the whole-school structures that maximize learning for students in the K-12 arena—for example, adolescent socialization and character development. Nelson and
Guerra (2014) stated that often, even in traditional school programs, little attention is given to the social aspects of schooling. After administering a qualitative instrument to 111 teachers and educational leaders in two school districts in Texas and Michigan, researchers found that most school personnel had a general knowledge about culture and its importance in their school but that they also had many misunderstandings regarding the specific cultures at their school sites (Nelson & Guerra, 2014). Because a healthy and positive school culture can make the difference between failure and success for many students, including those in a blended program, school leaders and educators would benefit from taking more abstract aspects of education, such as school climate and culture, into account.

Blended-learning educators can also take into account the needs of students in their programs receiving special education services. Smith and Basham (2014) asserted that some blended-learning programs or activities may require cognitive or sensory processing skills that are not within students with special needs’ grasp. Understanding that students with an individualized educational plan (IEP) may require additional assistance from an instructor to successfully access content, is an example of considerations that may help practitioners create programs that are inclusive of all students they serve (Smith & Basham, 2014).

In addition to paying special attention to special student populations and school culture, educators also benefit from assessing their blended-learning programs to ensure they meet both the educational and socioemotional needs of students. For many students, this means creating an engaging curriculum and making sure to intervene when necessary to keep students on track. Jeffrey, Milne, and Suddaby (2014) interviewed nine teachers
from two state universities to determine what aspects of their courses instructors felt could be integrated into a blended-learning course. In approaching blended-learning instruction, Jeffrey and colleagues asserted that engagement is critical and when students disengage, they can only be reengaged by heavy monitoring, early interventions, and personal contact from the instructor. In other words, the online content will not help the student engage in the learning, rather the instructor can, which means that instructors may benefit from sparking students’ curiosity and making the relevance of curriculum clear to students at the start of their enrollment in a blended course (Jeffrey et al., 2014).

**Considerations Before Implementing Blended Learning**

Practitioners are cautioned to be careful with applying blended-learning practices for the first time at K-12 school sites. Research points out that simply supplying schools with technology is not the best way to enhance learning. Instead, “efficient and effective use of technology depends on the equity of access to resources by teachers, students, administrators, and staff” (Gulbahar, 2007, p. 953).

**Considerations for Technology Integration**

Leading to this conclusion, Gulbahar (2007) gathered data through questionnaires and unstructured interviews from 105 teachers, 25 administrators, and 376 students that aimed at finding the impact of technology use within a Turkish school, how the schools could create a successful technology integration plan, and how staff could tailor their blended-learning program to the needs of students. Results showed that 91% of students preferred to learn from teachers who were “technology-competent” and integrated blended-learning practices into their class, and 92% stated that they wanted to use more technology-driven learning programs both in and out of class (Gulbahar, 2007). While
no achievement data were collected in this study, this research shows that by using technology to match learning activities to student needs, instructors may increase interest in content being taught. These studies begin to demonstrate that blended learning as a pedagogical approach to improve student learning yields more positive outcomes than traditional teaching methods.

Considerations for Special Student Populations

There are also skeptics of blended learning’s ability to help student populations with special needs such as English Language Learners and students in special education. To meet the needs of these diverse learners, some K-12 schools are utilizing blended learning in purposeful ways to increase student achievement. Greer, Rowland, and Smith (2014) suggested that students who receive special education services can indeed be served in a blended-learning program, and that programs used in blended-learning models can help instructors make modifications to work so that students can master grade-level content, as opposed to just working on lower-level concepts or standards. In all cases, blended learning must be a purposeful and individualized teaching technique in which technology-driven learning occurs alongside teacher-delivered lessons, interventions, and/or activities.

As a differentiation tool, blended learning opens opportunities for students to practice skills in and out of the classroom as much as they may need to before moving on to the next lesson. Because time and pace are somewhat controlled by the student, conceptual practice is not just contained to the classroom with the teacher as moderator, as in traditional programs. Through the use of technology-based educational programs, several students can be working on several different concepts simultaneously, while the
instructor roams the room offering assistance and remediating as needed. As research
on the use of blended-learning programs with students in special education begins to
indicate, the flexibility of an online educational program, paired with an instructor who is
able to make pedagogical decisions and deliver interventions at appropriate times, can
help meet the needs of learners with special considerations (Greer et al., 2014).

**Social Considerations**

In addition to paying attention to the needs of special student populations, there
are other implications of this approach for practitioners across the K-12 arena, as well.
One additional implication is the possibility of an increased sense of isolation from
learners in blended programs. In a meta-analysis of various blended-learning approaches,
Lam (2014) described a model that took into account the needs of learners to socialize
and collaborate with one another, while working at an individualized pace. Lam
introduced multiple perspectives important in a blended-learning course, including
technological, institutional, social, and pedagogical perspectives. He proposed the
utilization of a virtual classroom constrained by instructor-created parameters and
management strategies. Lam’s assertions show that a blended-learning approach should
incorporate online collaboration among users, and be centered on and driven by learners
so they can work at their own pace.

In addition to Lam’s (2014) assertions, research also suggests the need for a
broadened social dynamic within blended-learning environments. Through surveying
college faculty members at 14 colleges and universities around the world who taught
courses using a blend of face-to-face and online activities, Lee and Dashew (2011) found
that instructors rated the ability of their blended-teaching techniques to help students
access material as 4.62 on a scale from one (low level of usefulness) to five (high level of usefulness). However, when asked about the ability of their blended courses to improve student communication, the average rating was lower: 3.7 (Lee & Dashew, 2011). This could indicate that blended-learning experiences increase student autonomy but not socialization or communication, two especially important factors for students in the K-12 setting.

Focusing on the behavior of instructors in blended programs as a way to assist student learning and combat some of these possible issues, Delahunty, Jones, and Verenikina (2014) found that to mitigate the effects of a possibly isolated online learning experience, instructors using blended-learning can model communication skills for students through the use of communication boards, online discussion threads, and collaborative activities via online portals. Delahunty and colleagues explained that instructors integrated online communication platforms into their planned learning activities as a way to teach students to enhance their writing and communication skills in the absence of “face-to-face meaning-making cues” (p. 54), such as gestures and facial expressions. The researchers stated that nurturing an inclusive learning environment “requires communicative skills and interpersonal awareness to mitigate any potential for misunderstandings that may occur in the absence of usual meaning-making” (p. 54).

Keeping the need for socialization and collaboration in mind is a unique consideration of educators in blended-learning programs. Although communication can be successfully fostered while using technology in learning, a lack of social interaction among participants is a possible pitfall of this type of program. A true blended-learning program is a hybrid of face-to-face and technology-driven learning; thus, a carefully planned
blended program provides learners ample opportunities for communication and collaboration throughout their studies.

**Pedagogical Considerations**

In addition to considering individual student needs for socialization, collaboration, and differentiation, as well as programmatic needs for a cohesive structure and guiding philosophy of teaching practices, teaching a blended-learning program also requires educators to define best practices and find the right “blend” of teaching practices to successfully support students. This can be challenging when students often have more experience with technology than instructors, and teachers’ current use of technology is not necessarily grounded in best practices (Ottenbreit-Leftwich et al., 2010).

**Gaps in the Research**

Despite recent gains into how to teach diverse populations using a blended-learning method, there are still gaps in the research on using blended learning in K-12 schools. Implications of using a blended approach for adolescents need to be studied, particularly in the area of pedagogy, since adolescent learners require a balance of choice and guidance that may look different from grade to grade or across content areas. However, practitioners are still largely uninformed about best practices in blended learning. “Much of the early research in blended learning has been concerned with exploring and defining the phenomenon of blended learning” (Graham et al., 2013, p. 20). Only recently have researchers begun focusing on what instructional activities and pedagogical strategies within a blended program are best suited for each content area and age.
Possible limitations in blended-learning research may exist because there is confusion over what the official definition of blended learning actually is, due to the fact that many other instructional strategies that use technology share some features of blended learning (Staker & Horn, 2012).

There is no generally accepted definition of blended learning. There are many forms of blended learning but a generally accepted taxonomy does not exist. One school’s blended is another school’s hybrid, or another school’s mixed-mode. Furthermore, the issue is not just one of labels but the lack of agreement on a broad versus a narrow definition as well. Without a clear definition, blended learning is perceived as some nebulous combination of online and face-to-face instruction. (Picciano, 2009, p. 8)

While prior research has attempted to categorize blended learning as an instructional technique and point out its uses and implications, without an accepted and common understanding of what this type of instructional program actually is and for what it can be used, this research remains largely un-useful to practitioners looking to implement blended learning in their district, school, or classroom. Furthermore, without clear understandings of pedagogical frameworks in the K-12 arena, administrators in charge of blended-learning programs looking to institute research-based best practices in their programs will have a hard time doing so, due to a lack of information and resources. There is a vast array of research into blended learning at the university level, but studies in the K-12 sector are scarce and, thus, more research is needed.
Summary

Since current research into blended programs does not address students’ perceptions about blended learning in K-12 grades, as well as administrative supports necessary to run a successful blended program, a closer look into these areas is necessary in order to gain an understanding of how K-12 public schools can more effectively address the changing needs of students today.
CHAPTER 3—METHODOLOGY

Introduction

School reform and accountability is at the forefront of discussions about K-12 education in the United States today. With technology use increasing in schools, educators are progressively looking at technology as a means to differentiate instruction for diverse students and better equip students for the rigor demanded by common core state standards and state assessments. In today’s digital age, it is also increasingly important to teach students 21st century learning skills such as inquiry, critical thinking, and writing so that they can compete in the current digital and global markets. By combining the best of traditional face-to-face educational approaches and the use of new learning technologies to meet these goals, many schools are creating blended-learning programs that utilize a combination of technology-based and nontechnology based instruction to more effectively educate students. These programs are being overseen by school administrators who have varying degrees of experience in learning technologies and blended-learning best practices. However, many are experiencing greater levels of success than those in traditional face-to-face programs. This study seeks to contribute to the body of knowledge within the field of blended learning by identifying best practices for administrators and teachers in blended-learning settings and studying the blended-learning approaches used by educators in this field that are replicable at other sites and may lead to increased student learning.
Research Questions

The questions the researcher sought to answer within this study were:

- In recognized blended-learning schools, in what ways do the blended-learning models, as perceived by administrators and teachers, contribute to their students’ success?
  - To what extent do schools that utilize blended-learning programs attribute their success to these blended programs?
  - How are administrators and teachers of schools that utilize blended-learning models using blended learning to help their students attain success on established outcomes?
  - How are administrators supporting teachers in their use of blended-learning models?
  - How are blended-learning schools measuring student success?

Introduction To and Rationale for Tradition

To answer these research questions, the researcher employed a mixed-methods research design. A tradition that allows the researcher to analyze both qualitative and quantitative data (Plano Clark & Creswell, 2015), mixed methods research is useful when the researcher wants to explore and explain an area of research in such a way as to pose both specific and open-ended questions and to collect a variety of data. Mixed methods approaches usually vary in the ways that researchers relate the quantitative and qualitative data, and in the order in which the various data are collected. Mixed methods designs allow researchers to use multiple data collection tools in order to gain a deeper understanding of and insight into a particular area of research interest.
The first step in the researcher’s approach was to collect quantitative data from surveys. Survey research is useful when researchers seek to describe trends in a certain population in order to understand an area of research (Plano Clark & Creswell, 2015). Additionally, survey research allows the researcher to make claims about trends in the larger population based on the responses of those included in the survey.

After quantitative data were collected, the researcher chose two school sites at which qualitative data were collected and analyzed. The qualitative research was conducted as a multiple case study including two school campuses with a quantitative data priority. According to Yin (2003), “A case study is an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between the phenomenon and context are not clearly evident” (p. 13). Multiple case studies are useful because they can create a more powerful narrative about a particular phenomenon than can a single case (Yin, 2003). This study sought to combine the rich narrative that can result from a multiple case study with the thoroughness of quantitative data by including a survey as the first step in collecting data about blended-learning schools.

Participants

Administrators

The researcher sent surveys to 514 administrators overseeing blended-learning programs in primary and secondary public, private, and charter schools throughout the United States to anonymously participate in this study. These administrators varied in levels of education and experience and were contacted regarding the study via email. After survey data were collected, the researcher selected two blended-learning schools to
participate in the case study. Thus, of the administrators surveyed, two were chosen to participate in interviews with the researcher based on their willingness to participate in the study, for the purpose of gaining insight into the practices and procedures implemented within the first 2 years of operation through the establishment of a blended-learning program in existence for at least 10 years. Interview participants’ demographics were:

- Administrator A
  - Title: principal.
  - Educational level: doctorate degree (Ed.D.).
  - Number of years in blended-learning: four.
  - Ethnicity: Caucasian.
  - Gender: female.
  - Work history: prior to administrating a blended program, administrator A was an administrator at a comprehensive high school within a large urban school district.

- Administrator B
  - Title: principal.
  - Educational level: master’s degree (M.A. Education).
  - Number of years in blended learning: seven.
  - Ethnicity: Caucasian.
  - Gender: female.
Work history: opened up blended-learning school in 2015. Prior to this, administrator B was an administrator and teacher in another blended-learning program.

Teachers

Surveys were sent to 1,372 teachers who were invited to anonymously participate in this study through email. Teaching experience among this group of participants varied. From this group of survey participants, four teachers were selected to participate in interviews and observations conducted by the researcher. These four teachers were selected after the schools involved in the case study accepted the researcher’s invitation to participate and administrators at these sites had already agreed to participate. Additionally, teacher participation was based on a willingness to participate and to represent a range of teaching expertise, content areas expertise, and grade level affiliation. The researcher did not use student achievement scores or other performance factors to determine which teachers would participate, as to allow for a range of data to be collected from multiple school personnel. The demographic information of these four teacher participants were:

- School A, Teacher A
  - Title: teacher.
  - Educational level: bachelor’s degree and single subject teaching credential
  - Ethnicity: Caucasian.
  - Gender: female.
  - Work history: prior to working at this blended-learning site, SA-TA worked at a traditional middle school.
• School A, Teacher B
  ○ Title: teacher.
  ○ Educational level: master’s degree (M.A. Education)
  ○ Ethnicity: Caucasian.
  ○ Gender: female.
  ○ Work history: prior to working in this blended-learning program, SA-TB worked at a traditional high school and at a nontraditional high school.

• School B, Teacher A
  ○ Title: teacher.
  ○ Educational level: bachelor’s degree and single subject teaching credential
  ○ Ethnicity: Asian.
  ○ Gender: male.
  ○ Work history: SB-TA worked in traditional middle and high schools before entering blended-learning.

• School B, Teacher B
  ○ Title: teacher.
  ○ Educational level: master’s degree and single subject teaching credential.
  ○ Ethnicity: Caucasian.
  ○ Gender: male.
  ○ Work history: SB-TB worked for several years in independent study and blended-learning programs.
Instruments and Procedures

Administrator Surveys

Surveys (Appendix A) were sent to 514 school site administrators using Qualtrics, with the hopes that 50 responses would be obtained by the researcher. Of those emailed, 43 completed the survey. Surveys consisted of 19 questions pertaining to the goals, programmatic decisions, and school-wide structures put in place by the administrators at their school sites. Surveys provided the researcher with quantitative data and a context with which to conduct interviews and observations at the two school sites chosen for further study, after all survey data were collected.

Prior to sending out surveys to potential participants, the researcher contacted two local school researchers and leaders in the San Diego area with whom the researcher or researcher’s chair had a working relationship, to preview the survey and offer feedback and changes, as a means of securing content validity.

Teacher Surveys

Surveys (Appendix B) were sent to 1,372 teachers using Qualtrics, with the hopes that 200 responses would be obtained by the researcher. Of those emailed, 230 completed the survey. Surveys consisted of 20 questions pertaining to the classroom practices, assessment, and data collection protocols, and teaching techniques used by teachers at their school sites. Surveys provided the researcher with quantitative data and a context with which to conduct interviews and observations at the two school sites chosen for further study, after all survey data were collected.
Administrator Interviews

Each of the administrators agreeing to participate in the case study were interviewed individually using a semi-structured interview protocol. These interviews lasted approximately 30 minutes and, after obtaining consent from the participants (Appendix C), were digitally recorded and transcribed. The interviews occurred at a variety of times during and after school, at the convenience of the participating administrators. The questions (Appendix D) offered opportunities to describe a typical day at their school site, to explain the goals they have established and the various programmatic decisions they have made, their perceptions regarding their program’s effectiveness, and the approach they take with preparing and supporting teachers at their school site.

Teacher Interviews

Each teacher agreeing to participate in the study was interviewed individually using a semi-structured interview protocol. These interviews lasted approximately 30 minutes and, after obtaining consent from the participants (Appendix E), were digitally recorded and transcribed. The interviews occurred at a variety of times during and after school, at the convenience of the participating teachers, and were conducted inside their classrooms or at another on-site location of their choosing. The questions offered opportunities to describe a typical day at their school site, to explain their teaching goals and the various pedagogies they employed, instructional techniques they used and their perceptions regarding their effectiveness, professional development, and coaching they engaged in at their site, and the approach they took with supporting both struggling and accelerated learners.
Teacher Observations

Two teachers from each school site who agreed to participation were observed in their classroom settings at a time determined to be mutually agreeable between the researcher, the teachers being observed, and their administrators. The observations lasted approximately 90 minutes each, depending on the coursework and activities the teachers were presenting or facilitating. Permission for the researcher to observe the teachers was obtained prior to conducting the observations. Students were not directly observed; rather the focus of the observations were on the teacher, the decisions he or she made, and the techniques he or she used throughout the course of his or her teaching. The researcher took field notes, making sure not to write down any specific information about students, their performance, or work produced. A copy of the field notes template can be found in Appendix F. Field notes were coded after all observations were concluded using an open coding system to find trends in the data collected.

Document Analysis

The researcher obtained the Local Control Accountability Plan (LCAP) and mission statement, which were already available for public viewing, from each school or district participating in the case study. Documents were reviewed and coded using an open coding system, as the researcher identified themes that emerged as the documents were analyzed. Document analysis is a research tool derived from research in social constructivism and looks critically at a particular organization’s body of knowledge that may be taken for granted because of its level of familiarity to those working within the institution (Rapley, 2007). The knowledge derived from document analysis is historically and culturally specific and is created within a social context. Document analysis can
create a context from which to view qualitative data collected during research and can uncover some possible sources and/or motivations from which behavior is derived (Rapley, 2007). It was the researcher’s hope that adding document analysis to this research methodology would add meaning to the cases and provide an additional framework from which to view the other data collected.

**Data Analysis**

**Surveys**

The researcher analyzed the data over a 2-month period, after collecting survey results and coding all qualitative data from the school sites involved in the case study. To analyze the quantitative data, the researcher used the Qualtrics analytics program to view survey respondent data and create cross-tabulations with the intent to discover relationships between the key elements of blended-learning schools and the types of blended-learning programs offered at those schools. The researcher analyzed surveys taken by both teachers and administrators.

**Interviews**

Data collected during interviews were analyzed using a constant comparative method, in which the researcher took information from each interview and compared it to emerging categories (Creswell, 2013). Categories were created based on emerging data, and themes were identified after each interview transcript was reviewed. As soon as a new category emerged, the researcher went back to previously reviewed data sets to seek possible evidence of these themes in the prior data. This process continued until all interview data were analyzed, and a complete list of categories and themes was created.
Observations

Data collected during observations assisted the researcher by providing a context in which to couch the interviews and survey data. These observations provided insight into the learning environment and teaching techniques used by teachers within the schools in the multiple case study. The researcher collected observational data as a nonparticipant during the observations and took both descriptive and reflective notes using a predetermined observational protocol (Creswell, 2013).

Document Analysis

Data collected during document analysis were analyzed using an open coding system, in which the researcher looked for major categories of information. Once a category was found, the researcher employed a constant comparative method in which previously coded data were reread to see if each recently identified theme was present in the prior data, as well. Specific themes were then identified within each category. After all qualitative data were collected, the researcher applied axial coding to the emerged categories and themes to identify five major themes present among all data sets.

Research Variables

Several independent variables were present within this research study for which the researcher could not account prior to conducting research. Some of these variables included student motivation, ability levels, teachers’ levels of motivation and institutional knowledge, administrators’ levels of motivation and institutional knowledge, and other environmental factors that were present during interviews and observations for which the researcher could not account. All appropriate measures were taken to ensure the data collected were valid despite the presence of these and other possible unknown variables.
Limitations and Delimitations

There were some limitations to using this methodology. The collection of the survey data was dependent on the participation of the administrators and teachers to whom the survey was sent. Survey data are difficult to obtain because it is unlikely that all or even most individuals to whom the survey is sent will respond. To compensate for the possibility of a 25% or lower response rate, the researcher sent enough surveys to teachers and administrators to maximize the probability of obtaining a survey data set that contained close to 50 administrators and at least 200 teachers.

The subjects for this research were chosen from a sample of volunteer participants. Thus, values, attitudes, and beliefs of participants may not necessarily be generalizable to schools not included in the study. During interviews, data collected were most likely subjective based on each participating individual and may not have been a representation of the values, beliefs, and attitudes of all teachers and administrators at the school sites.

Delimitations (self-imposed limitations) were also apparent in this study. One such delimitation that was imposed was the number of schools included in the multiple case study. While studying two schools will result in a variety of data and insights into the practices of blended-learning schools, teachers, and administrators, results may not be generalizable to a larger population because of the small number of schools represented in the case study.

Assumptions

This study was built on the assumption that students in blended-learning programs are, in general, performing better than those in nonblended environments. While this
assumption is not true of all students and schools, overall, we can assume that because students in blended programs experience a more differentiated and often more personalized curriculum than their peers in traditional face-to-face programs, they will be more able to meet the demands of the programs in which they are enrolled and, thus, experience a higher level of academic success.

Summary

To summarize, this study, situated within the framework of mixed-methods and case study research, aimed to uncover the organizational and programmatic decisions made by educators and administrators within the field of blended learning, and to find how well practitioners believe these methods are helping students achieve school goals. This study sought to answer the following questions:

- In recognized blended-learning schools, in what ways do the blended-learning models, as perceived by administrators and teachers, contribute to their students’ success?
  - To what extent do schools that utilize blended-learning programs attribute their success to these blended programs?
  - How are administrators and teachers of schools that utilize blended-learning models using blended learning to help their students attain success on established outcomes?
  - How are administrators supporting teachers in their use of blended-learning models?
  - How are blended-learning schools measuring student success?
CHAPTER 4—RESULTS

Summary of the Study

In many U.S. schools today, student success means the development of 21st century skills, as well as content mastery. Critical thinking, collaboration, and problem solving are essential 21st century skills for success in college and in the workforce. To be successful, students need these skills. Schools that use blended-learning techniques employ differentiation through the use of technology to personalize students’ education and support them toward meeting their educational goals and toward becoming critical thinkers. With so many different types of blended-learning programs though, how can administrators and teachers determine best practices to promote student success? What are the actual elements of a blended-learning program that most contribute to students’ success? The purpose of this study was to investigate the processes, policies, and programs used by schools that employ blended learning to discover how these schools are helping students attain academic success and the abovementioned skills necessary for the workforce. Additionally, the study sought to determine the success criteria that schools employing blended learning target, and to what degree the blended model used at schools facilitates this success.

For this mixed-methods study, the researcher sought to answer the following questions:

• In recognized blended-learning schools, in what ways do the blended-learning models, as perceived by administrators and teachers, contribute to their students’ success?
To what extent do schools that utilize blended-learning programs attribute their success to these blended programs?

How are administrators and teachers of schools that utilize blended-learning models using blended learning to help their students attain success on established outcomes?

How are administrators supporting teachers in their use of blended-learning models?

How are blended-learning schools measuring student success?

**Data Collection Process**

To answer these questions, both qualitative and quantitative data were collected. Two surveys were created by the researcher using Qualtrics, one for teachers and one for administrators, to collect quantitative data and to provide a context for the qualitative data collection process to follow. The teacher survey consisted of 20 questions, and the administrator survey consisted of 19 questions. The surveys were sent using the Qualtrics email feature and were completed online anonymously by participants. The researcher used contact lists that included schools registered with the Future Ready Foundation provided by her dissertation panel and the Clayton Christensen Institute for Disruptive Innovation’s website as a resource for locating potential study participants for the nationwide survey. The Future Ready organization is a nonprofit group that collects and publishes research on digital learning and whose mission is to build upon the ConnectEd initiative set forth by President Obama in 2013 (Office of Educational Technology, n.d.). The Clayton Christensen Institute is a nonprofit organization developed on the theories of Harvard Professor Clayton Christensen, and has offices in Boston and Silicon Valley.
The Institute’s mission is to further an understanding of education, healthcare, and economics through research and public outreach (Clayton Christensen Institute, 2017).

The purpose of collecting quantitative data was to gain a broad understanding of blended learning in the United States and to determine generalities that could be applied to blended-learning schools and provide context for the case study.

Qualitative data were also collected to add narrative to the quantitative data and to gain insight into the specific programs and protocols used by blended-learning schools to help students attain success. To collect qualitative data, the researcher chose two schools to visit over the course of 3 months that use blended learning as the main component of their academic program.

**Summary of Methods**

The researcher used a mixed-methods approach to collect data. First, quantitative data were collected from administrators and teachers in blended-learning programs nationwide so the researcher could gain a broad understanding of blended-learning programs as a whole, including their school structures, school programs, and educational approaches. The survey was sent to 1,462 teachers and 632 administrators via email between December 2016 and January 2017. Of those who were invited to participate in the survey, 230 teachers completed the blended-learning teacher survey and 43 administrators completed the blended-learning administrator survey.

To collect qualitative data, the researcher conducted a case study at two schools in the Southwestern most region of the United States that employ blended learning. To collect data at each school, the researcher conducted interviews with two teachers at each site, conducted interviews with each site principal, conducted two 60- to 90-minute
observations of teachers, and conducted document analysis of each school’s LCAP and mission statement.

The following presentation of data is organized according to the research tool used to collect each data set and by themes that emerged after the researcher collected and analyzed all data. First, data from the teacher survey is presented, followed by data from the administrator survey. Next, data from teacher interviews is presented, followed by data from administrator interviews. Finally, data from teaching observations is presented, followed by data from document analysis. After analyzing all data, the researcher noted and discussed broad themes that became apparent across all data sets and discussed the components of each theme found from the data.

**Data Analysis**

The researcher analyzed the data over a 2-month period, after collecting survey results and coding all qualitative data from the school sites involved in the case study. To analyze the quantitative data, the researcher used the Qualtrics analytics program to view survey respondent data and create cross-tabulations with the intent to discover relationships between the key elements of blended-learning schools and the types of blended-learning programs offered at those schools. The researcher analyzed surveys taken by both teachers and administrators.

To analyze the qualitative interview and observational data, the researcher employed an open coding method line by line to build concepts and categories and to determine themes as they emerged. Each theme was coded with a different color as it emerged in the interview transcript. A constant comparative method was then used in
which themes that were found in newly coded interviews were compared to themes found in previously coded interviews.

Document analysis consisted of reading and coding the mission statements and LCAPs of each school, looking for themes matching those found in the interviews and noting new themes as they emerged. When a new theme emerged in the document analysis, the researcher went back to the interview transcripts to see if evidence of that theme was present and missed during analysis of the transcribed interviews. If found, the theme was coded and added to the data set. Once all qualitative data were collected, the researcher used axial coding to determine relationships among the open codes, which are described later on in this chapter.

**Survey Data**

**Overview of survey participants selected for the study.** Participants (teachers and school administrators) were solicited to participate in the survey by meeting criteria as follows:

- The school was registered as a Future Ready School or a school or district that took the Future Ready challenge.
- The school was listed by The Christensen Institute for Innovative Disruption as an innovative blended-learning school.
- The school was known to the researcher or the researcher’s dissertation committee to be a high performing school that employed blended-learning practices.

For the purposes of this study, administrators were classified as any individual who played a leadership role at a school site or in a blended-learning program, and included
the following titles: principal, assistant principal, academic coach, curriculum coach, instructional coach, dean of students, dean of instruction, executive director, and chief educational officer. For the purposes of this study, teachers were classified as any individual who was in charge of teaching or directly supervising students during the learning process. Instructional aides and other support staff were not invited to take the survey.

**Teacher survey.** Participants indicated the subject they taught and the blended learning model used in their classroom. Figure 1 indicates the range of subjects and blended-learning models represented among the survey respondents. There were five models offered for participants to select the one that best fit their academic program. The first was the blended-learning rotation model, in which students rotate among different stations in the classroom. This model is most widely used at brick and mortar sites and can be offered to students within a traditional school day program. The second model offered for selection was the flipped classroom, in which students complete work online at home to prepare for class activities onsite. The third was the blended-learning flex model, in which students learn online, meet onsite with a teacher for some activities, and experience an individually customized program. This type of program is most widely used in nonseat based and independent study schools. The fourth program represented in the data was blended-learning a-la-carte, in which students take an entirely online course to supplement learning that takes place at a brick and mortar site. Typically, these programs would be used for credit recovery or acceleration for students at a traditional school site. Finally, the enriched virtual blended-learning model was listed; a program in which students have required individual or small group face-to-face learning at times.
Figure 1. Teacher subject area and blended-learning model used.

determined by the student and instructor, and complete the rest of their courses at home. This program is similar to the blended-learning flex model, but the one difference is that the flex model offers a more customized and flexible program for students, where the enriched virtual model may have predetermined coursework and/or meeting times set up for students.

The most widely used blended-learning model among participants was the blended-learning rotation model, used by 36.12% of the respondents, in which students learn in a brick-and-mortar classroom and interact with content by rotating among different stations set up in the classroom. The second highest represented model was the blended-learning flex model, used by 18.50% of respondents, in which students experience the majority of their learning online, meet with a teacher for some activities (small group practice, labs, one-on-one practice, etc.) and experience an individually
customized program. Because these two models were used by 54.62% of the survey respondents, the researcher chose to seek out schools that used these models to participate in the case study, as a representation of the most widely used blended-learning programs among survey respondents.

To answer the first research question (in recognized blended-learning schools, in what ways do the blended-learning models, as perceived by administrators and teachers, contribute to their students’ success?), the researcher asked survey participants to identify key elements of their learning programs. Because the schools identified to participate in the study were identified as high-achieving schools based on their association with the Future Ready Organization or the Christiansen Institute for Disruptive Innovation, the researcher hoped to gain insight into what specific elements of the schools’ programs contributed to students’ success. The results are shown in Figure 2.

The \( p \)-value is described as the probability of obtaining a result that is more extreme than actually observed, when the null hypothesis is true. In testing the significance of the null hypothesis, the researcher looked for a \( p \)-value of \(<0.05\) to determine a significant relationship between the cross-tabulated elements. Since a \( p \)-value \( >0.05 \) signifies an inability to reject the null hypothesis, the frequency of all key elements could not be considered significant. Additionally, the greater the deviation between observed frequencies and expected frequencies, the greater the chi square value. Thus, with 25 degrees of freedom, the researcher noted that elements two, four, six, seven, and nine also had chi square calculation larger than the critical value for the degrees of freedom in the figure, thus it could be determined that the data may not have
Key: 1. $p$-value = 0.97, Chi-square = 13.78
2. $p$-value = 0.15, Chi-square = 32.33
3. $p$-value = 0.97, Chi-square = 13.57
4. $p$-value = 0.08, Chi-square = 35.57
5. $p$-value = 0.80, Chi-square = 18.96
6. $p$-value = 0.35, Chi-square = 27.12
7. $p$-value = 0.32, Chi-square = 28.65
8. $p$-value = 0.64, Chi-square = 21.87
9. $p$-value = 0.00, Chi-square = 54.00
10. $p$-value = 1.73, Chi-square = 20.32

Figure 2. Mean score indicating frequency in teacher use of key lesson components.

(One: not at all used; six: used everyday)
fit the model and either the null hypothesis may not be rejected, or the data set was highly unusual for the targeted population.

However, in looking at the data, the researcher noted that element six had the highest mean across all types of blended-learning models, with an average mean of 5.09. Thus, this element (differentiation) could be identified as the most occurring programmatic feature among represented blended-learning schools. Following element six in frequency, element nine (face-to-face instruction) had an average mean of 5.07, element four (face-to-face higher order thinking activities) had an average mean of 4.46, element seven (skill practice via online platforms) had an average mean of 4.02, and element two (face-to-face inquiry and investigative activities) had an average mean of 3.41.

To answer the second research question (to what extent do schools that utilize blended-learning programs attribute their success to these blended programs?), the researcher cross-tabulated the type of blended-learning model used among survey participants (question three) with the factors of school programs identified as attributing most to participants' students' success (question 16). Respondents were given the option of choosing multiple factors that contribute to student success. Ninety-one percent of respondents reported that they believed their students’ success could be attributed to face-to-face teaching, and 67% attributed their students’ success to the online programs used at their school.

Other factors that participants indicated attributed to students’ overall success included:
1. Lessons and activities used to enhance learning prior to and during learning.
2. Student ability.
3. Assessment strategies.
5. Achievements of the school district.
7. Differentiation.
8. Student collaboration.
9. Immediate feedback from LMS and continuous access to review content and practice.

The $p$-value for this cross-tabulation was 0.71, indicating weak evidence against the null hypothesis. However, with a chi square less than the degrees of freedom, the researcher noted that a rejection of the null hypothesis may not be necessary for this particular case. Nonetheless, due to the $p$-value and chi square numbers, the researcher could not determine with confidence that any of the listed programmatic factors could be considered by educators included in the survey to have a measurable positive effect on student learning within the context of their particular blended-learning model (Figure 3).

To answer question three (how are administrators and teachers of schools that utilize blended-learning models using blended-learning to help their students attain success on established outcomes?), the researcher asked participants to identify to what degree various facets of their blended-learning programs attributed to their students’ success (survey question 18). The results are indicated in Table 1. The researcher then cross-tabulated questions 18 and three to determine to what degree teachers in each type
Figure 3. Factors teachers attributed to student success within each type of blended-learning model. \( p \)-value = 0.71; degrees of freedom = 20; Chi square = 16.18.

of blended learning course attributed their students’ success to the facets of their programs. The results are indicated in Table 2. “Opportunities that develop higher order thinking skills” was rated most often as greatly contributing to students’ success (68.63%), followed by “opportunities for students to self-monitor” (62.38%). On the other hand, “engaging in extra-curricular activities” was rated most often as “not contributing to students’ success” (11.76%) in a blended learning program, followed by “increased time on task” (9.90%).

To answer question four (how are administrators supporting teachers in their use of blended learning models?), the researcher asked participants in what ways their administrators support them in their use of blended-learning and how effective they found each type of support (survey question 19). Figure 4 shows respondent’s answers, across
Table 1

Degree to Which Teachers Perceive Different Classroom Activities/Opportunities Contribute to Student Success in All Blended-Learning Programs Represented in the Survey

<table>
<thead>
<tr>
<th>Activity</th>
<th>Does not provide (%)</th>
<th>Does not contribute to student success (%)</th>
<th>Somewhat contributes to student success (%)</th>
<th>Greatly contributes to student success (%)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunities for student self-monitoring</td>
<td>0.99</td>
<td>3.96</td>
<td>32.67</td>
<td>62.38</td>
<td>101</td>
</tr>
<tr>
<td>Higher order thinking skill practice/development</td>
<td>0</td>
<td>1.96</td>
<td>29.41</td>
<td>68.63</td>
<td>102</td>
</tr>
<tr>
<td>Opportunities to develop social skills</td>
<td>0</td>
<td>6.86</td>
<td>48.04</td>
<td>45.10</td>
<td>102</td>
</tr>
<tr>
<td>Organizational skill development</td>
<td>2.94</td>
<td>2.94</td>
<td>49.22</td>
<td>57.84</td>
<td>102</td>
</tr>
<tr>
<td>Self-advocacy</td>
<td>2.94</td>
<td>1.96</td>
<td>42.16</td>
<td>52.94</td>
<td>102</td>
</tr>
<tr>
<td>Cooperative group work</td>
<td>1.96</td>
<td>5.88</td>
<td>43.14</td>
<td>49.02</td>
<td>102</td>
</tr>
<tr>
<td>Assistance with time management</td>
<td>1.96</td>
<td>1.96</td>
<td>46.08</td>
<td>50.00</td>
<td>102</td>
</tr>
<tr>
<td>Opportunity for extra-curricular involvement</td>
<td>22.51</td>
<td>11.76</td>
<td>48.04</td>
<td>15.69</td>
<td>102</td>
</tr>
<tr>
<td>Increased time on task</td>
<td>0.99</td>
<td>9.90</td>
<td>40.59</td>
<td>48.51</td>
<td>101</td>
</tr>
<tr>
<td>Increased levels of differentiation</td>
<td>0</td>
<td>1.98</td>
<td>40.59</td>
<td>57.43</td>
<td>101</td>
</tr>
</tbody>
</table>

all identified types of blended-learning programs. Responses of “other” are listed below the table. Common preparation/collaboration time was identified as the most helpful type of support provided to teachers, with 61.76% of respondents identifying it as “very effective,” followed in effectiveness by individual coaching, with 47.52% of respondents identifying it as “very effective.” Administrator observations and walk-throughs were identified as the least helpful type of support provided to teachers, with 22.55% of respondents identifying it as “not effective,” followed in ineffectiveness with professional
Table 2

Degree to Which Teachers Perceive Different Classroom Activities/Opportunities Contribute to Student Success in Each Type of Blended-Learning Program

<table>
<thead>
<tr>
<th>Program element</th>
<th>Rotation model</th>
<th>Flipped classroom</th>
<th>Blended learning files</th>
<th>A-La-Carte</th>
<th>Enriched virtual</th>
<th>p-value</th>
<th>Chi square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunities for students to self-monitor their progress</td>
<td>1.46</td>
<td>1.30</td>
<td>1.31</td>
<td>1.67</td>
<td>1.33</td>
<td>0.86</td>
<td>9.34</td>
</tr>
<tr>
<td>Higher order thinking skill practice and development</td>
<td>1.40</td>
<td>1.30</td>
<td>1.21</td>
<td>1.67</td>
<td>1.31</td>
<td>0.67</td>
<td>12.14</td>
</tr>
<tr>
<td>Opportunities to develop social skills</td>
<td>1.53</td>
<td>1.67</td>
<td>1.61</td>
<td>2.00</td>
<td>1.88</td>
<td>0.54</td>
<td>13.76</td>
</tr>
<tr>
<td>Organizational skill development</td>
<td>1.51</td>
<td>1.37</td>
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<td>1.33</td>
<td>1.56</td>
<td>0.96</td>
<td>6.93</td>
</tr>
<tr>
<td>Opportunities to develop self-advocacy skills</td>
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<td>1.52</td>
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<td>2.00</td>
<td>1.63</td>
<td>0.36</td>
<td>16.34</td>
</tr>
<tr>
<td>Engage in cooperative group work</td>
<td>1.44</td>
<td>1.67</td>
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<td>2.33</td>
<td>2.13</td>
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<tr>
<td>Assistance with time management</td>
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<td>1.33</td>
<td>1.45</td>
<td>1.67</td>
<td>1.75</td>
<td>0.25</td>
<td>18.28</td>
</tr>
<tr>
<td>Engagement in extra-curricular activities</td>
<td>2.37</td>
<td>2.48</td>
<td>2.42</td>
<td>2.67</td>
<td>2.63</td>
<td>0.99</td>
<td>4.76</td>
</tr>
<tr>
<td>Increased time on task</td>
<td>1.53</td>
<td>1.77</td>
<td>1.63</td>
<td>2.00</td>
<td>1.67</td>
<td>0.70</td>
<td>11.78</td>
</tr>
<tr>
<td>Differentiation</td>
<td>1.42</td>
<td>1.42</td>
<td>1.50</td>
<td>1.67</td>
<td>1.53</td>
<td>1.00</td>
<td>3.11</td>
</tr>
</tbody>
</table>

learning communities, with 12.87% of respondents identifying it as “not effective.”

Respondents who chose “other” mentioned autonomy, shared decision making, vertical alignment, group data-sharing, sharing resources, and multi-site collaboration as helpful supports.

To answer question five (how are blended-learning schools measuring student success?), the researcher asked respondents to rate factors they used to determine student
Figure 4. Types of support offered to teachers at blended-learning schools and their perceived helpfulness.

success in order of importance. Disaggregated by blended-learning model used, Table 3 shows the mean rating of respondents’ answers to question 17 (what do you use to measure student success in your blended-learning classroom and how important to you is each measure?). Scores on curriculum-embedded assessments were rated as an important success measure in all models, while state test scores were rated as least important in rotation models, flipped classrooms, blended-learning flex models, and enriched virtual models.

Administrator survey. Of the administrator survey respondents, 51.16% (n = 22) indicated they were school site principals, 20.93% (n = 9) indicated they were school site vice principals or assistant principals, 13.95% (n = 6) indicated they were curriculum
Table 3

Mean Scores Indicating Importance, as Perceived by Teachers, of Success Indicators

Used in Blended-Learning Programs (1 = Extremely Important, 4 = Not at All Important)

<table>
<thead>
<tr>
<th>Measure of success</th>
<th>Rotation model</th>
<th>Flipped classroom</th>
<th>Blended learning files</th>
<th>A-La-Carte</th>
<th>Enriched virtual</th>
<th>p-value</th>
<th>Chi square</th>
</tr>
</thead>
<tbody>
<tr>
<td>State test scores</td>
<td>3.57</td>
<td>3.36</td>
<td>3.13</td>
<td>2.67</td>
<td>3.00</td>
<td>0.69</td>
<td>16.37</td>
</tr>
<tr>
<td></td>
<td>n = 58</td>
<td>n = 28</td>
<td>n = 32</td>
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<tr>
<td>Scores on school-created assessments</td>
<td>2.33</td>
<td>2.21</td>
<td>2.42</td>
<td>3.00</td>
<td>2.38</td>
<td>0.53</td>
<td>18.83</td>
</tr>
<tr>
<td></td>
<td>n = 58</td>
<td>n = 28</td>
<td>n = 33</td>
<td>n = 3</td>
<td>n = 16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scores on curriculum-embedded assessments</td>
<td>1.74</td>
<td>1.68</td>
<td>1.82</td>
<td>2.00</td>
<td>1.88</td>
<td>1.00</td>
<td>6.78</td>
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<tr>
<td>Course grades</td>
<td>2.60</td>
<td>2.14</td>
<td>2.16</td>
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<td>2.07</td>
<td>0.53</td>
<td>18.81</td>
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<td>n = 32</td>
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<td></td>
</tr>
<tr>
<td>Attendance rates</td>
<td>2.32</td>
<td>2.68</td>
<td>2.25</td>
<td>3.00</td>
<td>2.20</td>
<td>0.68</td>
<td>16.53</td>
</tr>
<tr>
<td></td>
<td>n = 57</td>
<td>n = 28</td>
<td>n = 32</td>
<td>n = 3</td>
<td>n = 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduation/matriculation rates</td>
<td>3.37</td>
<td>2.75</td>
<td>1.91</td>
<td>3.00</td>
<td>2.87</td>
<td>0.04</td>
<td>31.96</td>
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<td>n = 32</td>
<td>n = 3</td>
<td>n = 15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

or academic directors, and 13.95% (n = 6) indicated their job title as “other,” which included the following:

1. Classroom teacher and vice-principal.
2. Dean of student support.
3. Modified home study administrator.
4. Instructional coach.
5. Teacher/advisor.
6. Regional administrator.

Figure 5 indicates the blended-learning programs represented in the administrator survey sample along with grade levels served in each program.
To answer research questions one and two (in recognized blended-learning schools, in what ways do the blended-learning models, as perceived by administrators and teachers, contribute to their students’ success and to what degree is success attributed to the blended-learning model employed?), the researcher asked administrator survey participants to what extent they contributed their organization’s overall success specifically to their use of blended-learning (question 12). All respondents (100%) indicated that the success of their organization depended equally on the use of blended-learning and other factors. To determine what additional factors contribute to the success of the blended-learning programs administered by respondents, the researcher asked survey participants to rate to what degree certain program elements contribute to the success of their students. The results are shown in Table 4.
Table 4

*Mean Degree to Which Administrators Believe Programmatic Elements Contribute to the Overall Success of Blended-Learning Programs*

<table>
<thead>
<tr>
<th>Program element</th>
<th>Rotation model</th>
<th>Flipped classroom</th>
<th>Blended learning files</th>
<th>A-La-Carte</th>
<th>Enriched virtual</th>
<th>Mean p-value</th>
<th>Chi square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunities for self-monitoring</td>
<td>1.33</td>
<td>1.00</td>
<td>1.20</td>
<td>1.00</td>
<td>1.33</td>
<td>1.00</td>
<td>2.90</td>
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<td>n = 1</td>
<td>n = 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher order thinking skill development</td>
<td>1.56</td>
<td>1.00</td>
<td>1.47</td>
<td>1.00</td>
<td>1.67</td>
<td>0.94</td>
<td>7.60</td>
</tr>
<tr>
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<td>n = 18</td>
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<td>n = 15</td>
<td>n = 1</td>
<td>n = 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opportunities to develop social skills</td>
<td>2.22</td>
<td>1.33</td>
<td>1.93</td>
<td>1.00</td>
<td>2.33</td>
<td>0.86</td>
<td>9.30</td>
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<tr>
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<td>n = 15</td>
<td>n = 1</td>
<td>n = 3</td>
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<td></td>
</tr>
<tr>
<td>Developing organizational skills</td>
<td>2.28</td>
<td>1.33</td>
<td>1.80</td>
<td>1.00</td>
<td>1.33</td>
<td>0.87</td>
<td>9.08</td>
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<tr>
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<td>n = 1</td>
<td>n = 3</td>
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<td></td>
</tr>
<tr>
<td>Opportunities to demonstrate self-advocacy</td>
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<td>1.33</td>
<td>1.47</td>
<td>1.00</td>
<td>1.33</td>
<td>0.97</td>
<td>6.67</td>
</tr>
<tr>
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<td>n = 15</td>
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<td></td>
</tr>
<tr>
<td>Cooperative group work</td>
<td>1.89</td>
<td>1.33</td>
<td>1.80</td>
<td>1.00</td>
<td>2.33</td>
<td>1.55</td>
<td>13.73</td>
</tr>
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<td>n = 1</td>
<td>n = 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistance with time management</td>
<td>2.06</td>
<td>1.33</td>
<td>1.60</td>
<td>1.00</td>
<td>1.33</td>
<td>0.89</td>
<td>8.69</td>
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<td></td>
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</tr>
<tr>
<td>Extracurricular activities</td>
<td>2.56</td>
<td>1.33</td>
<td>2.27</td>
<td>1.00</td>
<td>2.33</td>
<td>0.14</td>
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</tr>
<tr>
<td>Increased time on task</td>
<td>1.94</td>
<td>1.33</td>
<td>1.47</td>
<td>1.00</td>
<td>1.00</td>
<td>0.86</td>
<td>9.34</td>
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<td>n = 15</td>
<td>n = 1</td>
<td>n = 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differentiation</td>
<td>1.22</td>
<td>1.33</td>
<td>1.20</td>
<td>1.00</td>
<td>1.33</td>
<td>1.00</td>
<td>0.83</td>
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<tr>
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<td>n = 1</td>
<td>n = 3</td>
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<td></td>
</tr>
</tbody>
</table>

Within blended-rotation models, differentiation was the most identified element contributing to students’ success (with a mean value of 1.22, where 1 indicates the element greatly contributes to student success and 3 indicates that it does not contribute at all to student success), followed by opportunities for students to monitor their own progress, with a mean value of 1.33. The researcher also noted that among blended-learning flex models, both differentiation and opportunities for students to monitor their
own progress were the two most identified elements contributing to student success (both with a mean value of 1.20). The factors considered to least contribute to student success across most areas were opportunities to participate in extra curricular activities, opportunities to develop social skills, and activities that help develop organizational skills. However, with \( p \)-values >0.05, the researcher could not consider any of these factors to correlate to student success, as perceived by the administrators sampled, as the high \( p \)-values did not allow the researcher to confidently reject the null hypothesis.

To gain insight into what administrators believed were effective components of their blended programs and what they believed was needed to improve student leaning, the researcher asked participants what they considered to be their program’s biggest strength and biggest area of weakness. Identified areas of strength were graduation/matriculation rates (76% of participants identified as a strength), attendance rates (75% of participants identified as a strength), and quality of staff (75% of respondents identified as a strength). Areas identified as in need of improvement were state testing outcomes (64.29% of participants identified as a weakness), parental involvement (60.71% of participants identified as a weakness), and student choice in the learning process (61.71% of participants identified as a weakness).

To answer research question three (how are administrators and teachers of schools that utilize blended-learning models using blended-learning to help their students attain success on established outcomes?), the researcher asked administrators what they provided in their blended-learning programs and to what extent they attributed each program element to their students’ success. The results are shown in Figure 6.
Figure 6. Elements provided in all types of blended-learning programs and the degree to which administrators believe they contribute to student success.

Differentiation was identified as most contributing to students’ success, followed by opportunities for students to self-monitor. Factors most identified as not contributing to students’ success were organizational skill development (14.29%), opportunities to develop social skills (10.71%), and opportunities for students to develop self-advocacy (10.71%).

To answer research question four (How are administrators supporting teachers in their use of blended-learning models?), the researcher asked administrators to identify the types of support offered to teachers at their school site. Listed by type of blended-learning model, Figure 7 shows respondents’ answers.
Figure 7. Types of support administrators offer teachers in different types of blended-learning programs. $p$-value = 1.00, degrees of freedom = 35, Chi square = 13.11.

All administrators in the blended programs, except for rotation models, offered on-site professional development (66.67% of rotation model administrators offered onsite professional development). Administrator observations were most listed as a support offered among all types of blended models.

To gain additional insight into the teaching staff at blended-learning schools involved in the study, as experience of the teaching staff may have played a part in the types of support deemed most appropriate to provide by administrators, the researcher collected data on the number of years of experience possessed by the blended-learning
administrators surveyed and the expertise of their staff. Among the administrators studied, 7.14% had more than 10 years of experience as a blended-learning program administrator, 14.29% had 6 to 10 years of experience as an administrator of a blended program, 64.29% had 1 to 5 years of experience in a blended program, and 14.29% had been administrators in a blended program for less than 1 year. These data show that a majority of the administrators included in this study are relatively new to blended-learning.

Referring to the experience of their teaching staff, among the administrators studied, only 3.57% of administrators studied stated that all teachers in their organization were experts in blended-learning best practices; 42.86% of the administrators stated that all their teachers had knowledge about best blended-learning practices and some were experts, and 25% stated that few teachers in their school had knowledge about best practices in blended-learning. These data led the researcher to determine that a majority of the staff working in the programs represented in the survey were knowledgeable about blended teaching techniques, but that few were experts, most likely due to having fewer years of experience in this area of teaching.

To answer research question five (how are blended-learning schools measuring student success), the researcher asked administrators what measures of success they use and to what degree each measure is important to them with regard to their school model. The results are presented in Table 5.

In blended-learning rotation models, the most significant source of data used to determine student success was state test scores (interestingly not identified as a significant measure of success by teachers surveyed). In flipped classroom programs, the
Table 5

*Mean Scores Indicating Importance of Success Indicators, as Perceived by Administrators, Used in Blended-Learning Programs (1 = Extremely Important, 4 = Not at All Important)*

<table>
<thead>
<tr>
<th>Measure of success</th>
<th>Rotation model</th>
<th>Flipped classroom</th>
<th>Blended learning files</th>
<th>A-La-Carte</th>
<th>Enriched virtual</th>
<th>$p$-value</th>
<th>Chi square</th>
</tr>
</thead>
<tbody>
<tr>
<td>State test scores</td>
<td>2.11</td>
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<td>2.27</td>
<td>1.00</td>
<td>2.33</td>
<td>0.85</td>
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<td>$n = 15$</td>
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<td></td>
</tr>
<tr>
<td>Scores on school-created assessments</td>
<td>2.06</td>
<td>1.33</td>
<td>1.87</td>
<td>1.00</td>
<td>1.67</td>
<td>1.00</td>
<td>6.40</td>
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<td></td>
<td></td>
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<tr>
<td>Scores on curriculum-embedded assessments</td>
<td>2.28</td>
<td>1.67</td>
<td>1.80</td>
<td>1.00</td>
<td>1.33</td>
<td>0.85</td>
<td>13.53</td>
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<tr>
<td>Course grades</td>
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<td>2.60</td>
<td>1.00</td>
<td>1.67</td>
<td>0.39</td>
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<td></td>
<td>$n = 3$</td>
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</tr>
<tr>
<td>Attendance rates</td>
<td>2.67</td>
<td>2.33</td>
<td>2.73</td>
<td>3.00</td>
<td>1.67</td>
<td>0.98</td>
<td>8.99</td>
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<td>$n = 15$</td>
<td></td>
<td>$n = 3$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduation/matriculation rates</td>
<td>2.83</td>
<td>1.67</td>
<td>2.67</td>
<td>1.00</td>
<td>1.33</td>
<td>0.94</td>
<td>11.13</td>
</tr>
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<td>$n = 15$</td>
<td></td>
<td>$n = 3$</td>
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<td></td>
</tr>
</tbody>
</table>

most significantly used measure of student success was also state test scores; in blended-learning flex models, school-created assessments; in a-la-carte programs, several data sources were noted as important to determining student success; and in enriched virtual models, the most important measure of student success was curriculum-embedded assessments and graduation/matriculation rates. Because of the wide range of rating scores among the types of blended programs, the researcher decided to analyze the $p$-values to determine the probability of finding a result more extreme than actually observed. The researcher noted that the $p$-values for all choices were $>0.05$, thus the researcher was forced to reject the null hypothesis and determined that the question may
have needed to be rewritten to obtain data that could be used to make a more certain
determination of criteria used to assess student success.

**Overview of Schools Selected for the Case Study**

The two schools participating in the case study portion of this research were
chosen based on the type of blended-learning program offered at their organization, and
were chosen from a convenience sample of participants known by the researcher or the
researcher’s dissertation committee members, and school personnel who took the online
survey and indicated they were interested in further participating in the research study.
Two schools were chosen as comparative case study sites at which the researcher
collected qualitative data.

**School A.** School A has a large student body and is associated with a school
district in the Southwest region of the United States consisting of 23 elementary, middle,
and high schools. School A is listed by the district as a nontraditional education school
and has been in operation for 10 years, serving students in Grades 6 through 12. Students
at school A enter the school through a referral process that is initiated by either teachers,
administrators, or parents, mostly due to a failure to meet matriculation criteria or earn
the number of credits required at the traditional high school they attend, though some
attend the school to accelerate their learning and earn additional credits. Enrollment at
the school fluctuates throughout the year, and some students are enrolled concurrently at
the school and at their high school of residence.

Students learn in classrooms called learning centers, which consist of individual
and group workspaces, and contain 20 desktops for student use. Two teachers oversee
between 30-50 students in all content areas, and meet with each student weekly to
monitor their progress and assist them with any academic or social issues they may be encountering. Students attend school every day for a minimum of 4 hours, and sign up to attend one of two learning blocks each day. High school students are scheduled at different times from middle school students. Instructional aides work on campus to assist students who are referred for additional services by their teacher, and work with students throughout the day one-on-one. Students generally work on one course at a time, though exceptions are made for special circumstances, and may choose to complete coursework online using Edgenuity or Apex, or by using traditional textbooks and teacher/district created paper-based assignments. Teachers at school A report that more students choose to complete paper and textbook based coursework because they believe it is easier than coursework required through Edgenuity or Apex.

**School B.** School B is a charter school operating within the boundaries of a large school district the Southwest region of the United States and has a significantly smaller enrollment than school A. The school has been open for 1 1/2 years, and is considered to be a new program. As part of a charter management corporation, school B shares some resources with the other charter school under the corporation’s management, including professional development, physical space, and back-office services. School B serves students in Grades 6 through 12 and recruits students from local schools who require remediation or acceleration due to credit deficiency or other academic/personal factors. Enrollment at the school is largest during the summer, during which students from several schools attend to remediate credits or earn credits on additional coursework with the intent to graduate early.
Students at the school attend one of three sites, called learning centers, that each include enough Chromebooks and iPads to maintain a one-to-one ratio. Students work independently online to complete coursework and may choose which device on which they want to work. When not working online with the Edgenuity program that the school uses for all of its coursework, students meet with teachers on an as-needed basis or work with other students collaboratively for various activities. School B employs four full-time teachers and one half-time education specialist, who oversee all subject areas and grades. Students each have an individualized schedule and come to the learning center between 3 and 4 days a week. Upon registration, school staff meets with students and parents to determine a plan for completing required coursework and to create an individualized schedule that fits the needs of the student.

Interview Participants

Qualitative data were collected from the two schools at which each case study was conducted, including interviews, observations, and document analysis. The researcher contacted the principals at the participating schools through email requesting participation in the study. Teachers participating in interviews were chosen by administrators at each school and were contacted by the researcher via email to set up interview and observation times and locations.

Interviews

The researcher set up interview times with each principal that were convenient to the research subject. Interviews were conducted in each school’s main office, and interviews were digitally recorded. Table 6 shows how interviewees were labeled for purposes of the study.
Table 6

*Interview Participants*

<table>
<thead>
<tr>
<th>School</th>
<th>Role of participants</th>
<th>Participant identification label</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Principal</td>
<td>SA-P</td>
</tr>
<tr>
<td></td>
<td>Teachers</td>
<td>SA-TA, SA-TB</td>
</tr>
<tr>
<td>B</td>
<td>Principal</td>
<td>SB-P</td>
</tr>
<tr>
<td></td>
<td>Teachers</td>
<td>SB-TA, SB-TB</td>
</tr>
</tbody>
</table>

The researcher used a transcription service to transcribe each interview, then coded interviews using an open coding, constant comparative method. After using color-coding to identify themes in the first interview, the researcher read each additional interview transcript and color-coded it with the same colors as used in the first interview to identify common themes. When a new theme appeared in a subsequent interview transcript, the researcher coded it with a new color and went back to previous transcripts to see if the theme was present in the previously coded interviews. Codes used and the major categories and individual themes identified in interviews are included in Tables 7 and 8.

Some categories were limited to either the administrator or teacher interviews, but most categories were present among both administrator and teacher interviewees. Categories limited to the administrator interviews were roles of the administrator, Success Criteria of School, School Structure, and Benefits of a Blended Learning Education. One category was limited to the teacher interviews, which was Challenges of Teaching in a Blended Learning Program.
<table>
<thead>
<tr>
<th>Code</th>
<th>Category</th>
<th>Major themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Administrator Job Duties</td>
<td>Instructional Leader</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Compliance and School Documents</td>
</tr>
<tr>
<td>2</td>
<td>Technology Use in the Classroom</td>
<td>Student use technology for a variety of uses</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students use One to One Technology Individually</td>
</tr>
<tr>
<td>3</td>
<td>Curriculum</td>
<td>Variety of Instructional Programs Used to Suit Individual Student Needs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use of Technology Device not Mandatory to access curriculum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All students use device: one to one to access curriculum</td>
</tr>
<tr>
<td>4</td>
<td>Assessing Student Learning</td>
<td>Students assessed in a variety of ways</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Individualized Success Criteria</td>
</tr>
<tr>
<td>5</td>
<td>Success Criteria of School</td>
<td>Success measured in a variety of ways</td>
</tr>
<tr>
<td>6</td>
<td>Relationships With Students</td>
<td>Positive Relationships With Students are Vital</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use Relationships With Students to Individualize and for Progress Monitoring</td>
</tr>
<tr>
<td>7</td>
<td>Face to Face Instruction in the BL Classroom</td>
<td>Face to Face Instruction Used to Supplement Instruction Given Via Device</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Face to Face Instruction Used to Promote Collaboration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Face to Face Instruction Used to Track/ Monitor Goals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Face to Face Instruction is Individualized</td>
</tr>
<tr>
<td>8</td>
<td>Staff Interactions</td>
<td>Staff Collaboration is Informal and Loosely Structured</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Staff Members Hold Multiple Responsibilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Staff Members Hold Highly Specialized Roles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Staff Collaboration time is Structured Based on Needs of the Organization</td>
</tr>
<tr>
<td>9</td>
<td>School Structure</td>
<td>Structure is Based on Student Need</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students Prefer Face to Face Interactions</td>
</tr>
<tr>
<td>10</td>
<td>Student Challenges</td>
<td>Motivation Time Management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Accessing Technology for Learning</td>
</tr>
<tr>
<td>11</td>
<td>Benefits of Blended Learning</td>
<td>Prepare Students for Structures that will be Encountered in College</td>
</tr>
<tr>
<td>12</td>
<td>Professional Learning for Staff</td>
<td>Learn from other schools</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Targeted to school needs</td>
</tr>
<tr>
<td>Code</td>
<td>Category</td>
<td>Major themes</td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>--------------</td>
</tr>
<tr>
<td>1</td>
<td>Challenges of Teaching in BL</td>
<td>Need more teachers. Would like to be more proactive with student issues.</td>
</tr>
<tr>
<td>2</td>
<td>Technology Use in the Classroom</td>
<td>Students use One to One Technology Individually</td>
</tr>
<tr>
<td>3</td>
<td>Curriculum</td>
<td>Balance between face to face and online to find what works</td>
</tr>
<tr>
<td>4</td>
<td>Assessing Student Learning &amp; Success Criteria</td>
<td>Individualized Success Criteria</td>
</tr>
<tr>
<td>5</td>
<td>Relationships With Students</td>
<td>Use Relationships With Students to Individualize and for Progress Monitoring</td>
</tr>
<tr>
<td>6</td>
<td>Face to Face Instruction in the BL Classroom</td>
<td>Face to Face Instruction is Individualized (individualized schedule)</td>
</tr>
<tr>
<td>7</td>
<td>Staff Interactions</td>
<td>Staff Collaboration is Structured Based on Needs of the Organization</td>
</tr>
<tr>
<td>8</td>
<td>School Challenges</td>
<td>Hardships in personal lives</td>
</tr>
<tr>
<td>9</td>
<td>Professional Learning</td>
<td>Laws</td>
</tr>
</tbody>
</table>
**Document Analysis**

The researcher coded school LCAPs and mission statements using an open coding, constant comparative method. After using color-coding to identify themes in the first document, the researcher read each additional document and color-coded it with the same colors as used in the first document to identify common themes. When a new theme appeared in a subsequent document, the researcher coded it with a new color and went back to previous documents to see if the theme was present in the previously coded documents. The researcher then compared categories and themes found in the documents to categories and themes found in administrator and teacher interviews to find commonalities. Codes used and the major themes identified in the documents are included in Tables 9 and 10.

**Classroom Observations**

The researcher set up an observation time with each teacher that was convenient to the research subject. Observations were conducted inside teachers’ classrooms, which they shared with other teachers within the school. Both schools employed a learning center set-up, in which students were able to work on devices, with texts or on writing activities, ask for assistance from the teachers in the room, or work collaboratively with one another. The researcher made sure to observe teacher activity only, as student observations were not included in the research protocol. Table 11 shows how those who were observed were labeled for purposes of the study.

The researcher developed and used a template that was approved by the institutional review board at San Diego State University prior to the study, to record observational notes, then coded observational data using an open coding, constant
Table 9

*Codes, Categories, and Themes From LCAP Analysis*

<table>
<thead>
<tr>
<th>Code</th>
<th>Category</th>
<th>Major themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Parent communication</td>
<td>Parent committees, Translation services, Communication through surveys, text, dial out, newsletter</td>
</tr>
<tr>
<td>2</td>
<td>Technology</td>
<td>Digital literacy, Increase technology infrastructure</td>
</tr>
<tr>
<td>3</td>
<td>Curriculum</td>
<td>Focus on literacy and common core, Intervention/specialist and alternative supports, Pathways options for students (STEM, CTE), Use BL for student centered work and differentiation</td>
</tr>
<tr>
<td>4</td>
<td>Assessments</td>
<td>Used to target for intervention needs, Monitor state testing and PSAT, SAT, NWEA</td>
</tr>
<tr>
<td>5</td>
<td>School-wide focus</td>
<td>Focus on 21st century skills, Literacy</td>
</tr>
<tr>
<td>6</td>
<td>Behavioral interventions</td>
<td>Alternatives to suspension, Counseling and restorative practices, Multi-tiered support systems to focus on nonacademic issues</td>
</tr>
<tr>
<td>7</td>
<td>Differentiation</td>
<td>PBL</td>
</tr>
<tr>
<td>8</td>
<td>Staff support</td>
<td>Collaboration through work groups, Peer assistance</td>
</tr>
<tr>
<td>9</td>
<td>Extended learning and support opportunities</td>
<td>Extended school year and day available through summer school and after school supports, Onsite career guidance, College prep advising</td>
</tr>
<tr>
<td>10</td>
<td>School sites</td>
<td>Alternative learning centers available (ALC), Academic acceleration and recovery centers (AARC)</td>
</tr>
<tr>
<td>11</td>
<td>Professional learning</td>
<td>PL on technology and on site tech support, PL to increase collaboration, Focused on student supports and academic interventions</td>
</tr>
</tbody>
</table>
Table 10

**Codes, Categories, and Themes From Mission Statement Analysis**

<table>
<thead>
<tr>
<th>Code</th>
<th>Category</th>
<th>Major themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Success Criteria</td>
<td>Participation in global community</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High academic standards</td>
</tr>
<tr>
<td>2</td>
<td>Socioemotional supports</td>
<td>Socioemotional supports</td>
</tr>
<tr>
<td>3</td>
<td>Learning environment</td>
<td>Safe and secure</td>
</tr>
</tbody>
</table>

Table 11

**Classroom Observation Participants**

<table>
<thead>
<tr>
<th>School</th>
<th>Role of participants</th>
<th>Participant identification label</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Teachers</td>
<td>SA-TA, SA-TB</td>
</tr>
<tr>
<td>B</td>
<td>Teachers</td>
<td>SB-TA, SB-TB</td>
</tr>
</tbody>
</table>

comparative method. After using color-coding to identify themes among the first set of observation notes, the researcher color-coded each additional set of observation notes with the same colors as used in the first set of notes to identify common themes. When a new theme appeared in the notes of a subsequent observation, the researcher coded it with a new color and went back to previously reviewed notes to see if the theme was present in them, as well. Codes used and the major categories and individual themes identified among observations are included in Table 12.

**Themes Present Across All Qualitative Data**

Once the researcher coded all qualitative data, open codes were reduced to axial codes for the purposes of simplifying the data into a few select themes, then axial codes were collapsed into selective codes, which are noted in Table 13. The researcher then
Table 12

*Codes, Categories, and Themes From Classroom Observations*

<table>
<thead>
<tr>
<th>Code</th>
<th>Category</th>
<th>Major themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Facilitation and coaching</td>
<td>Completely one on one</td>
</tr>
<tr>
<td></td>
<td>Teachers ask questions to solicit thinking</td>
<td>Student initiated or staff initiated</td>
</tr>
<tr>
<td>2</td>
<td>Modeling</td>
<td>Completely one on one, no whole group</td>
</tr>
<tr>
<td>3</td>
<td>Individual/self paced work</td>
<td>Done online</td>
</tr>
<tr>
<td>4</td>
<td>Supporting students</td>
<td>Staff conference with one another to discuss student progress</td>
</tr>
<tr>
<td>5</td>
<td>Classroom activities</td>
<td>Writing (paper based), practice (online), problem solving (online), note-taking (paper based), editing/correcting (paper based), choice activities (reading)</td>
</tr>
<tr>
<td>6</td>
<td>Classroom environment</td>
<td>High level of student autonomy. Students move around and complete activities as they want to.</td>
</tr>
</tbody>
</table>

chose to discuss each selective code for which data were present among all sources of qualitative data: interview, observations, and document analysis. These themes are listed and discussed in the next section.

**Themes Identified Through Data Analysis**

After generating selective codes from the qualitative data, the researcher was able to identify five themes present among all data sets. Below are descriptions of each theme and the data that supports each theme.

**Theme One: Understanding the Needs of Each Student Drives Individualized Instruction**

The hallmark of blended-learning programs is in understanding the needs of students. While traditional classroom environments may offer one lesson along with scaffolds to help struggling students reach the learning target, in the blended-learning
Table 13

Common Open Codes Across Qualitative Data, Axial, and Selective Codes

<table>
<thead>
<tr>
<th>Open codes</th>
<th>Axial codes</th>
<th>Selective codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology used in the classroom for a variety of uses, technology used for 1-1 instruction. Technology use in the classroom focuses on digital literacy. Need to increase technology infrastructure. Technology used at alternative education sites for acceleration and recovery.</td>
<td>Varied and multi-faceted instructional program.</td>
<td>Individualized educational path based on understanding and addressing student needs.</td>
</tr>
<tr>
<td>Variety of curricular programs used to suit individual needs, some curriculum online and some completed in textbooks and worksheets, technology not mandatory to access curriculum, one-to-one devices to access online curriculum, students prefer paper-based curriculum, need to find balance between F2F and online. Focus on literacy and common core. Use of intervention/specialist and alternative supports. Use BL for student-centered work, provide pathways options like STEM and CTE. Project based learning.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School success measured in a variety of ways (not just test scores). State testing, 21st century skills, and literacy rates. Safe campus.</td>
<td>Success measured by tests, 21st century skills, and other methods, and is based on individual student progress and path.</td>
<td>Varied and individualized measures of success used when assessing student learning.</td>
</tr>
<tr>
<td>Variety of assessments used, individual success criteria dependent on student’s current abilities, curriculum embedded assessments used to mark progress. Assessment used to target intervention needs. Progress monitor state testing and PSAT, SAT, NWEA.</td>
<td>Face-to-face time used to develop relationships and drive individualized student learning in a variety of ways.</td>
<td>Developing relationships with students that allow staff to make decisions that foster learning and individual achievement among students.</td>
</tr>
<tr>
<td>Positive relationships with students are important, using knowledge of students to make individualized decisions about curricular path. Finding alternatives to suspension, using counseling and restorative practices, and multi-tiered support systems. Socioemotional supports.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*(table continues)*
Table 13

Continued

<table>
<thead>
<tr>
<th>Open codes</th>
<th>Axial codes</th>
<th>Selective codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>The role of F2F in the classroom is to supplement online instruction, F2F used to promote collaboration, F2F used to track and monitor individual progress and counsel students, individualized F2F, students prefer F2F. Facilitation of work and coaching. Used to promote growth mindset. Help from teacher is staff or student initiated. One-on-one modeling and support. Activities: writing (paper based), practice (online), problem solving (online), note-taking (paper based), editing/correcting (paper based), choice activities (reading).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structure of the school is based on student population. School structures put in place to involve parents: parent committees, translation services, surveys, dial outs, and newsletters. Extended year and day to support students.</td>
<td>Increased outreach.</td>
<td></td>
</tr>
<tr>
<td>Informal/unstructured staff collaboration, staff hold multiple responsibilities, staff hold highly specialized roles within the organization, staff collaboration time is structured based on immediate needs of the organization.</td>
<td>Staff support consists of educating teachers/admin in laws and collaborating with other schools and each other pragmatically.</td>
<td>Staff work together in a variety of ways based on needs of school (function drives structure).</td>
</tr>
<tr>
<td>Administrator job duties: instructional leader &amp; compliance/school documents. PL consists of visiting other schools, PL targeted to school needs. Sharing resources among schools, not a lot of training on how to use online programs. Most PL is on laws, compliance, and site tech support. Staff collaboration through workgroups and peer assistance. PL used to increase collaboration and is focused on student supports and academic interventions.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*(table continues)*
### Table 13

**Continued**

<table>
<thead>
<tr>
<th>Open codes</th>
<th>Axial codes</th>
<th>Selective codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student challenges are lack of motivation, time management and independence, asking for help/self-advocacy, attendance, accessing technology for learning, and personal/home hardships.</td>
<td>Challenges are centered on motivating high-risk students and managing multiple variables simultaneously.</td>
<td>High level of choice and student involvement in curricular path to mitigate student motivation and personal challenges.</td>
</tr>
<tr>
<td>Teacher challenges are knowing and understanding all content areas, making sure students have the technology they need to do work at home, and too many students are assigned to each teacher (most F2F time is spent managing caseloads).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits of BL is that it helps prepare students for college, college prep and advising, onsite career guidance. Students participate as part of a global community, high academic standards.</td>
<td>Classrooms set up to prepare students for graduation and college/career. High level of autonomy and choice.</td>
<td></td>
</tr>
<tr>
<td>Student supports are embedded into classroom. Paraprofessionals, devices, teachers, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student autonomy is high. Students can choose to stop or initiate work. Students may switch activities or locations. Teachers allow students to make their own decisions about how to work and what to work on. Teachers as facilitators. Teacher facilitates learning, and does not drive it—all self-paced by student.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
classroom, students each engage in learning activities that are self-directed, self-initiated, and self-paced. Teachers in the blended-learning schools studied prescribed each student a different curricular path, based on his or her challenges, successes, strengths, and academic needs. Staff stated they believe students in these programs excel because they are each allowed to learn at their own pace and choose which academic tasks they want to complete first.

While allowing students to choose their own path and pace can help them meet academic standards, offering differentiated lessons can also help students meet learning targets. The schools researched assigned students different academic tasks based on their strengths and areas in need of development. For example, school A offered both text-based and computer-based instruction, so students worked with tools with which they found the most success. Vigdor (2013) stated that low performance among students in the United States is the result of teachers failing to understand the benefits of differentiating curriculum for students. Vigdor asserted that “tailoring lessons to students’ needs” (p. 49) helps better prepare students to be college and career ready. Thus, schools that are equipped to differentiate and offer varied curricular paths for students via a combination of technology and face-to-face instruction are better able to facilitate academic progress of all their students, both struggling and advanced.

The blended-learning schools in this study valued creating individualized learning paths for students. As indicated in the survey data, 85.71% of the administrative respondents stated that their school was created with the intent to offer a differentiated learning experience for students. The goals of blended-learning schools in this research
study were to allow students to learn at varied paces and in ways to meet their individual academic needs.

To achieve this high level of individualization, however, students must be able to exert some level of responsibility in order to follow through with completing required assignments. While they may have the freedom to choose when they report to class, the implication is that they must be able to complete a certain amount of work on their own beforehand. For students who do not possess the motivation to be self-driven learners, this could be a challenge of learning in a blended environment.

To meet this challenge, educators in the blended-learning schools studied, though noting that motivation was one of the biggest challenges they faced, infused structured choices into their students’ academic programs. For example, school B required students to be present onsite at least 10 hours each week, but students were able to choose which times they reported to their learning center. This type of set up is referred to as a blended-learning flex model because the students experience a completely individualized program and have the flexibility to determine with the teacher the hours they are onsite and which programs they complete. The administrator reported that if students failed to show up for their previously arranged resource center hours, staff would call home, conduct home visits, and reschedule the required hours with the students. Conversely, students who wanted to spend more time at their resource center could stay longer than their previously-arranged hours to receive extra assistance or simply to continue to work in a quiet academic environment. Students had choice, but within specific confines. Thus, they were able to make decisions that made them feel in control of their own education, but still had guidelines to adhere to that set a minimum standard of
expectation. The administrator mentioned that this loose/tight method of decision making with students allowed them to better understand their own learning strengths and weaknesses, which in turn allowed them to eventually make better decisions about their curricular path, a skill the administrator at school B stated students will need in college and career environments.

**Theme Two: Varied and Individualized Success Criteria**

Success targets were found to vary among schools, with several measures being used by schools concurrently. While a large number of schools, 64.28%, indicated that state test scores were an important success indicator, staff also indicated that other measures of success were equally important: graduation rates—57.14%, curriculum-embedded assessments—71.43%, and school-created assessments—85.71%.

While the schools studied and represented in the survey data used common assessments and state testing as indicators of student success, a common theme among these schools was also the idea of alternative measures of success for students; measures that may not necessarily be indicated on a state assessment or report card. Both of the schools from which qualitative data were collected demonstrated a willingness and desire to apply separate success criteria to different students depending on their individual situations.

For example, while each program had a general schedule of coursework that students were expected to take, they both made allowances for students who needed to accelerate or slow down their academic progress in order to demonstrate mastery of subject matter. Teachers at school A indicated that it may take more time for a student to complete one course over another because they struggle in that area or are not as
motivated. In cases such as these, staff would meet with the student to alter their course of study to take into account the extra time needed to complete one course and still be on track to graduate on time. As long as students met their learning targets overall, they were considered successful, regardless of the fact that they had to spend more time on one course over another. This individualized approach allows students to achieve success targets by modifying the amount of time allowed to reach them.

In addition to modifying coursework timelines to help students meet success criteria, staff in the blended-learning schools studied also indicated that they often celebrated small successes that put students closer to reaching their overall goals of either graduating or earning a predetermined number of credits. Staff mentioned that for many students, low motivation or attendance was a hurdle to them successfully completing coursework. Therefore, working with students to ensure they showed up on time each day was considered success, as it is a necessary step on the way toward meting their over-arching goal of completing enough credits to graduate on time. Staff mentioned that some students are unable to sit for a long period of time due to medical issues or have attention deficit disorders, and, for them, coming to class and completing one activity on time is considered success. Once students overcome their challenges and achieve small successes as they continue to participate in a blended-learning environment, they are more able to tackle larger challenges and meet school success targets. As a teacher in school A stated, “we work on small wins—one at a time.”
Theme Three: Strong Relationships With Students and Decision-Making That Fosters Individual Achievement

Being able to alter students’ courses of study based on their individual situations was a theme present in the qualitative data collected, particularly among teacher interviews. Administrators who were interviewed also expressed that the time they spent with individual students getting to know them and understand their individual needs was very helpful in helping students achieve. Student success was dependent on teachers and administrators finding out what students needed and implementing a personalized course or study and personalized supports for the individual student. In school B for example, students, parents, administrators, and teachers all meet during student enrollment to create an individual learning plan for the student, determine specific goals, and decide what the student will need to meet those established goals. This personalization is what staff insisted helped students become more successful than they were in traditional schools with less malleable curricular programs.

To develop relationships with students that help drive achievement, participating staff used the face-to-face time they spent with students to conduct conversations about their progress and help them troubleshoot areas of need. In fact, this face-to-face time is so important to the success of students, 100% of administrators surveyed labeled a rigorous face-to-face curriculum as either somewhat helpful or very helpful for students attaining academic success. In the blended-learning programs researched, the face-to-face time was pointed out as most contributing to student success. With 96.43% of administrators surveyed attributing their organization’s overall success to teaching staff, it makes sense that the relationships developed between the teaching staff and students
would be the driving force behind student achievement in programs employing blended
learning.

**Theme Four: Student Needs Drive Program Structure**

The schools studied that employed blended-learning techniques were not rigidly
structured, but rather allowed the needs of their students to dictate the structure and
procedures of the school. For example, while school A had guidelines for how many
courses students could take at a time (one), how many days it should take students to
complete each course (15 to 20), and the times that students should report in and out
each day, exceptions were continually made for students who needed them. Thus, the
guidelines were more of a default for teachers to allow students to fall back on if their
individualized schedules and structures did not promote success.

The schools studied offered course access through multiple modes of learning,
both technology and paper based, and allowed student choice to determine which mode
each learner used. Staff in the blended-learning schools fulfilled multiple roles within
their organization all directed toward reaching the individual student, regardless of the
challenges he or she brought with them to the school. What staff found to work and
offered for one student was different from what they found to work and offered another
student. Staff members at the schools were knowledgeable about their students’
challenges and intentionally searched for ways to reach them despite these challenges.
Students who felt they were good at writing or who enjoyed writing, for example, were
allowed to complete all their writing courses up front, and take extra time to focus on
mathematics courses that they found more challenging. At school A, students who enjoy
face-to-face and textbook based activities are allowed to engage in those activities rather than the online content.

**Theme Five: Increased Student Choice as a Way to Combat Low Levels of Motivation**

An element that both blended-learning schools possessed in the study, as well as the schools represented in the survey data, was a noticeable level of autonomy that was granted to students. Of those administrators surveyed, 92.86% indicated that opportunities to support students’ autonomy and independence were either somewhat helpful or very helpful in making their blended-learning program successful. Additionally, 74.07% of administrators indicated that offering students a variety of choices in their curricular path contributed to their program’s overall success.

Coupled with this independence though, was the common challenge of low motivation among students. Despite identifying student motivation as one of the biggest challenges to working in a blended environment, staff still created systems that allowed students to manage their own time for a large percentage of their day. Katz and Assor (2006) stated that choice can be motivating when options are relevant to the learner and match his or her values. Thus, it makes sense that teachers can be most successful at reaching students when they can find what matters to students, then offer choices that move them closer to their goals or closer to attaining what matters to them. Katz and Assor pointed out that it is not mere choice that motivates students, but choice in conjunction with learner relevancy that increases motivation among adolescents. By developing relationships with students, prescribing levels of autonomy that motivate students, and offering a personalized instructional path, instructors in the programs
researched created structures, policies, and procedures to help students achieve academic success.

Chapter Summary

In an effort to uncover best practices employed by successful schools using blended-learning techniques, the researcher conducted a mixed-methods study, collecting both quantitative and qualitative data. First, surveys were sent to teachers and administrators in schools utilizing blended-learning techniques to gain a broad understanding of blended-learning practices in elementary, middle, and high schools nationwide. Next, a comparison case study was conducted in which the researcher visited two schools: one, a new school open 1 1/2 years and the other, an established program open 10 years. The researcher conducted interviews with administrators and teachers at each school, observed teachers in classrooms, and reviewed school LCAPs and mission statements to gain a deeper understanding of how each school facilitated student success in a blended environment.

While the researcher expected to find noticeable differences between the two schools studied due to the number of years each school has been in operation, data collected showed that both blended-learning sites employed similar methods to drive student achievement, despite having different challenges as either a new school or a more established school site. After analyzing quantitative data and extracting axial codes from qualitative data, the researcher identified and described five themes that were apparent across all data sets. These five themes were:

1. An understanding of the needs of each student to drive individualized instruction.
2. Varied and individualized success criteria.

3. Strong relationships with students and decision-making that fostered individual achievement.

4. Student needs driving the structure of programs.

5. An increased level of student choice as a way to combat low levels of motivation.

Before conducting this research, the researcher expected to find structures, possibly research-based, that were intentionally put in place by teachers and administrators to drive student achievement. If schools that employ blended learning are successful, surely they would have a recipe for ensuring that success. Contrary to this hypothesis, the researcher discovered that the schools studied allowed the needs of their students to drive their school structures and procedures. Instead of having a specific program with specifically articulated procedures, teaching techniques, learning programs, and protocols, the schools studied employed flexible practices for each student largely on a case-by-case basis. Students in these schools did not adhere to a specific program, rather the schools adhered to what worked for each student. This malleable feature of the schools researched is what made them successful. They were able to pay attention to, understand, and be flexible enough to meet the needs of their individual students. Additionally, survey data indicated that one of the top reasons participants created their blended-learning programs was to be able to differentiate more successfully for each of their students. Finding what drives the individual student was found to be at the center of the schools’ operations.
Chapter 5 will explain these findings in-depth, along with the details of each theme identified in the research. Additionally, the researcher will describe how the data collected serves to answer the research question and subquestions. Then, the researcher will discuss implications of these findings for practitioners in the field and how the findings may be used to duplicate successful blended-learning programs. Finally, limitations of the research are presented and suggestions for further research are offered.
CHAPTER 5—DISCUSSION

Overview of the Problem

In schools across the nation, students are using technology such as iPads, Chromebooks, laptops, tablets, and other interactive devices for learning that allow them to both explore content and receive immediate feedback. These blended-learning environments augment face-to-face instruction with technology and have evolved from a need to help diverse learners effectively meet expected school and state standards. Research into using technology in the classroom has led educators to continually design and redesign technology-rich pedagogical techniques to meet the evolving needs of students for a 21st century education. To ensure students are exposed to opportunities to develop these skills and to differentiate for a wide range of learners, increasingly educators are incorporating blended-learning tools into classrooms because they find that environments with the ability to create classrooms that are “technology-rich where students and teachers have the tools needed to enact better interactions, inquiry, and feedback” (Brengard, 2016, para. 2) are helping students who may have found less success in more traditional environments.

As suggested by research presented in Chapter 2 of this dissertation, technology can help teachers more easily differentiate instructions for students. Thus, blended learning may be a viable option for students who require a more personalized educational path than traditional school programs can offer. Among the benefits of blended learning is an individualized education. This approach may help reach students who may have needs that are not addressed in nonblended learning classrooms, such as difficulty with concentration, delayed processing, behavior challenges, and students who work at an
advanced pace and tend to lose interest in whole-class lessons and routines that are common in face-to-face, traditional classrooms. Additionally, the self-advocacy and self-monitoring skills that students can learn in a blended environment may prepare them more effectively to be college and career ready.

Researchers are continuing to investigate this field to identify student and staff perceptions about and experiences in blended learning, as well as its impact on student achievement in primary and secondary schools. Research into this subject evidences attempts to answer the question of what the best “blend” of face-to-face and technology-dependent activities is to facilitate the most growth, and to examine replicable programs that can be viewed as best-practice models. This attempt is a step in the right direction in this newer area of education; however, it fails to identify commonly accepted measures of student success and guidelines for making whole-school programmatic decisions to which that success can be attributed. This discontinuity in blended-learning research justifies the need to further study this area of education. If researchers and practitioners can gain a more concrete grasp on this new field of education, both can more effectively work to improve the blended-learning landscape of public education.

**Summary of the Study and Findings**

Applying the framework of mixed-methods and case study research, this study aimed to uncover the organizational and programmatic decisions made by educators and administrators within the field of blended-learning and how well practitioners believe these methods are helping students meet established success criteria. This study sought to answer the following questions:
In recognized blended-learning schools, in what ways do the blended-learning models, as perceived by administrators and teachers, contribute to their students’ success?

- To what extent do schools that utilize blended-learning programs attribute their success to these blended programs?
- How are administrators and teachers of schools that utilize blended-learning models using blended learning to help their students attain success on established outcomes?
- How are administrators supporting teachers in their use of blended-learning models?
- How are blended-learning schools measuring student success?

To answer these questions, the researcher emailed surveys to teachers and administrators working in blended-learning programs. Survey questions asked participants to identify programmatic factors they believed contribute to the success of their school or classroom and to what degree they believe the blended model they used drove their students’ success.

Next, the researcher collected qualitative data from two school sites that employ blended learning to add insight and narrative to the quantitative data. Teachers and administrators were interviewed at each site, and classroom observations were conducted. Lastly, the researcher reviewed each participating school’s LCAP and mission statement, and color-coded all qualitative data seeking general categories and themes among the data. After examining all qualitative and quantitative data, the researcher identified five themes present across all data sets:
1. An understanding of each student’s needs to drive individualized instruction.
2. Varied and individualized curriculum paths to reach success criteria.
3. Strong relationships with students coupled with teacher decision-making that fosters individual achievement.
4. Student needs driving the structure of school and class programs.
5. An increased level of student choice as an approach to combat low levels of motivation.

Discussion of the Findings

The following is a discussion of the researcher’s findings as they relate to each research question.

Research Question One: In Recognized Blended-learning Schools, In What Ways Do the Blended-Learning Models, as Perceived by Administrators and Teachers, Contribute to Their Students’ Success?

The main purpose of this research was to determine in what ways blended-learning models contribute to student success. Differentiation was selected by teachers as the largest contributor to student success, followed by face-to-face lessons and, next, by differentiation via technology-based platforms. The elements determined by teachers as contributing to student success, however, varied overall among the blended-learning models represented in the study. Teachers in enriched virtual blended-learning models (in which students have required individual or small-group face-to-face learning at times determined by the student and instructor, and complete the rest of their courses online at home), for example, selected face-to-face lessons and differentiation via technology-based platforms as the largest contributors to student success, while teachers
in a-la-carte programs (in which students take an entirely online course to supplement learning that takes place at a brick-and-mortar site), identified practice worksheets as most contributing to student success along with both face-to-face and technology-guided differentiation.

In flipped classrooms (in which students complete work online at home to prepare for class activities at a brick and mortar school site) and blended-learning rotation models (in which students rotate among different stations in the classroom at a brick-and-mortar site), teachers identified face-to-face lessons as the single most contributing element to facilitate student success.

Administrators of rotation models who were surveyed named differentiation as contributing highly to student success, but administrators in flipped classroom models named self-monitoring and higher order thinking skill development as the factors most contributing to student success. This could be due to the fact that students in flipped classroom models are required to learn content at home and practice with the teacher onsite. To successfully complete work on their own at home, students must be self-initiated learners and critical thinkers. Among the other types of blended models represented in the data, in addition to the factors listed above, increased time on task was also identified by administrators as an important programmatic factors that help students achieve success.

These differing factors lead the researcher to determine that student success in blended programs cannot be attributed to one single blended-learning technique. Rather, the elements that go into a successful blended program and drive student achievement differ according to the type of blended-learning model each school uses. In flipped
classrooms and blended rotation models, where students typically spend a “regular school day” at a brick-and-mortar school site and augment their learning via technology, face-to-face lessons are essential to helping students understand content. The researcher found through reviewing literature in the field of blended learning that in programs such as these students learn the majority of course content via face-to-face lessons with the instructor and typically use technology for repetition and practice. In these schools, practitioners believed the quality of the face-to-face instruction more noticeably affected student performance than the technology used.

In blended-learning flex models (in which students learn online, meet onsite with a teacher for some activities, and experience an individually customized program) and enriched virtual models, students learn course content primarily online. Thus, differentiation via technology was identified as the highest determiner of student success, primarily because students in these programs use technology for the majority of their learning activities. In these programs, most of the student’s day is spent learning online at home or in learning centers. Learning is primarily individualized and self-directed. Thus, student success is dependent on the quality of the technology-based learning programs and teachers’ abilities to find programs that adapt to individual student needs.

A-La-Carte programs were found to have vastly different methods of accelerating student success than the other models included in the research. Students in A-La-Carte programs primarily learn in face-to-face traditional classrooms, and take one course at a time, a-la-carte style, to either remediate or accelerate their broad course of study. This is a good option for students who are credit deficient or who want to graduate early from high school. Because of the unique nature of these programs, A-La-Carte teachers
identified practice worksheets, differentiation, and differentiation via technology as three equally strong components of a successful program. Students in these programs work individually either on or off-site, and complete their A-La-Carte coursework in addition to their traditional coursework for the other classes in which they are enrolled at their school. The experiences of these students are different from those in other blended programs because they are only taking one course at a time in a blended environment and as an addition to their regular coursework, therefore, so are the methods used to help them.

**Research Question Two: To What Extent Do Schools That Utilize Blended-Learning Programs Attribute Their Success to These Blended Programs?**

The researcher wanted to find out to what extent blended-learning practitioners attributed their students’ success to the type of blended model they used. For example, did practitioners working in rotation models feel that it was the rotation model itself that drove student success or was success due to other factors within their schools, such as teacher quality, data analysis, etcetera? In every model represented in the study, teachers indicated that face-to-face lessons were the largest contributor to student success. Among administrators surveyed, however, differentiation was seen as most contributing to student success. During observations, the researcher noted that a large amount of re-teaching was conducted via face-to-face lessons, with teachers addressing misconceptions and re-explaining concepts with students one-on-one. Additionally, opportunities for differentiation were incorporated into the technology-driven activities, during which students could work on varied asynchronous assignments simultaneously in the classroom. The face-to-face encounters and technology-based activities were
observed to yield opportunities for differentiation and scaffolding. A wondering arises to whether or not teachers and administrators had a common perception of when differentiation occurs—either online or face-to-face. This could account for the difference in answers to this particular question.

Regarding teaching techniques, 62.5% of teachers surveyed stated that they used face-to-face instruction every day. Additionally, 54.81% of teachers surveyed stated they did not integrate discussions via online platforms at all. However, 60.58% of teachers did state that they used online platforms for differentiation. These data indicate that face-to-face approaches are used primarily for instruction and discussion. These techniques are not used by means of online programs. Instead, online programs are used to differentiate for students working at different levels and to allow for skill practice.

In the schools studied, students discussed content and learned during face-to-face encounters and practiced online. This leads the researcher to believe that some teachers in blended-learning programs may not rely as heavily on technology-driven instruction to address major learning goals, but rather on the face-to-face experiences they create for their students. In these models, the teacher would be responsible for delivering content through face-to-face activities and students practice on computers, or the teacher would subsidize online learning with additional face-to-face instruction to address misconceptions or re-teach important concepts.

However, the researcher believes this methodology would not be effective in A-La-Carte programs and found that survey data supported this idea. This is due to the fact that A-La-Carte programs require students to take a course completely online, and students in these programs generally do not meet with a teacher for instruction or
practice. Respondents from all types of blended programs surveyed stated that face-to-face instruction most contributed to student success, indicating that the model type is not seen as a large contributing factor to student success. Rather practitioners believe the success of their program is driven by a combination of face-to-face instruction and online work, which can be a component of any type of blended program (with the possible exception of A-La-Carte programs, which comprised 1.76% of respondents).

Teachers surveyed indicated that next to face-to-face instruction, the second largest contributor to student success (64.42% of respondents) was the online program(s) used. This was the second largest identified factor of successful blended programs overall, as well as the second largest identified factor in each type of program represented in the survey (face-to-face was identified as the largest contributor to student success overall and additionally in each type of program represented). Again, this indicates that it is not the type of blended model used that contributes to student success, but rather the quality of online programs used, which can be employed in any type of blended program.

**Research Question Three: How Are Administrators and Teachers of Schools That Utilize Blended-Learning Models Using Blended Learning to Help Their Students Attain Success on Established Outcomes?**

An additional purpose of this study was to determine in what ways blended-learning practitioners use blended teaching methods to increase student success. Results indicated that among participants surveyed, practitioners used blended methods to explicitly teach higher order thinking skills and saw the development of these skills as the most important facet of their program. Thus, practitioners are using blended-learning models to allow students increased opportunities to develop higher order thinking skills.
within their programs both face-to-face and online. Next to this, the development of self-monitoring skills, the development of organizational skills, and the development of time management skills were all identified by teachers surveyed as explicitly-taught skills within their programs that assist students in meeting established success criteria. Components of blended programs least contributing to students meeting success criteria were opportunities for extra-curricular activities, opportunities for social skill development, and opportunities for increased time on task.

These results, consistent across all blended programs included in the research, make sense considering the nature and intent of blended-learning programs. The focus of schools employing blended methods is often on recovering credits or accelerating students based on their individual goals or learning paths, not on extra-curricular opportunities such as one would find at traditional schools. Furthermore, based on qualitative data collected at the schools the researcher visited, students were not often instructed to work in groups collaboratively, but instead were directed to work one-on-one with their devices, or with a partner or the instructor on text-based assignments one-on-one. Thus, social skill development did not appear to be a driving component of these programs, and it did not appear to be an explicit focus.

The one data point that was most surprising to the researcher was that opportunity for increased time on task was not noted by teachers as an important element used to drive student learning in the blended-learning programs researched. In fact, it was listed as the second least important feature in blended programs, next to opportunities to participate in extra-curricular activities. Literature presented in Chapter 2 of this dissertation suggested that more time on task was a critical element of many blended-
learning programs because it allowed students to practice skills repeatedly until reaching mastery, or complete more coursework in a shorter period of time. Since time on task seems like it would be an important feature to drive learning, it is surprising to the researcher that it was not considered as a critical programmatic element among research participants.

The results discussed above pertain to all blended models included in the research. In uncovering programmatic elements used in each blended-learning program types included in the study, the researcher noted results unique to each blended model. Among blended-learning rotation models, for example, higher order thinking skill development was identified as an important programmatic element. This was followed by differentiation, and next by opportunities to engage in cooperative work. Since most rotation models exist in brick-and-mortar schools, students have the opportunity to work together and with technology, because they receive most of their instruction in classrooms by rotating among stations. Group work may be an element of this station work, as generally students rotate in groups. Additionally, teachers using this arrangement can group students into heterogeneous or homogenous groups depending on the activity. This enhances the opportunity for differentiated instruction, an overall cornerstone of blended teaching.

Research Question Four: How Are Administrators Supporting Teachers in Their Use of Blended-Learning Models?

With this study, the researcher also sought to find in what ways administrators support teachers in blended-learning programs. All administrators researched offered various types of support for teachers including on-site and off-site professional
development, coaching and observations, PLCs, and common preparation time for collaboration. The most widely offered type of support among all types of blended programs was administrator observation, followed by the use of professional learning communities.

Teachers identified common collaboration time as the most effective type of support offered to teachers, with 61.76% of participants identifying it as “very effective.” Also identified by teachers as helpful in developing their skill as blended-learning educators was individual coaching, with 47.52% of respondents identifying it as “very effective.” Support offered at the two schools at which qualitative data were collected included individual coaching and common collaboration time. Additionally, common collaboration time was identified by the principal of school A as an effective way for teachers at the school site to learn from and support each other, along with daily professional learning community (PLC) meetings with credentialed teaching staff.

Moreover, collaboration was identified by the principal of school B as an important factor in the program’s overall success, though the use of PLCs was not specifically mentioned. The principal of school B stated that in addition to weekly team meetings, the staff is “a highly communicative group. Lots of emails, all day, every day.” Regarding the use of PLC meetings and collaboration, SA-TB stated, “I feel our PLCs are really centered around improving the program, which isn’t technically what it is supposed to be yet. It’s hard to look at student data when I’m not working in an area of specialty.” These responses indicate that staff members at the study sites collaborate with one another, but perhaps not in ways that pertain to student growth, data, and curriculum development. From analyzing interview data collected at school sites, it appeared that
staff collaboration centered more on discussing individual students and their progress, and programmatic issues that needed to be solved (school site issues, student behavioral supports, etc.) than on student achievement data and curriculum. Nonetheless, staff collaboration time was viewed as very effective in helping teachers develop expertise across the blended-learning programs surveyed. This leads the researcher to hypothesize that common collaboration time may be used for other types of staff development and support in blended programs rather than the data and student work analysis that is typically a main component in PLCs.

Teachers surveyed identified onsite professional development and administrative observations as helpful as well, with 49.02% and 44.12% identifying them as “somewhat effective,” respectively. The principal of school B stated that onsite professional development was offered monthly at school B and that it was an effective way for the staff to collaborate and learn together. This shows an emphasis on site-level professional learning, as opposed to teachers leaving campus to engage in professional learning.

**Research Question Five: How Are Blended-Learning Schools Measuring Student Success?**

Finally, to find out how schools that employ blended-learning assess students, the researcher sought to find out what type of assessments are used by blended models, as well as which assessments are considered most important in measuring student success. Learning can be measured in multiple ways, and schools often use several success indicators, such as graduation rates, state assessment scores, attendance rates, course completion rates, and school wide assessments, among others, to measure the progress of their programs. The researcher hypothesized that because of the differing nature of
blended approaches, blended programs that are offering a more individualized approach to learning may have the need to use a wide array of assessments, as well.

A variety of assessments were used by teachers in the blended-learning programs represented in the study. Among teachers surveyed, curriculum-embedded assessments were identified as the most important indicators of student success. Administrators surveyed also identified scores on curriculum-embedded assessments as important indicators of student success, along with scores on school created assessments. Interview participants also named several indicators used to assess student learning, including paper based assessments, progress on online curriculum, and number of credits earned within a specific time period (in the schools researched, this time period was identified as either 3 weeks or 1 month).

Interestingly, both teachers and administrators classified state test scores as “not important” more often than most other modes of student assessment (graduation and matriculation rates were also consistently rated as unimportant, except in blended-learning flex models, in which graduation rates were recognized as the most important success indicators for that type of program). Other than state test scores, the only success indicator identified more often as “not important” among administrators was attendance rates.

These findings were somewhat unexpected because in traditional school programs, student attendance rates and state test scores are often viewed as very important success indicators to the school. However, nonseat based schools, which were included in this study, do not rely on physical attendance onsite to obtain average daily attendance (ADA) data. Therefore, it makes sense that this would not be a significant
success indicator for schools such as these. The wide array of views on what criteria are most effective in gauging student success shows the diversity among types of blended programs represented in this study. Though different types of programs have similarities, such as leveraging technology for differentiation and offering an individualized educational path, they vary in how they assess student learning and in how they view student success.

**Implications for Teachers**

Teachers using blended learning would first benefit from knowing their students well and being responsive to their varied academic and socioemotional needs. As represented in the data collected, at the core of this type of instruction is personalization. The teachers studied during the course of this research knew their students well and personalized their educational experiences. They used a general set of instructional and program guidelines set forth by the schools in which they worked, but deviated from these guidelines when needed on a case-by-case basis. Instead of prescribing one preset educational path for all their students, they used a variety of methods to make sure each student met his or her learning targets. Furthermore, in addition to the online curricular programs students accessed that helped to further differentiate their learning, teachers further personalized student learning experiences by modifying the times during which students came to school, the tasks they completed, and the ways in which they accessed material. This flexibility allowed teachers to make decisions in the best interest of their students, when they felt deviation from originally established educational paths was necessary. Allowing flexibility beyond the established procedures further empowers
teachers to be responsive to their students in order to customize their teaching for each
student.

Secondly, teachers of blended-learning programs would benefit from infusing
student choice into their lessons to increase motivation and finding opportunities to
engage students in discussions about decisions that drive or hinder their educational
progress. In addition to high levels of personalization, student choice and some levels of
autonomy were also a component of the programs studied. In the learning centers visited
in both School A and School B, for example, teachers allowed students to choose which
assignment they worked on first, where they worked, and the pace at which they
completed their assignments. When the choices students made did not yield positive
results and the teachers felt students needed redirection or assistance, the teachers
scheduled one-on-one meetings to talk to students about their progress, diagnose what
was not working, and help their students refocus. Together, they developed plans to get
the student back on track, and the teachers then monitored their students as they
continued to progress with their coursework.

Students were free to make decisions that might affect their educational outcomes,
even if, at first, the decisions did not seem to yield positive results. When this occurred,
the researcher observed that the teachers would intervene, but until then, it appeared that
students were allowed to make choices they felt best suited their own learning styles and
goals. Blended-learning schools need teachers who understand that student choice can
motivate learners; moreover, teachers of blended programs need to closely monitor the
choices their students are making so they can intervene when necessary to guide students
back toward meeting learning goals.
Finally, teachers working in blended programs would benefit from understanding the challenges identified in this study of working within a blended-learning environment. Tasked with mastering multiple subjects, keeping track of large groups of students, and battling apathy and low motivation were all identified by teaching staff as challenges. Knowing that these will be challenges of teaching in a blended environment may help teachers be proactive and seek out resources and techniques that may mitigate these challenges.

**Implications for Administrators**

Administrators must create programmatic structures that are most likely to facilitate student learning at their school sites. Additionally, administrators must find best ways to support teachers, as well as the most efficient ways to leverage resources for their schools. Administrators of blended programs would first benefit from understanding the support methods that teachers believe best assist them in their improvement efforts while teaching in blended programs. In school systems where financial resources may be limited, knowing what types of professional development and teacher supports best augment teacher performance would benefit school leaders so they can optimize spending effectively in ways that help teachers lead students to academic growth.

Secondly, administrators of blended programs would benefit from understanding the laws that regulate blended-learning and nonseat-based educational programs. Regarding educational law, the administrator of school B said, “that’s an ongoing process. That’s why I attend so many professional developments that are mostly based around legalities, because the law for independent study is always changing.” Practitioners in the programs studied were intentional in the instructional methods and
online tools they used. Attention to detail to ensure not only the quality of curriculum but also program compliance appeared to be essential to maintaining a productive program that both meets the needs of students and meets all federal and state guidelines. The area of blended-learning is large—with district, charter, and private schools using a blend of face-to-face teaching and technology-based learning tools in a variety of ways. Administrators should be prepared to enter these programs understanding their landscape so they are prepared to make decisions that will best yield results in the unique programs in which they work. This means increased professional development in the area of online learning and differentiation tools, as well as in the area of policy and law.

**Researcher’s Recommendations for Practitioners**

In reviewing both qualitative and quantitative data from the U.S. blended-learning schools included in this study, the researcher has the following recommendations for practitioners in blended-learning programs and those looking to support the development of or create new blended programs.

**Infuse Flexibility Into School Accountability Law**

In response to emerging educational accountability laws under the Every Student Succeeds Act (ESSA) established in 2015, public district and charter schools must structure their programs to increase the likelihood that they will be able to meet state and federally established goals, as well as local indicators of school success. The programs that schools are able to offer are often tied to federal or state monies and grants that have specific requirements and compliance regulations. However, if educators aim to support multitudes of learners with different challenges and areas of strength, they must be allowed the flexibility required to do so. This may mean that schools use self-created
success indicators to measure student progress, such as is encouraged by the development of the newly revised Local Control Accountability Plan template in California, rather than externally-created indicators of student learning. The teachers and administrators in the blended-learning programs studied knew their students well and were prepared to facilitate different learning programs for different students if it meant increased or improved student success. When schools must focus only on state test indicators as measures of student success though, they may lose sight of the educational opportunities and locally established accountability measures that may help drive the learning of their diverse students.

**Reconstruct the Traditional School Year Calendar**

Teachers and administrators in the blended programs studied created their school year calendars with the needs of their students in mind. School B served students year-round so they could make up or earn extra credits and either graduate early, or spend more time completing learning objectives if necessary. School A offered several tracts so students could pace themselves as needed to complete their individualized curricular plans on time, and several administrators in the study stated that differentiating for their student population was a main factor that went into the planning of their program. This demonstrates a need among blended-learning programs to deviate from the traditional academic calendar to permit students flexible schedules that allow them to more easily remediate or accelerate their learning.

**Scaffold Learning Experiences for Students**

Teachers and administrators in the schools studied indicated an understanding that all students will not learn at the same pace and will not have the same challenges and
areas of strength, but are all capable of meeting learning targets. Therefore, they used a hybrid of technology and face-to-face activities to scaffold learning experiences for their students. Teachers involved in the study were observed allowing their students to practice skills via technology for longer or shorter periods of time, depending on their understanding of that particular skill or concept. The administrator of School B mentioned that students were presented with different activities or material online when they demonstrated that they were struggling with a concept. Additionally, the program that the school used flagged the student on his or her teacher’s roster so the teacher knew intervention was needed and could offer more in-depth assistance. Several students received one-on-one assistance in which the teacher used examples, graphic representations, modeling, and questioning to help students understand a difficult concept. These are all examples of using scaffolds and different learning experiences to help students reach established goals. The learning target is the same for all students; they must all master the skills necessary to earn credits or pass their course, but the activities they complete and the assistance they receive may differ based on their individual needs.

**Use Multiple Indicators of Student and School Success**

The blended-learning schools involved in the qualitative study, and practitioners represented in the quantitative data, named a varied array of assessments used to measure student and program success. Curriculum-embedded and school-wide assessments were rated as very useful in determining student success, but, in addition, educators also looked at attendance rates, graduation rates, and state test scores. Moreover, administrators in the study identified graduation rates/matriculation rates as areas of success in their
schoo ls. Therefore, it is clear that educators employing blended learning in the study measured their schools’ success using multiple criteria.

To assist in furthering the gains these schools are experiencing, states would benefit from establishing accountability measures that incorporate multiple measures of success into their school evaluation rubrics. This is currently in development in California with recently published accountability criteria and developing local accountability measures. Although it is still in its formative stages, California’s new school accountability system will incorporate multiple indicators of school success such as attendance rates, test scores, suspension rates, and English language learner reclassification rates. Allowing flexibility in how schools and students demonstrate success will allow schools such as those who participated in the study to draw attention to the multiple ways in which they are demonstrating success for their particular student population, which may differ from measures used in traditional school programs.

**Limitations**

One limitation of this study was that it only included qualitative data from middle and high schools employing blended learning. Due to time restraints and a lack of elementary schools interested in participating in the study, the researcher did not collect data from elementary schools. Another limitation of the study was that survey data were limited to responses from 230 teachers and 43 administrators. Though this sample size allowed the researcher to answer research questions, a larger sample size would have allowed for more generalizable data.
Recommendations for Further Study

More study in this area would benefit practitioners of blended-learning programs looking to improve their balance of technology-based and face-to-face instruction. After completing the research, it became clear that further research is still needed to determine what blend of activities best promotes student success. This would include research into the best ratio of face-to-face to online learning time, and further research into the activities that are best done via face-to-face and that are best done online to maximize student learning and retention of knowledge.

Furthermore, more research is needed to determine what blend of activities best promotes learner outcomes in different content areas and grade levels. For example, teachers in the study had their students review English language arts content and misconceptions face-to-face after practicing online. Is this the most productive blend of activities for English language arts? Would the blend of activities need to be different if the subject area were math or history? The cognitive demands of each subject require students to access various skills and further research may help determine which blended techniques best assist students with this task. To maximize instructional time and help students meet specific content-related learning goals, further research in this area is needed.

Conclusion

This study explored the current status of blended learning in U.S. K-12 schools, including methods of instruction and activities, school leadership, challenges, and structures. After gaining an overall sense of how blended learning was being used through surveying administrators and teachers working in blended programs, the
researcher explored two different schools in the Southwestern most region of the United States employing blended learning. The schools held different designations, one a charter school in its second year of operation, and the other a district-run school in its tenth year of operation. Both schools served students in sixth through twelfth grade and both used blended methods, but each did so in different ways, as they deemed necessary to help their unique student population.

Data from the surveys and school site visits revealed a tendency of blended-learning programs to offer highly individualized curricular paths and a variety of curricular choices for students. All programs included in the research employed several types of teaching methods including face-to-face discussions, practice through the use of online and paper-based activities, collaboration, and the facilitation of activities requiring higher order thinking skills, such as problem solving, classifying and interpreting ideas, making inferences based on evidence, and expository writing. Participants noted that increased opportunities for differentiation led to the most success for students, as well as activities facilitated through face-to-face lessons, such as modeling and discussion. The teachers in schools visited employed face-to-face lessons, reteaching, coaching, and goal-setting with students, as well as repetition and practice with the use of technology.

Challenges faced by teachers in blended programs included having to be an expert in all content areas and managing large caseloads of students simultaneously. Additionally, since many students enter blended-learning programs because they have been unsuccessful in traditional school programs, challenges for practitioners in these schools also included finding ways to motivate often indifferent students and helping
students meet grade level standards who may have deficient credits, may be below grade level, or may have behavior challenges.

To measure student success, practitioners surveyed multiple modes of assessment, but valued data from curriculum-embedded and school-created assessments above other types of assessments. Teachers and administrators who were interviewed also stated that they measured student success according to assessments that were embedded in their online learning systems. State testing scores and attendance rates were seen as the least important success indicators.

Administrators and teachers both in traditional and blended programs would benefit from using an individualized approach similar to programs included in this study. The educators in the schools researched believed that it was their ability to differentiate that helped their students the most. Thus, practitioners who can find ways to offer highly differentiated programs for students in ways in which they can make some choices about their curricular path or pace, using guidelines established by staff, will be most successful in leading their learners toward attaining learning goals. If teachers can find ways to create academic interventions tailored to individual students that offer some level of flexibility and administrators can find ways to support teachers and assess student progress on an individual basis as they teach these programs, students of all ability levels will be more likely to make academic gains.

When employing blended-learning methods, this study may suggest that student success is not derived from the use of the blended model itself, but rather from the strong and intentional teaching techniques expended by practitioners. Thus, educators need not become experts in blended learning, but rather in the teaching methods that can best be
facilitated through the creation of a blended-learning environment. The instructor’s task then becomes not to infuse technology-based learning into his or her classroom, but rather to harness the power of technology to maximize the efficacy of the face-to-face time he or she has with students.
REFERENCES


Chi Ng, K. (2007). Replacing face-to-face tutorials by synchronous online technologies: Challenges and pedagogical implications. *International Review of Research in Open and Distance Learning, 8*(1), 1-15.


Hello! My name is Anne Mathews and I am a doctoral student at San Diego State University. I am conducting a research study about blended learning and am asking that you please take this short five-minute survey on how administrators and teachers in blended learning programs help students achieve higher levels of success than in traditional school programs.

Your participation will help in gaining a deeper insight into the decisions administrators of blended learning programs make and the structures they put in place to create successful schools.

Participation in this survey is completely voluntary. Individual names will not be attributed to survey results or in the final report. Your information and answers will be anonymous. Collected results will be shared as broad findings. You may choose to opt out of answering any question(s) or stop at any point while taking the survey.

Data from this survey will be collected and included in my dissertation, to be completed in the Spring of 2017. After you complete the survey, you will be able to leave your contact information if you wish to participate further in this study.

Thank you, in advance, for your participation.

**General Information**
The following questions refer to the type of school program in which you work and your role within your organization.
What title best describes your role within your organization?

- School Site Principal
- School Site Vice/Assistant Principal
- Curriculum or Academic Director
- Other (Please specify)

Which of the following best describes your program? (Select all that apply)

- Blended Learning Rotation Model (students rotate among different stations in the classroom)
- Flipped Classroom Model (students complete work online at home to prepare for class activities onsite)
- Blended Learning Flex Model (students learn online, meet onsite with a teacher for some activities, and experience an individually customized program)
- Blended Learning A-La-Carte Model (students take an entire online course to supplement learning that takes place at a brick-and-mortar site)
- Blended Learning Enriched Virtual Model (students have required individual or small-group face-to-face learning at times determined by the student and instructor, and complete the rest of their courses online at home)
- My school does not use blended learning

How many years have you been a leader within a blended learning program?

- Less than one year
- One to five years
- Six to ten years
- More than ten years

With which grade levels do you work?

- Elementary school
- Middle school
- High school
- K-8
- K-12
- Adult education

School Program
The following questions refer to the processes used in the creation of your blended learning program and how students interact with technology at your school site.
What factors did you consider in the creation/selection of the blended learning program used in your organization? (Select all that apply)

- Desire to improve academic achievement of current students
- Desire to create individualized learning paths for students
- Desire to offer accelerated courses for students
- Desire to offer remediation courses for students
- Desire to recruit new students/increase enrollment
- Monetary factors
- Whole-school scheduling considerations
- Other (Please describe)

Which of the following informed the creation of the blended learning program used in your organization? (Select all that apply)

- Research of other successful blended learning schools/programs
- Parent input
- Student input
- Staff input
- Community input
- Partnership(s) with outside organizations
- Whole-school scheduling considerations
- Monetary factors
- Other (Please describe)

In what ways do students in your blended learning program interact with content via technology? (Select all that apply)

- Independently, in the classroom, without the assistance of a teacher
- In the classroom, with the assistance of a teacher
- Collaboratively, as online group participants
- Collaboratively, in the classroom face-to-face
- Other (Please describe)
To what degree do students interact with one another within your blended learning program?

- Peer interaction does not occur - students work independently
- Peer interaction occurs solely online via technology-based platforms
- Peer interaction is done face-to-face only in the classroom and is facilitated by the teacher
- Peer interaction occurs in the classroom and via technology-based platforms

In general, how often do students participate in collaborative groups at your school?

- Never
- Occasionally
- About once a week
- Often - about 2-3 times a week
- Daily
- Varies - depending on the course/subject matter

**Achieving and Measuring Success**
The following questions refer to how your organization has achieved success through blended learning, how you measure success, and to what you attribute your success.
What do you use to measure student success within your blended learning program and how important to you is each measure?

<table>
<thead>
<tr>
<th>Measure</th>
<th>N/A (Not used)</th>
<th>Not at all important</th>
<th>Moderately important</th>
<th>Important</th>
<th>Extremely important</th>
</tr>
</thead>
<tbody>
<tr>
<td>State test scores</td>
<td>○</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>Scores on school-created assessments</td>
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<td>○</td>
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<tr>
<td>Scores on assessments embedded in the curriculum</td>
<td>○</td>
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</tr>
<tr>
<td>Course grades</td>
<td>○</td>
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</tr>
<tr>
<td>Attendance rates</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>Graduation or matriculation rates</td>
<td>○</td>
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</tr>
</tbody>
</table>

To what do you attribute your organization's overall success? (Select all that apply)

- ☐ Curriculum/programs used
- ☐ Teaching staff
- ☐ Parental involvement
- ☐ Data analysis and reflection
- ☐ Teacher-created lesson plans
- ☐ Other (Please describe)

To what extent do you attribute your organization's success specifically to your use of blended learning?

- ○ Blended learning does not contribute to our students' success. Success is entirely due to other factors.
- ○ Both blended learning and other factors contribute equally to our students' success.
- ○ Blended learning is the single most important factor that contributes to our students' success.
<table>
<thead>
<tr>
<th>Activity Description</th>
<th>N/A (Program does not provide)</th>
<th>Does not contribute to student success</th>
<th>Somewhat contributes to student success</th>
<th>Greatly contributes to student success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunities for self-monitoring</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Higher order thinking skill practice and development</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Opportunities to develop social skills</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Organizational ski development</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Opportunities to develop self-advocacy</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Cooperative group work</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Assistance with time management</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Opportunities for extra-curricular activities</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Increased time on task</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Increased level of differentiation</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Which of the following does your organization offer to help students attain academic success and how helpful are each of these in attaining desired levels of success?

<table>
<thead>
<tr>
<th>N/A (Program does not provide)</th>
<th>Not helpful</th>
<th>Somewhat helpful</th>
<th>Very helpful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before/after school tutoring</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual student counseling/support</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Aide/paraprofessional support in the classroom</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Rigorous technology-based curriculum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rigorous face-to-face curriculum</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Promote student independence/autonomy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repetitive practice time with content</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A variety of choices for curricular path</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individualized student schedules</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased time on task</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opportunities for relearning</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Challenges and Growth
The following questions refer to your organization's improvement efforts and how you work to overcome challenges at your school site.
As a school that employs blended learning practices, what would you consider to be your organization’s overall strengths and possible areas for improvement?

<table>
<thead>
<tr>
<th>Strength</th>
<th>Area for Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>State testing outcomes</td>
<td></td>
</tr>
<tr>
<td>Graduation/matriculation rates</td>
<td></td>
</tr>
<tr>
<td>Parental involvement</td>
<td></td>
</tr>
<tr>
<td>Attendance rates</td>
<td></td>
</tr>
<tr>
<td>Opportunities for extracurricular activities</td>
<td></td>
</tr>
<tr>
<td>Academic supports for struggling students</td>
<td></td>
</tr>
<tr>
<td>Student engagement</td>
<td></td>
</tr>
<tr>
<td>Student choice in the learning process</td>
<td></td>
</tr>
<tr>
<td>Opportunities for extra practice</td>
<td></td>
</tr>
<tr>
<td>Opportunities for higher order thinking skill development</td>
<td></td>
</tr>
<tr>
<td>Opportunities for collaboration</td>
<td></td>
</tr>
<tr>
<td>Quality of staff</td>
<td></td>
</tr>
<tr>
<td>Professional learning for staff</td>
<td></td>
</tr>
</tbody>
</table>
How knowledgeable do you believe the teachers in your organization are in the use of blended learning best practices?

- Teachers' knowledge in this area is very limited or they are completely new to blended learning
- Few teachers have knowledge in this area
- Most teachers have knowledge in this area but some do not
- All teachers have knowledge in this area, but none are experts
- All teachers have knowledge in this area; some are experts
- All teachers are experts in this area

In what ways do you or other administrators at your site support teachers in their use of blended learning? (Select all that apply)

- On-site professional development
- Off-site professional development
- Individual coaching and feedback
- Administrator observation and walk-through
- Peer observation and feedback
- Common collaboration time
- Use of professional learning communities (PLCs)
- Other (Please describe)
To what extent are each of the following a challenge to providing a blended learning program that supports student achievement?

<table>
<thead>
<tr>
<th></th>
<th>Not a challenge</th>
<th>Somewhat of a challenge</th>
<th>A big challenge</th>
<th>One of the biggest challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finding and/or retaining high quality teaching staff</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Finding quality technology-based curricular programs</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Technology device challenges</td>
<td>○</td>
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<td>○</td>
</tr>
<tr>
<td>Internet connectivity challenges</td>
<td>○</td>
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<tr>
<td>Professional development</td>
<td>○</td>
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<tr>
<td>Staff collaboration</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Scheduling/school organization</td>
<td>○</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>Finding the best blend of online and face-to-face</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>activities to best facilitate student success</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Supports for struggling students</td>
<td>○</td>
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<tr>
<td>Student motivation</td>
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<td>Student engagement</td>
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<tr>
<td>Other (Please describe)</td>
<td>○</td>
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<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Would you be interested in participating in further research to uncover best practices being used in blended learning schools? Data will be shared out with participants but will not be attributed to individuals participating in the research.

- ○ Yes, please contact me regarding participation in further research (please include contact information here - Name, School Name, Phone Number, and Email).
- ○ Maybe, please call me with more information (please include contact information here - Name, School Name, Phone Number, and Email).
- ○ No, I am not interested
Hello! My name is Anne Mathews and I am a doctoral student at San Diego State University. I am conducting a research study about blended learning and am asking that you please take this short survey on how teachers in blended learning programs help students achieve higher levels of success than in traditional school programs.

Your participation will help in gaining a deeper insight into the decisions teachers in blended learning programs make and the teaching practices they use to help students learn.

Participation in this survey is completely voluntary. Individual names will not be attributed to survey results or in the final report. Your information and answers will be anonymous and collected results will be shared as broad findings. You may choose to opt out of answering any question(s) or stop at any point while taking the survey. Data from this survey will be collected and included in my dissertation, to be completed in the Spring of 2017.

Thank you, in advance, for your participation.

General Information
The following questions refer to the type of school program in which you work and your role within your organization.

What subject(s) do you teach? (Select all that apply)

☐ Mathematics
☐ English
☐ History
☐ Science
☐ Visual or Performing Arts
☐ Computers/Technology
☐ Physical Education/Health
☐ Foreign Language
☐ Other (Please describe)
What grade level(s) do you currently teach? (Select all that apply)

- Pre-K
- Kindergarten
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

Which of the following best describes your classroom program? (Select all that apply)

- Blended Learning Rotation (students rotate among different stations in the classroom)
- Flipped Classroom (students complete work online at home to prepare for class activities onsite)
- Blended Learning Flex (students learn online, meet onsite with a teacher for some activities, and experience an individually customized program)
- Blended Learning A-La-Carte (students take an entirely online course to supplement learning that takes place at a brick-and-mortar site)
- Enriched Virtual Blended Learning (students have required individual or small-group face-to-face learning at times determined by the student and instructor, and complete the rest of their courses online at home)
- I do not use blended learning in my classroom
How many years have you been teaching in blended learning schools/programs?

- Less than one year
- One to five years
- Six to ten years
- More than ten years

How many students are you responsible for teaching/overseeing?

- 1-15 students
- 16-30 students
- 31-45 students
- 46-60 students
- 61 or more students

**Teaching Practices**
The following questions refer to your individual teaching practices.

**In the courses you teach using blended learning, how often do you integrate opportunities for student discussion via online platforms into your lessons (chat rooms, discussion boards, etc.)?**

- Not at all
- Once a month
- A few times each month
- Once a week
- A few times each week
- Every day

**In the courses you teach using blended learning, how often do you integrate opportunities for face-to-face discussion into your lessons?**

- Not at all
- Once a month
- A few times each month
- Once a week
- A few times each week
- Every day
In the courses you teach using blended learning, how often do you integrate the use of practice worksheets (such as grammar practice, math drills, etc.) into your lessons?

- Not at all
- Once a month
- A few times each month
- Once a week
- A few times each week
- Every day

In the courses you teach using blended learning, how often do you integrate the use of skill repetition or practice via online platforms into your lessons?

- Not at all
- Once a month
- A few times each month
- Once a week
- A few times each week
- Every day

In the courses you teach using blended learning, how often do you differentiate activities or use differentiation in your lessons?

- Not at all
- Once a month
- A few times each month
- Once a week
- A few times each week
- Every day

In the courses you teach using blended learning, how often do you leverage technology as a tool for differentiation or scaffolding?

- Not at all
- Once a month
- A few times each month
- Once a week
- A few times each week
- Every day
In the courses you teach using blended learning, how often do you incorporate face-to-face activities that require higher-order thinking skills in your lessons?

- Not at all
- Once a month
- A few times each month
- Once a week
- A few times each week
- Every day

In the courses you teach using blended learning, how often do you incorporate activities that require higher-order thinking skills via online platforms in your lessons?

- Not at all
- Once a month
- A few times each month
- Once a week
- A few times each week
- Every day

In the courses you teach using blended learning, how often do you incorporate face-to-face activities that require inquiry or investigation skills in your lessons?

- Not at all
- Once a month
- A few times each month
- Once a week
- A few times each week
- Every day

In the courses you teach using blended learning, how often do you incorporate activities that require inquiry or investigation skills via online platforms in your lessons?

- Not at all
- Once a month
- A few times each month
- Once a week
- A few times each week
- Every day
Achieving and Measuring Success
The following questions refer to how you have achieved success in your blended learning classroom, how you measure success, and to what you attribute your students' success.

To what do you attribute your students' overall success in your class? (Select all that apply)

- The online curriculum/programs you use in the courses you teach
- The face-to-face lessons you provide for students in the classroom
- The supplemental support you give students outside of the classroom (after school tutoring, homework, etc.)
- Other (Please describe)

Other (Please describe)

What do you use to measure student success in your blended learning classroom and how important to you is each measure?

<table>
<thead>
<tr>
<th>Measure</th>
<th>N/A (Not used)</th>
<th>Not at all important</th>
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<tr>
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<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Which of the following do you provide in your blended learning classroom and to what degree do you believe each contributes to your students’ success?

<table>
<thead>
<tr>
<th></th>
<th>N/A (Class does not provide)</th>
<th>Does not contribute to student success</th>
<th>Somewhat contributes to student success</th>
<th>Greatly contributes to student success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunities for student self-monitoring</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Higher order thinking skill practice and development</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Opportunities to develop social skills</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Organizational skill development</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Self-advocacy</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Cooperative groupwork</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Assistance with time management</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Opportunity for extra-curricular involvement</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Increased time on task</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Increased levels of differentiation</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Challenges and Growth
The following questions refer to your strengths, improvement efforts, and how you work to overcome challenges in your classroom.

In what ways do administrators support you in your use of blended learning and how effective do you find this support?

<table>
<thead>
<tr>
<th>N/A (School does not provide)</th>
<th>Not effective</th>
<th>Somewhat effective</th>
<th>Very effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onsite professional development</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Offline professional development</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Individual coaching and feedback</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Administrator observation and walk-through</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Facilitating peer observation and feedback</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Common collaboration/teacher prep time</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Use of professional learning communities (PLCs)</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Other (Please describe)</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

To what extent are each of the following a challenge to providing a blended learning curriculum in your classroom that supports student achievement?
<table>
<thead>
<tr>
<th>Challenge</th>
<th>Not a challenge</th>
<th>Somewhat of a challenge</th>
<th>A big challenge</th>
<th>One of the biggest challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formative assessment</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Finding academic programs online appropriate for my curriculum/classroom</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Technology device or connectivity challenges</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Learning new technology/online programs</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Collaboration with other staff</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Discipline</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Finding the best blend of online and face-to-face activities to best facilitate student success</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The time it takes to create meaningful online interactions for students</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Supports for struggling students</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Student time on task</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Student motivation</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Student engagement</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Other (Please describe)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
APPENDIX C

Consent Forms

San Diego State University

Consent to Act as a Research Subject
Blended Learning:
Current Practices and Policies of High Performing Schools

Dear Educator,

You are being asked to participate in a research study exploring blended learning practices and educational environments. Before you give your consent to volunteer, it is important that you read the following information and ask as many questions as necessary to be sure you understand what you will be asked to do.

This study is being conducted by Anne Mathews, Doctoral Candidate in the Department of Educational Leadership, under the supervision and direction of Dr. Douglas Fisher, Department of Educational Leadership Chair at San Diego State University.

Purpose of the Study:
The primary purpose of this research is to examine how schools that employ blended learning practices are preparing students for the future. The secondary purpose is to contribute to the body of knowledge regarding k-12 blended learning education. The results will be reported in the researcher’s dissertation. You have been identified for this study because your school is affiliated with Future Ready or Next Generation Learning as a high performing blended learning school and because you indicated in the survey you took regarding blended learning practices that you were interested in further participation in this study.

Description of the Study:
If you decide to participate, you and possibly, members of your leadership team will be interviewed using the attached questionnaire. Additionally, if you decide to participate the researcher will travel to your school site to conduct observations, about which more information will be provided in a separate document prior to conducting the research.

The interview will take anywhere from twenty minutes to one hour depending on the length of the responses and dialogue between the researcher and the interviewee.

Confidentiality:
If you decide to have your school participate in the study, your responses will be anonymous – that is, recorded without any identifying information that is linked to you or your school. All data will remain confidential. Upon completion of the data collection phase of this study, any possible link to your identity will be destroyed.

Interview responses from the study’s and classroom observation data will

Institutional Review Board

Study Number: 2477098
be stored on the researchers’ password-protected computer, accessible only to the researchers Anne Mathews and Dr. Fisher. Should the research be used in a published study, only the provinces or regions of each country will be identified.

Benefits of the Study:
The research findings will be shared with you prior to being shared with others. The findings may provide practical and powerful information to help educational leaders improve their overall systems.

Costs and/or Compensation:
There are no costs to you for participation in this study. You will not be paid to participate in this study.

Voluntary Nature of Participation:
Participation in this study is voluntary. If you decide to participate, you are free to withdraw your consent and stop your participation at any time without penalty.

Questions about the Study:
If you have any questions regarding the research, you can reach me, Anne Mathews, at (838) 442-0938 or at ammathews22@yahoo.com. You may also reach Dr. Fisher at dfisher@mail.sdsu.edu. You may also contact the Institutional Review Board at San Diego State University at (819) 594-6622.

Consent to Participate:
The San Diego State University Institutional Review Board has approved this consent form. Your signature below indicates that you have read the information in this document and have had a chance to ask any questions you have about the study. Your signature also indicates that you agree to be in the study and have been told that you can change your mind and withdraw your consent to participate at any time. You have been told that by signing this consent form you are not giving up any of your legal rights. A copy of the consent form will be provided for your records.

Name of Participant (please print)

Signature of Participant Date

Signature of Principal Investigator Date

Thank you in advance for participating in this research study.

Institutional Review Board

Study Number: 2477098
San Diego State University

Consent to Act as a Research Subject

Blended Learning:
Current Practices and Policies of High Performing Schools

Dear Educator,

You are being asked to participate in a research study exploring blended learning practices and educational environments. Before you give your consent to volunteer, it is important that you read the following information and ask as many questions as necessary to be sure you understand what you will be asked to do.

This study is being conducted by Anne Mathews, Doctoral Candidate in the Department of Educational Leadership, under the supervision and direction of Dr. Douglas Fisher, Department of Educational Leadership Chair at San Diego State University.

Purpose of the Study:
The primary purpose of this research is to examine how schools that employ blended learning practices are preparing students for the future. The secondary purpose is to contribute to the body of knowledge regarding k-12 blended learning education. The results will be reported in the researcher’s dissertation. You have been identified for this study because your school is affiliated with Future Ready or Next Generation Learning as a high performing blended learning school and because your involvement was recommended by your administrator(s).

Description of the Study:
If you decide to participate, you will be observed using the attached observation protocol. The observation will last approximately 60 to 120 minutes.

Confidentiality:
If you decide to participate in the study, observation notes will be anonymous — that is, recorded without any identifying information that is linked to you or your school. All data will remain confidential. Upon completion of the data collection phase of this study, any possible link to your identity will be destroyed. Classroom observation data will be stored on the researchers’ password-protected computer, accessible only to the researchers Anne Mathews and Dr. Fisher. Should the research be used in a published study, only the provinces or regions of each country will be identified.
Benefits of the Study:
The research findings will be shared with you prior to being shared with others. The findings may provide practical and powerful information to help educational leaders improve their overall systems.

Costs and/or Compensation:
There are no costs to you for participation in this study. You will not be paid to participate in this study.

Voluntary Nature of Participation:
Participation in this study is voluntary. If you decide to participate, you are free to withdraw your consent and stop your participation at any time without penalty.

Questions about the Study:
If you have any questions regarding the research, you can reach me, Anne Mathews, at (858) 442-0938 or at annemaries22@yahoo.com. You may also reach Dr. Fisher at dfisher@mail.sdsu.edu. You may also contact the Institutional Review Board at San Diego State University at (619) 594-6622.

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Name of Participant (please print)

Signature of Participant Date

Signature of Principal Investigator Date

Thank you in advance for participating in this research study.
APPENDIX D
Administrator Interview Questions

San Diego State University
Administrator Interview


Researcher: Anne Mathews
Administrator’ Title
School Site: Grades Served:
Interview Time (Start and End): Date:
BL Model(s) used:

1. What is your primary role at your school?
2. Other than clerical personnel, what other non-classroom based staff do you have at your school and what are their primary functions?
3. What type of devices are used at your school and with what device-student ratio?
4. What curricular programs do you use at your school?
5. How do you assess student learning?
6. Would you consider your school a high performing school?
7. If so, to what do you attribute your school’s high student performance levels?
8. Do you have other criteria that you use to measure your school’s success?
9. To what practices do you attribute your school’s overall success?
10. Describe how students use technology in the classroom. For what activities do they use it?
11. Do students at your school spend more time on their devices or more time engaging in face-to-face activities?
12. In what type of face-to-face activities do your student primarily engage?
13. What type of professional development do you offer your staff?
14. In what type of professional development do you as an administrator engage?
15. Describe how teachers work with one another at your school.
16. What changes would you like to make right now to your school?
17. What changes are you planning on making to your school in the next school year?
18. Where do you see your school in five years?
19. What are some of your biggest challenges as an administrator of a blended learning school and how do you overcome them?
20. What are some of the biggest challenges blended learning schools face and how do you work to overcome them?
APPENDIX E
Teacher Interview Questions

San Diego State University
Teacher Interview


<table>
<thead>
<tr>
<th>Researcher: Anne Mathews</th>
<th>Grades Served:</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Site:</td>
<td>Subject(s) Taught:</td>
</tr>
<tr>
<td>Grade(s) Taught:</td>
<td>Date:</td>
</tr>
<tr>
<td>Interview Time (Start and End):</td>
<td></td>
</tr>
<tr>
<td>BL Model(s) used:</td>
<td></td>
</tr>
</tbody>
</table>

1. What is your primary role at your school?
2. What type of devices are used in your classroom and with what device-student ratio?
3. What curricular programs do you use?
4. Describe how you plan your lessons.
5. How do you assess student learning?
6. Describe how students use technology in your classroom. For what activities do they use technology?
7. Do students in your class spend more time on their devices or more time engaging in face-to-face activities?
8. In what type of face-to-face activities do your students primarily engage?
9. In what type of professional development do you participate?
10. Describe how teachers work with one another at your school.
11. What are some of your biggest challenges as a teacher using a blended learning program and how do you overcome them?
12. What are some of the challenges students new to blended learning program face?
13. Are these different from the challenges students who have been working in a blended environment for more than a year? How?
14. What changes would you like to make right now to your classroom? Why?
15. What changes would you like to make right now to your school? Why?
# Observation Protocol

**San Diego State University**  
Classroom Observation Protocol


<table>
<thead>
<tr>
<th>Teacher Task</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecturing</td>
<td></td>
</tr>
<tr>
<td>Interactive Direction</td>
<td></td>
</tr>
<tr>
<td>Facilitation/Coaching</td>
<td></td>
</tr>
<tr>
<td>Modeling</td>
<td></td>
</tr>
<tr>
<td>Whole Class Discussion</td>
<td></td>
</tr>
<tr>
<td>Small Group Discussion</td>
<td></td>
</tr>
<tr>
<td>One-On-One Assistance</td>
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</tr>
<tr>
<td>One-On-One Questioning</td>
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</tr>
<tr>
<td>Facilitation of Individual/Self-Paced Work</td>
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<tr>
<td>Activities</td>
<td>Notes</td>
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<tr>
<td>------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Individual Work on Device</td>
<td></td>
</tr>
<tr>
<td>Group Work on Device</td>
<td></td>
</tr>
<tr>
<td>Individual Work (Not on Device)</td>
<td></td>
</tr>
<tr>
<td>Group Work (Not on Device)</td>
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</tr>
<tr>
<td>Repetitive Practice</td>
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</tr>
<tr>
<td>Writing</td>
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<tr>
<td>Problem Solving</td>
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<tr>
<td>Note-Taking</td>
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</tr>
<tr>
<td>Reading (Comprehension)</td>
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<tr>
<td>Reading (Phonics Practice)</td>
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<tr>
<td>Editing/Correcting</td>
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</tr>
<tr>
<td>Choice Activities</td>
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</tr>
<tr>
<td>Test Prep</td>
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</tr>
</tbody>
</table>