A COMPARATIVE STUDY BETWEEN ONLINE CHARTER

HIGH SCHOOLS AND TRADITIONAL HIGH SCHOOLS

IN CALIFORNIA

by

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Abstract

The percentage of students who graduate from high school within four
years in the United States has remained between 65 and 70% since the late 1960s.
Despite various educational reforms, the number of students who are at-risk of
dropping out of high school has remained constant, increasing in some years and
decreasing in other years. Two innovative educational movements developed in
the 1990s may help to reduce the number of school dropouts: charter schools and
online schools. The first state charter school law was passed in Minnesota in 1991
and then California in 1992. Since then, more than 4500 charter schools have
developed across the U.S. Among all states, California has the largest number of
charter schools and the largest number of charter school students (20% of all
students attending charter schools reside in California).

This study compared students attending online charter schools with
students attending traditional high schools in California to determine if at-risk
students are more successful in online charter schools. There were 10 online
charter high schools (grades 9-12) chosen that had operated for more than two
years. A random sample of 10 traditional high schools were chosen as comparison
schools based on the percentage of free and reduced lunch students, an indicator of

at-risk students. Analysis revealed that the number of students attending online charter schools increased yearly by more than 80% between 2006 and 2009 in California and represents less than 1% of the total high school enrollment. Further analysis revealed that the percentage of students who scored proficient or above on the California Standards English Language Arts test was similar in both online charter and traditional high schools. Conversely, the number of students who drop out of high school was greater in online charter schools than in traditional high schools. Pearson's chi-square was used to determine significance. Although chi-square results did show significance in sampling, there was not enough data available to suggest that at-risk students are being more successful in online charter schools at this time.

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- My Facebook friends

I dedicate this dissertation to my daughter, Brittany, who has not only encouraged me on this journey, but continues to excel in her own journey of learning.

*"Lack of school success is probably the greatest single cause
which impels pupils to drop out of school."*

- Leonard Ayres, 1909

"*One cannot seek knowledge about an innovation
until he or she knows it exists.*"

- Everett Rogers, 1963

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CHAPTER 1: INTRODUCTION

Purpose of the Study

There are three significant educational directions that informed this study: high school student dropout rates, increased charter schools, and increased online schools. These three topics have been studied individually, but not together. The purpose of this study was to examine student achievement and student dropout rates in online charter high schools and traditional high schools in California to determine if at-risk students are more successful in online charter high schools.

Background

Student Dropout Information

Ayres (1909), in his study of students who dropped out of school in New York, wrote, "Success is necessary to every human being…to live in an atmosphere of failure is tragedy to many" (p. 99). Since that time, researchers have studied and analyzed the number of student drop outs and the reasons that student drop out of school before earning a high school diploma. The percentage of students who completed high school with a diploma in the United States has remained constant since the mid-1960s (Wehlage, Rutter, Smith, Lesko, & Fernandez, 1989). In 1900, it was estimated that 10% of males earned a high school diploma. By 1950, the percentage of both males and females increased to a 50% completion rate. In the mid-1960s, the completion rate climbed to 75% where it has remained since (Laird, DeBell, & Chapman, 2006; Wehlage et al., 1989). The most recent report regarding student dropouts from the U.S. Department of Education indicates that the national status completion rate or students who have completed high school was 83.9% in 1980 and has risen to 89% in 2007 (Cataldi, Laird, KewalRamani, & Chapman, 2009). A newer measure of

dropouts – the averaged freshman graduation rate – became the common measure for determining dropouts in 2008 (*A Uniform, Comparable Graduation Rate Graduation Rate*, 2008). The averaged freshman graduation rate (AFGR), an estimate of the percentage of students who graduated on time and within 4 years, among public school students, trended upwards between the class of 2001-2002 and the class of 2005-2006, from 72.6% to 73.2% (Cataldi et al., 2009).

Generally, high school completion (or dropout) research falls into two categories: student factors and school factors. Student factor research has revealed that students drop out because of economics, demographics or family history. Studies have shown that the largest percentage of students who drop out tend to be from low income families, who are Latino or African American, with parents who have little education (Ayres, 1909; Rumberger, 1983; Wehlage et al., 1989). School factor research has identified that students drop out because of grade retention, credit deficiency, course failure, discipline problems or disenchantment with teachers and the school system (Bridgeland, Dilulio, & Morison, 2006; Rumberger, 1987; Wehlage et al., 1989; Wehlage & Rutter, 1985). Longitudinal studies have shown that more male students drop out of school than female students (Cataldi et al., 2009). Recent studies have indicated that close to 50% of Latino and African American students drop out of high school before graduation, especially in large urban locations in the United States (Fry, 2003). In 2007, the national averaged freshman graduation rate was 73.2%. Of this percent, 60.1% were male, 18.8% were Black, and 30.1% were Hispanic (Cataldi et al., 2009; *Left Behind in America*, 2009). Among all high school students in the United States, depending on how one calculates student dropouts, the percentage of students who drop out has remained steady at between 20% and 25% (Cataldi et al., 2009; Laird

et al., 2006). Dropping out is a result of a complex combination of individual, family and school factors over time.

Charter School Information

The concept of "charter" schools originated in the 1970s and is generally credited to New England educator Ray Budde (Fuller, 2000). Budde suggested that groups of teachers be given contracts or "charters" by their local school boards to explore new approaches. Albert Shanker, past president of the American Federation for Teachers, also receives credit for helping move the charter school concept along in the late 1980s (Nathan, 1996). Generally, charter schools are defined as an "independent public school of choice, freed from rules but accountable for results" (Finn, Manno, & Vanourek, 2000, p. 58).

In the late 1980s, Philadelphia developed a school-within-a-school concept that was termed "charters." When the experiment was successful, other places refined the approach. In Minnesota, educators developed charter schools with three basic values: opportunity, choice and responsibility for results. Minnesota passed the first charter school law in 1991 and California followed shortly in 1992. The first charter school developed was City Academy in St. Paul, Minnesota in 1992 (Horn, 2009). Gradually, the number of states passing a charter school law increased from 19 in 1995 to 42 in 2004. Currently, 4,600 charter schools serve 1.4 million students in 40 states and the District of Columbia (Allen, Consoletti, & Kerwin, 2009). The number of students enrolled in charter schools as compared to all public schools in 2007-2008 was 2.6% (Lake, 2008).

The elements of charter schools include school choice, deregulation and decentralization, competition and marketing, and accountability (Murphy & Shiffman, 2002). Additionally, charter schools can be classified as traditional, progressive, vocational, general, and alternative (Carpenter, 2006).

Online School Information

The Internet began as an electronic network between several colleges in 1969, and by 1991, the World Wide Web as it is known today, was born. The World Wide Web reached a tipping point in 1999 when more than 50% of the population was using the Web for some activity (Shirky, 1999) and from that point forward, a progression of services moved to the Web, including the delivery of education. The first "Internet/online" courses were established in 1986 in New Hampshire as part of the Quantum Link Community College project, which grew out of the Computer Assisted Learning Center or CALC (Morabito, 1999). In 1998, the first online course management systems (WebCT, Blackboard and Moodle) were available for use for the masses. Eventually online course offerings extended to all colleges and universities and then, K-12 education (Greenway & Vanourek, 2006).

The print version of distance education, known as "correspondence courses" was first developed at the University of Chicago in 1891 (Greenway & Vanourek, 2006).   Otto Peters was one of the first to make important contributions to distance education theory and described "an industrialized theory for distance-teaching organizations" in 1967 (Beaudoin, 2003).

One of the first reports that documented K-12 online learning described the statewide developing virtual school programs in Florida, Kentucky, Michigan, New Mexico and Utah (Clark, 2001). In this report, Clark set the framework from which all other K-12 online learning research would emanate. The Utah Electronic School is considered to be the first K-12 online school and opened to students in 1994. The Florida Virtual School, considered to be one of the first statewide models of online schooling, was established in 1997. The National Center for Education Statistics estimates that during the 2002–03 school year,

328,000 public school students were enrolled in some type of distance education course—including Internet-based and other types of distance education programs (Setzer & Lewis, 2005). As of September 2007, 42 states have significant supplemental online learning programs (in which students enrolled in physical schools take one or two courses online), or significant full-time programs (in which students take most or all of their courses online), or both (Watson & Ryan, 2007).

National and State Comparisons – California Focus

A comparison of states regarding student enrollment, student dropouts, charter schools, and charter online schools provides a national context for this study. The National Center for Education Statistics (NCES) produces an annual report entitled *Digest of Educational Statistics* (Snyder, Dillow, & Hoffman, 2009). The latest version of this report identified the states where most K-12 students are enrolled. The states that enroll the largest percentage of students in the U.S. are as follows: California (13%), Texas (10%), New York (6%), Florida (5%) and Illinois, Pennsylvania and Ohio at 4% (Snyder et al., 2009).

The most recent dropout report from NCES analyzing data from the 2006-07 school year revealed that the state by state event dropout rate ranges from 2% to 7.6% while the national event dropout rate is 4.4% (Stillwell, 2009). The states with the largest event dropout rates include: Arizona (7.6%), Louisiana and Michigan (7.4%), Colorado (6.9%), New Mexico (6.1%), and Rhode Island (5.8%). Among the largest enrollment states, the event dropout rates are as follow: California (5.5%), New York (5.3%), Texas (4.0%), and Florida (3.8%). The state by state averaged freshman graduation rate (AFGR) ranges from 52 to 88% while the national AFGR was 73.9%. Among all states, the highest AFGR rates were as follows: Vermont (88.6%), Wisconsin (88.5%), Iowa, Nebraska and

Minnesota (86.5%, and New Jersey (84.4%). Among the large enrollment states,

the AFGR was as follows: Texas (71.9%), California (70.7%), New York

(68.8%), and Florida (65%) (Stillwell, 2009).

The number of students who attended charter schools and the percentage of

students who choose a school other than their assigned public school has increased

since the first state charter school laws were passed in 1991. One report shows the

national trends of charter school enrollment and demographics (Allen &

Consoletti, 2010). There were 1,536,099 students enrolled in charter schools

throughout the U.S. in 2009.   Figure 1 shows how charter school enrollment has

increased since 1999.
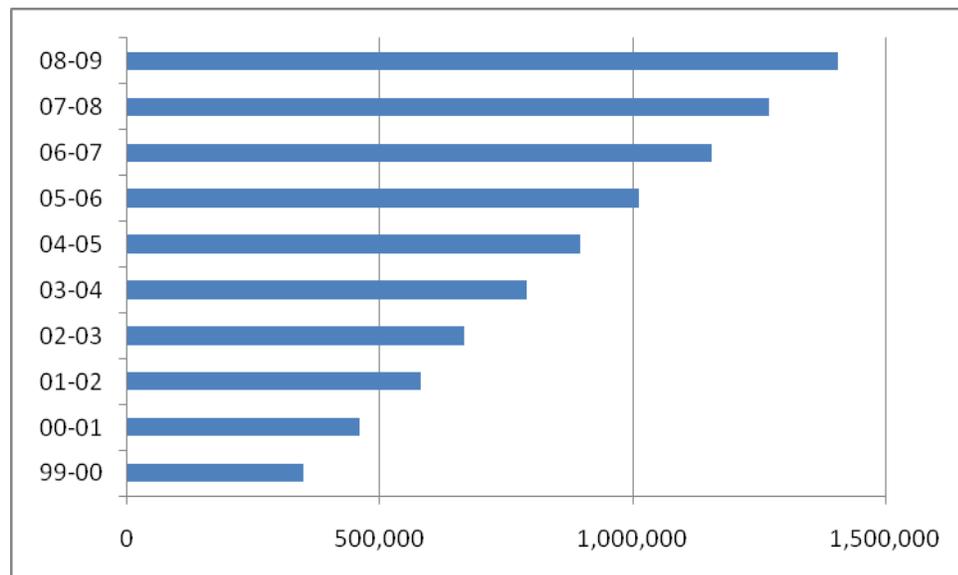
Figure 1. U.S. charter school enrollment, 1999-2009. Data from *Annual Survey of America's Charter Schools,* by J. Allen and A. Consoletti, 2010, Washington, D.C.: Center for Education Reform.

Table 1 shows the percentage of U.S. charter school students who are

classified as low income or free and reduced priced lunches from 1999 to 2009.

Table 1

U.S. Charter School Percentage of Students Classified as Free and Reduced Price Lunch, 1999-2009

Year	Percentage of students classified as free and reduced price lunch
1999-00	27.6
2000-01	29.3
2001-02	30.2
2002-03	34.7
2003-04	35.2
2004-05	38.0
2005-06	43.4
2006-07	44.5
2007-08	46.5
2008-09	47.9

Note: Data from *Annual Survey of America's Charter Schools,* by J.Allen and A. Consoletti, 2010, Washington D.C.: Center for Education Reform.

Table 2 shows the ethnic distribution of students enrolled in U.S. charter schools from 1999 to 2009.

A national report released in 2006 by NCES indicated that the percentage of students attending charter schools increased from 1993 to 2003 (Tice, Chapman, Princiotta, & Bielick, 2006). Table 3 shows the percentage of students attending different types of schools in the United States between 1993 and 2003.

Table 2

U.S. Charter School Student Ethnic Distribution, 1999-2009

Year	Anglo	African American	Hispanic	Asian	Other
99-00	41.9%	33.1%	19.4%	2.8%	2.8%
00-01	42.3%	33.0%	19.3%	2.9%	2.5%
01-02	41.5%	31.7%	19.6%	3.0%	4.1%
02-03	41.1%	32.8%	20.3%	3.0%	2.7%
03-04	41.4%	31.5%	21.2%	3.2%	2.8%
04-05	41.2%	30.7%	21.4%	3.2%	2.5%
05-06	40.2%	31.4%	19.7%	3.4%	5.2%
06-07	38.9%	30.7%	24.0%	3.4%	2.9%
07-08	39.1%	30.9%	22.0%	3.6%	4.5%
08-09	38.5%	29.7%	24.6%	3.9%	3.4%

Note: Data from *Annual Survey of America's Charter Schools,* by J.Allen and A. Consoletti, 2010, Washington D.C.: Center for Education Reform.

Table 3

U.S. Distribution of Students in Grades K-12 by Type of School in 1993 and 2003

Type of school	1993	2003
Public, assigned	80%	74%
Public, chosen (charter schools)	11%	15%
Private, church-related	8%	8%
Private, not church-related	2%	2%

Note: Data from *Trends in the Use of School Choice 1993-2003,* by P.Tice, C. Chapman, D. Princiotta and S. Bielick, 2006, Washington, D.C.: U.S. Department of Education, National Center for Education Statistics.

Tice et al. (2006), the authors of an NCES report about charter schools in the U.S., estimated there were a total of 627,000 students enrolled in 2,179 charter schools in 2004. The Center for Educational Reform (CES) has completed yearly surveys regarding charter school demographics. Their data indicates there were 1,536,000 students enrolled in 4,624 charter schools in 2009 (Allen et al., 2009). The states with the largest charter school student enrollment in 2009 were as follows: California (299,742), Arizona (132,229), Florida (131,183), Texas (129,853), Michigan (99,660) and New York (44,000). Overall, the number of students enrolled in charter schools continues to increase each year.

Additionally, the National Alliance for Charter Schools has rated the charter policies and laws by state. Of the 20 components that are used to rate each state, there are four areas they deem of greatest importance including transparent charter application and review process, performance-based charter contracts, comprehensive monitoring of charter schools, a data collection process, and clear processes for renewal and nonrenewal of charter schools (Ziebarth, 2010).

Rankings of the states were as follows: Minnesota (1), District of Columbia (2), California (3), Georgia (4), and Colorado (5). The largest enrollment states were ranked as follows: New York (8), Florida (11), and Texas (21).

The number of online schools and enrollment in online schools has been estimated on a yearly basis (Watson, Gemin, Ryan, & Wicks, 2009). It was found that 45 states including Florida, California, and Texas had some type of statewide online initiative or school. New York is the only large student enrollment state without an online school initiative (Watson et al., 2009). In addition, the Center for Digital Education reviewed state policies and vision regarding online learning and rated states accordingly in 2008 (Online learning policy, 2008).   Their findings ranked the top states as follows: Florida (1), Michigan (2), Idaho (3), Arkansas (4), and Louisiana (5). In other states with the largest student enrollment, the ratings were as follows: Texas (13), New York (47), and California (49).

The State of California contains 13% of the total U.S. K-12 public school student enrollment (*Enrollment in Public Elementary and Secondary Schools,* 2009*)*, 20% of the public charter school enrollment (Allen et al., 2009) and is one of the top rated states regarding charter school law and policy (Ziebarth, 2010). The schools of California will be the primary institutions examined for this study. Figures 2, 3, and 4 illustrate the trends in California regarding the number of charter schools, charter school enrollment and online charter school enrollment.

<p align="center">Context of the Study</p>

Despite reform efforts and the implementation of various dropout prevention programs, the percentage of students completing high school in the United States has remained the same for the past 30 years (Cataldi et al., 2009; Laird et al., 2006; Wehlage et al., 1989). Part of the promise of charter schools
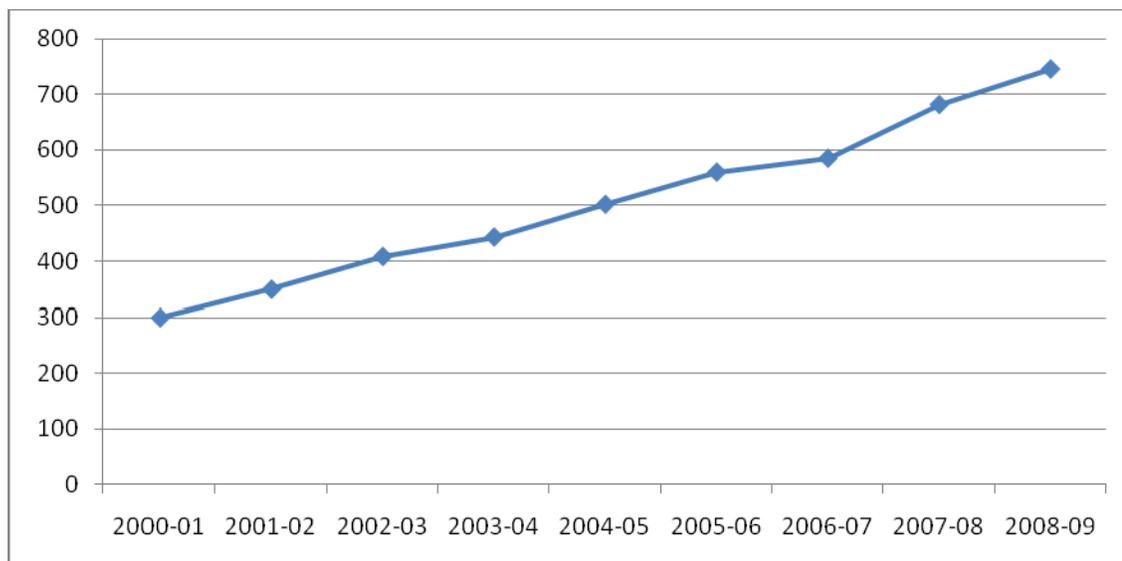
Figure 2. Number of charter schools in California, 2000-2009. Data from *Education Data Partnership* data repository maintained by the Alameda County Office of Education in partnership with the California Department of Education, retrieved from http://www.ed-data.k12.ca.us, 2010.
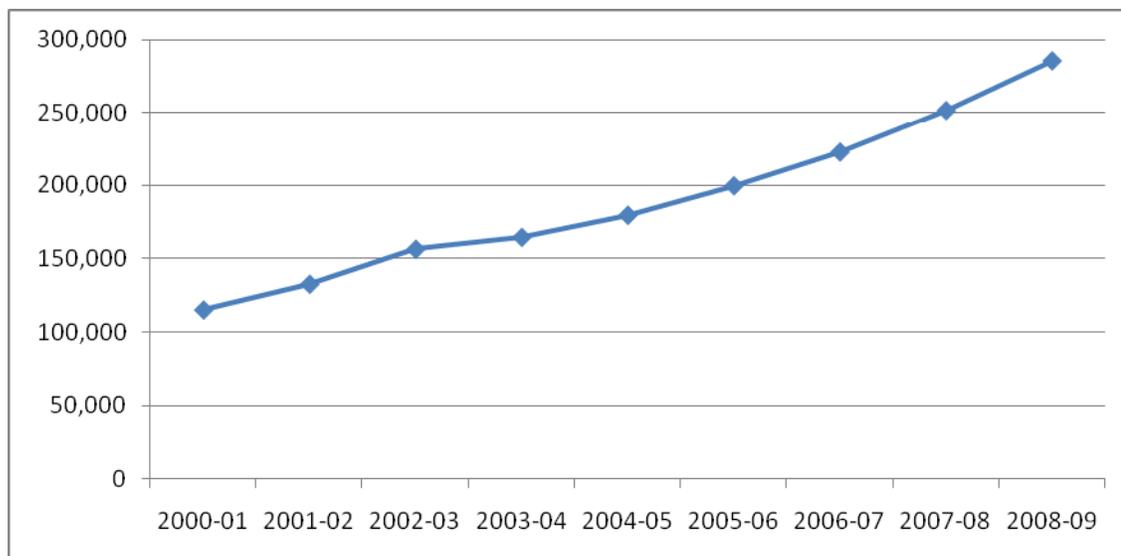
Figure 3. California charter school enrollment, 2000-2009. Data from *Education Data Partnership* data repository maintained by the Alameda County Office of Education in partnership with the California Department of Education, retrieved from http://www.ed-data.k12.ca.us, 2010.
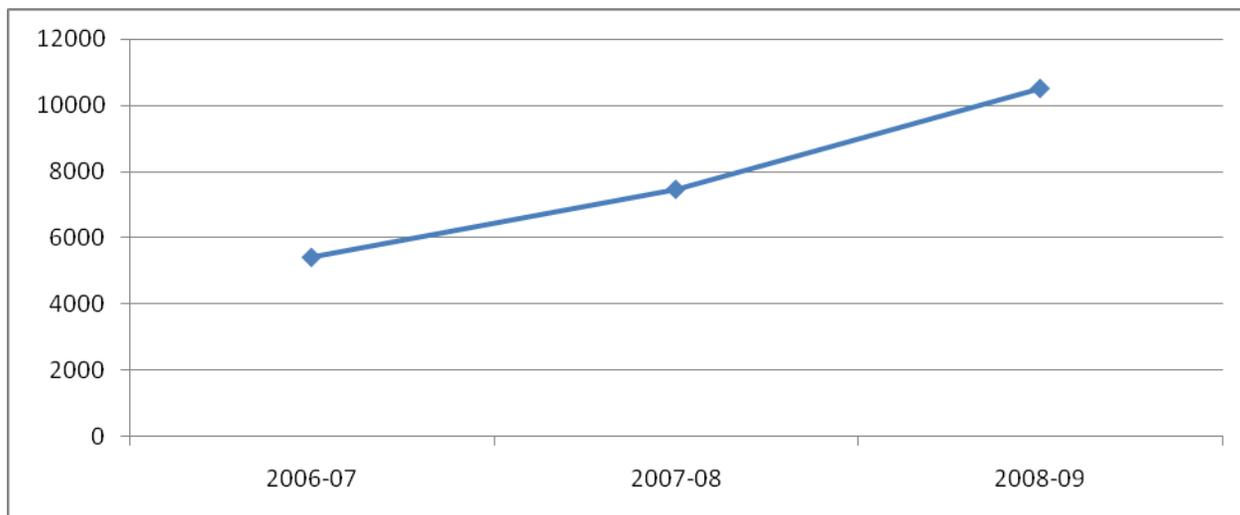
Figure 4. California online charter school enrollment (K-12), 2006-2009. Data from *Education Data Partnership* data repository maintained by the Alameda County Office of Education in partnership with the California Department of Education, retrieved from http://www.ed-data.k12.ca.us, 2010.

has been to better meet the individual needs of students and thus, increase the number of students graduating from high school. Online schools have added a new dimension for charter schools because education can take place from a distance utilizing the Internet. However, there have been a limited number of studies examining the success of students in online charter schools.

The number of charter schools and charter school enrollments continue to increase each year (Zimmer et al., 2009). The number of elementary and secondary students taking online courses increased tenfold between 2001 and 2007 (Cavanaugh, 2009), and it is predicted that about 50% of high school courses will be offered online by 2019 (Christensen, Horn, & Johnson, 2008). One of the promises of online charter schools is that they may better meet the educational needs of students who are at-risk of dropping out of school. This study examined

how at-risk students performed in online charter high schools as compared with students in traditional high schools in California.

Significance of the Study

This study is significant because it examined full time online charter high school students and compared student achievement and student dropouts with students attending traditional high schools in California. To the knowledge of the researcher, this type of comparative study has not been conducted up to this point in time in any state.

Researchers have studied the reasons that students drop out of high school since the early 1900s. Wehlage et al. (1989) concluded that to make major inroads on the dropout problem, three arenas need to be addressed: alternative schools, systematic school reforms, and community partnership. Research regarding the promise of charter schools is in its infant stages, since the first charter school was developed in 1992. Many have written about the promise of charter schools to improve education in America (Finn et al., 2000; Nathan, 1996). Finally, emerging research has shown that student achievement in online schools is the same or better than traditional high schools (Smith, Clark, & Blomeyer, 2004). The first online K-12 school began in 1994 and, since then, research about the factors that cause success in online schooling has continued to emerge. Similar to charter schools, the types of online charter schools vary. Some online school models include substantial video and audio components while others have minimal teacher interaction with students. Regardless of the types of online schools, the number of students enrolling in online schools across the nation has increased between 25% and 50% over each of the past three years" (Watson & Ryan, 2007). In California, as online charter schools have developed, more students have attended each year.

This study compared achievement and dropout data between students in online charter high schools with students in traditional high schools in California.

Theoretical Framework

There are a variety of theories about why students drop out of high school. However, it is important to note that these theories should be considered within the context of other factors that have affected the number of students who drop out of school. First, the theory of education itself changed substantially from 19th century to the 20th century when the one room schoolhouse became extinct and the graded school with its prescribed curriculum became the norm (Tyack & Cuban, 1995). Secondly, laws requiring attendance in school began to emerge throughout the states in the mid-nineteenth century. The first compulsory attendance law was passed in Massachusetts in 1852 and stated that "children between the ages of eight and fourteen [must attend school] for at least three months out of each year, and of these twelve weeks, at least six had to be consecutive" (Massachusetts Compulsory Attendance Statutes, 2010). Third, the number of students attending public school has increased. In 1930, there were approximately 4.4 million high school students, while that number was 3.3 million in 1950 and 14 million in the 1970s (Tyack & Cuban, 1995). The most recent census data show that there were over 16 million high school students in 2000 (Day & Jamieson, 2003). Finally, the number of people in the United States who speak a language other than English has increased. In 2000, there were 47 million people, or 18% of the total U.S. population, who spoke a language other than English in the home (Shin & Bruno, 2003). From 1980 to 2000, the amount of people who spoke a language other than English more than doubled.

One of the first studies regarding student dropouts was conducted in 1909 by Ayres. After examining student records from 58 cities across the United States,

Ayres concluded that schools and institutions must change to accommodate the needs of the average students (Ayres, 1909). Although some researchers questioned Ayres scientific study (Callahan, 1961), he challenged the established educational systems at the time and highlighted, among other educational factors, the number of students who leave or withdraw from school. He concluded that the "lack of school success is probably the greatest single cause which impels pupils to drop out of school" (Ayres, p. 101). Subsequent theorists either supported or refuted Ayres' conclusions. Researchers continued to ponder if schools are failing the students or if the students are failing the schools (Natriello, McDill, & Pallas, 1990).

Cervantes (1965) defined a dropout as "any youth who for any reason, except death, has left school before graduating from high school and without transferring to another school." His research categorized reasons for dropouts into factors including: school, family, and peers. He suggested that solving the dropout issue needs involvement by various entities including: community, government, business, labor, schools, volunteers, and family (Cervantes, 1965).

Rumberger (1987) clarified that dropping out is something that happens over a period of time and not something that happens in one day or because of one event. A combination of many factors results in students dropping out. The theory that dropping out is a long term event was affirmed through the application of a model of frustration-self-esteem and participation-identification which revealed that students with low self esteem and students who do not participate in school activities or have a bond with the school are more likely to drop out (Finn, 1989).

Some researchers have theorized that it is individual or family factors that cause students to dropout (Cervantes, 1965), while others have studied how the

school or institutional factors may lead students to drop out (Finn, 1989; Wehlage et al., 1989). Ultimately, most researchers agree a combination of these factors—institutional, individual and family—that cause a student to drop out of school over time (Natriello et al., 1990; Rumberger, 1987).

The concept of charter and online schools is new, and therefore, there are few developed theories. Charter schools developed in the mid 1990s with the belief that school choice and competition will improve student achievement in all American schools. K-12 online schooling began in the late1990s, making this innovation just 10 years old. However, charter and online schools can be considered innovations and therefore, several theories regarding innovations can apply.

Everett Rogers' (2003) theory regarding diffusion of innovations applies to online learning because online learning enrollment can be tracked over time. Roger's hypothesized that diffusion is the process by which an innovation is communicated through certain channels over time by members of a social system. Rogers (2003) defines an innovation as "an idea, object or practice or object that is perceived as new by an individual or other unit of adoption" (p. 12). Over 40 years, Rogers and his colleagues tracked the adoption of a variety of innovations including hybrid corn seed in Iowa to hybrid seed corn, water purification in Egypt, adoption of family planning in Korea, and various educational innovations such as new math, kindergarten and educational technology (Rogers, 2003). They found that every innovation follows the same stages. Innovations that are adopted over time, eventually reach a tipping point or the point when approximately 50% of the population adopts the innovation. Various factors help an innovation to be adopted including the innovation-decision process, communication channels, changes agents, and the attributes of the innovation. Overall, Rogers classified

adoption into a continuum of adoption from "innovators" to "laggards." Those who adopt an innovation in the beginning stages or the first 2.5% of a population are classified as "innovators" while those who adopt an innovation later are termed "laggard" (see Figure 5).
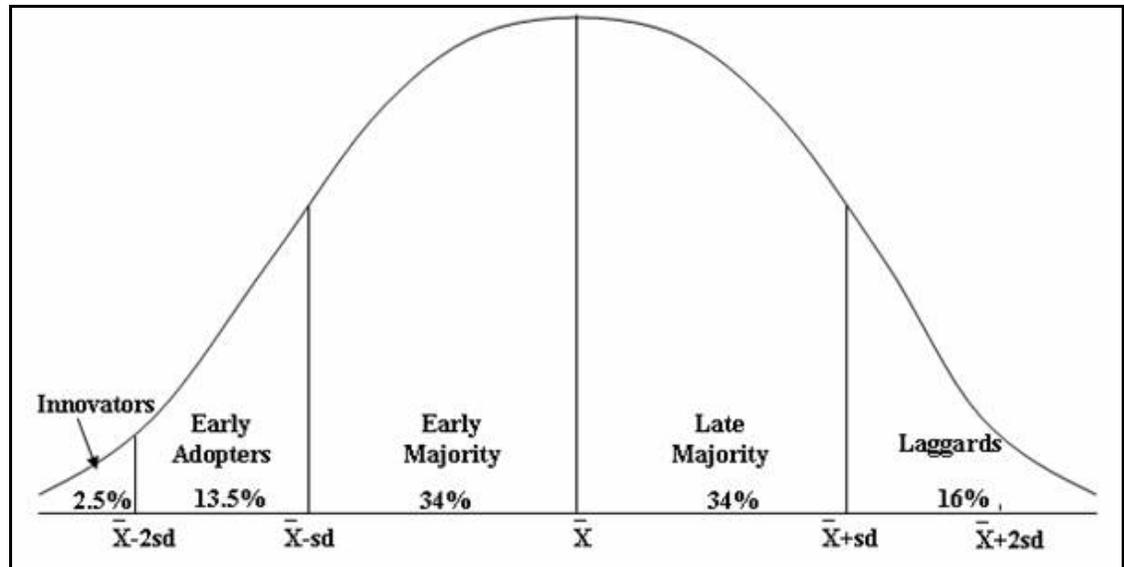
Figure 5. Rogers' adopter categories. From *Diffusion of Innovations* (5th ed.), by E. M. Rogers, 2003, New York: Free Press.

The other theory that can be applied to online charter schools is the theory of "disruptive innovation" as developed by Clayton Christensen (Christensen, et al., 2008). A "disruptive innovation" is an innovation that is affordable and simple to use that can benefit people who previously had not been able to consume the product. In the case of online learning, the authors suggest that online learning is one of these disruptive innovations in the field of education. They predict that by 2019, "about 50% of high school courses will be delivered online" (Christensen et al., 2008, p. 98).

The theory of diffusion of innovations and the theory of disruptive innovations can be applied to any innovation or any educational innovation, but specifically, for this study, can be applied to online charter schools.

Definitions

The following terms and definitions are utilized throughout this study.

Definitions Related to Traditional Schools

Charter school: an independently operated public school of choice, freed from many regulations but accountable for its results (Carpenter, 2006).

Online school: a school where students attend classes online and where 80% or more of the course curriculum is delivered online (Allen & Seaman, 2007). Generally, online school courses are any courses delivered through "Internet or web-based methods" (Clark, 2001).

Traditional public school: a school where students attend face-to-face from 4 to 6 hours per day for 5 days a week (Zimmer et al., 2009).

Definitions Related to Online Schools

Asynchronous: Not occurring at the same time. Many online education courses are asynchronous, allowing students and teachers to participate according to their schedule. Communication and interaction take place via email or discussion boards.

Blended/hybrid course: courses that blend online and face-to-face delivery where a substantial proportion (30% to 79%) of the content is delivered online (Allen & Seaman, 2007).

Course management system (CMS): The technology platform through which online courses are offered. A CMS includes software for the creation and editing of course content, communication tools, assessment tools, and other features designed to enhance access and ease of use.

Full time online course: courses where 80% or more of the course curriculum is delivered online and teachers do not meet face-to-face with students (Allen & Seaman, 2007).

Full time online student: students who take online courses full time and do not attend a traditional school.

Online learning: Education in which instruction and content are delivered primarily via the Internet. Online learning is a form of distance learning.

Part time online student: students who take one or more online courses in addition to taking courses in a traditional school.

Synchronous: Occurring at the same time. Many online education courses include asynchronous components using online collaborative or interactive tools that combine audio, video, file share, and other forms of interaction in real time.

Virtual high school (VHS): Synonymous with the term online school, cyber school or e-school. The term "virtual high school," or VHS, is synonymous with the terms cyber school, e-school, or online school. Because web-based learning varies in how much time a student interacts with an instructor in person, online courses are defined as those delivered via the Internet and World Wide Web where 75% of the instruction is not delivered in a face-to-face classroom (Freedman Darrow, & Watson, 2002).

*Web-facilitated or Web-enhanced***:** courses that use web-based technology where 1% to 29% of the content is delivered online to facilitate what is essentially a face-to-face course (Allen & Seaman, 2007).

Definitions Related to Dropouts

At-risk: any student who is not achieving the goals of education and making progress towards high school graduation (McCann & Austin, 1988).

Specifically, for this study, any student who is classified as low income or qualifies for the free and reduced price lunch program is considered at-risk.

Averaged freshman graduation rate (AFGR): estimates the proportion of public high school freshmen who graduate with a regular diploma 4 years after starting 9th grade. The rate focuses on public high school students as opposed to all high school students or the general population and is designed to provide an estimate of on-time graduation from high school. Thus, it provides a measure of the extent to which public high schools are graduating students within the expected period of 4 years (Laird et al., 2006). In October 2008, this definition of dropout was adopted by the United States Department of Education (A *Uniform, Comparable Graduation Rate,* 2008). The AFGR is calculated from the Common Core of Data.

Common Core of Data: Data reported annually by states to the U.S. Department of Education.

Current Population Survey: Monthly phone survey of about 50,000 U.S. households conducted by the Bureau of Census for the Bureau of Labor Statistics. Information collected includes demographics, educational attainment, employment, and other indicators for individuals over the age of 15.

*Dropout***:** Any youth who for any reason, except death, has left school before graduating from high school and without transferring to another school (Cervantes, 1965).

Event dropout rate: estimates the percentage of both private and public high school students who left high school between the beginning of one school year and the beginning of the next without earning a high school diploma or its equivalent (e.g., GED). It can be used to track annual changes in the experiences

of students in the U.S. school system. The event dropout rate is calculated from the Common Core of Data and the Current Population Survey.

High school graduation: A four-year process at the end of which a student receives a high school diploma based on state graduation requirements.

*Status dropout rate***:** estimates the percentage of individuals in a given age range who are not in school and have not earned a high school diploma or equivalency credential, irrespective of when they dropped out. The rate focuses on an overall age group as opposed to individuals in the U.S. school system, so it can be used to study general population issues. The status dropout rate is calculated from the Current Population Survey.

*Status completion rate***:** estimates the percentage of individuals in a given age range who are not in high school and who have earned a high school diploma or equivalency credential, irrespective of when the credential was earned. The rate focuses on an overall age group as opposed to individuals in the U.S. school system, so it can be used to study general population issues. The status completion rate is calculated from the Common Core of Data and GED testing results.

Success: any student who scores proficient or above on the California English language arts standards test and completes high school with a diploma.

<div align="center">Organization of the Dissertation</div>

This dissertation is divided into five chapters. Chapter 1 provides an introduction, a statement of the problem, background, a context for this study, and a definition of terms. Chapter 2 consists of the review of related literature regarding at-risk students, charter schools and online schools. Chapter 3 explains the methodology and procedures followed in this study. Chapter 4 analyzes the

quantitative data and reports the results and outcome. Chapter 5 contains a summary, recommendations, implications for future research, and conclusion.

CHAPTER 2: REVIEW OF THE LITERATURE

This purpose of this study is to compare at-risk students in online charter schools with traditional high schools. This review of literature is divided into three sections: students at-risk of dropping out, charter schools and online schools. Each of these areas has been addressed individually by other studies, but they have not been addressed in how they may relate with one another.

At-Risk and Student Dropout Literature

Students who do not complete high school are considered dropouts. Students who are in danger of dropping out prior to graduation are considered at-risk of dropping out. This section of the literature review discusses research regarding how dropouts are counted, who is at-risk of dropping out, why students drop out, and the types of programs that may decrease student dropouts.

How Are Dropouts Counted?

Historically, tracking the number of student dropouts in the United States began in 1900, when records show that about 10% of all males received a high school diploma; in 1920, the graduation rate increased to 20% and in the 1950s, the graduation rate was slightly above 50%. In the mid-1960s, the graduation rate reached its peak – 75% – and this is where it has since remained (Wehlage et al., 1989).

Researchers differ in the correct way to count dropouts as well as the actual number of dropouts (Rumberger, 1987). Part of the reason for this is that researchers have used different data sets to determine the graduation rate and the dropout rate. The data used for these calculations have included data from the National Educational Longitudinal Study from the Department of Education (NELS), the High School and Beyond Study (HS&B), the National Longitudinal

Surveys (NLSY) from the Bureau of Labor Statistics, National Census Report

Data, and the Common Core of Data (CCD), which is self reported by states and

compiled by the federal government's National Center for Education Statistics

(Balfanz & Legters, 2004; Mishel & Roy, 2006).

NCES began tracking dropouts in 1972 and reports four different ways that

dropouts have been counted: A) the event dropout rate; B) the status dropout rate;

C) the completion rate, and D) the averaged freshman graduation rate (AFGR).

Different reports and analysis have used different measures to count dropouts

and/or different data, which have yielded different results.

The most recent NCES report, which reported on students in 2007, revealed

the following (Cataldi et al., 2009):

The national event dropout rate, which measures students between the ages

of 16 and 24 who had dropped out of school in grades 10-12 in one given year,

trended downward between 1972 and 2007, from 6.1% to 3.5%.

The national status dropout rate, which measures the number of students

between the ages of 16 and 24 who were not enrolled in high school and did not

have a high school diploma, trended downward between 1972 and 2007, from

14.6% to 8.7%.

The national status completion rate, which measures the number of students

between the ages of 18 and 24 who possess a high school credential, trended

upwards between 1980 and 2007, from 83.9 to 89.0%.

The averaged freshman graduation rate (AFGR), that is an estimate of the

percentage of students who graduated on time and within four years, among public

school students, trended upwards between the class of 2001-2002 and the class of

2005-2006, from 72.6% to 73.2% (Cataldi et al., 2009). Based on these statistics,

the percentage dropouts are decreasing and the percentage of on time graduates is increasing.

The method of calculating the "actual" dropout rate has been a source of disagreement among researchers and policy makers. However, the U.S. Department of Education issued updated regulations for computing the dropout rate in 2008 for all states. The final regulations define the "four-year adjusted cohort graduation rate" (or AFGR) as the "number of students who graduate in four years with a regular high school diploma divided by the number of students who entered high school four years earlier" (*A Uniform, Comparable Graduation Rate*, 2008).

Two other methods for calculating dropouts or graduation have been developed by researchers. The Cumulative Promotion Index (CPI) was developed by Swanson (2004a). The CPI relies on enrollment data rather than dropout data. Using data from a two year period, calculations can be made for every state and district in the nation. The CPI is determined by dividing the number of enrolled students from one school year with the number of enrolled students from the following school year and multiplying successive years together to arrive at the CPI percentage. These percentages can then be compared between states and districts and from year to year. The U.S. CPI for the class of 2001 was 68% which means that one-third of students failed to graduate. The CPI in 2001 was 68% (Swanson, 2004a) while the U.S. AFGR in 2001 was 72.6% (Cataldi et al., 2009), which is a difference of 4.6%. This slight difference is because the CPI calculation is done by student enrollment data while the AFGR is determined by state self-reported dropout data.

Another calculation method developed by Balfanz and Legters (2004) is termed "promoting power." This calculation compares the number of freshmen at

a high school to the number of seniors 4 years later. The resulting percentage determines the promoting power of a high school or district or state. The researchers have determined that high schools where there are 50% or fewer seniors than there were freshmen have the worst promoting power. Students in these high schools have a 50/50 chance of graduating on time. (Balfanz & Legters, 2004). A variation of this calculation method (also known as Averaged Freshman Graduation Rate) was adopted by the U.S. Department of Education in 2008 as the way all high school graduates will be calculated.   According to the promoting power calculation, the overall graduation rate in 2006 was 74% (Balfanz & West, 2009), and there were 11,129 high schools or 8% of all high schools in the nation that had a promoting power score of 50% or less. This same report found that nearly 80% of the nation's high schools that produce the highest number of dropouts can be found in just 15 states including Arizona, California, Georgia, Florida, Illinois, Louisiana, Michigan, Mississippi, New Mexico, New York, North Carolina, Ohio, Pennsylvania, South Carolina, and Texas (Balfanz & Legters, 2004).

In addition to the ways dropout and graduation rates are reported by the U.S. Department of Education, many researchers have examined the variety of data and issued their own reports. The data, the measure, and the year used by researchers have determined the outcome regarding the number of dropouts or graduates. In the report, *Losing our Future: How Minority Youth are Being Left Behind by the Graduation Rate Crisis*, it was found that the graduation rate was 68% (Orfield, Losen, Wald, & Swanson, 2004). A different report, entitled *Cities in Crisis,* 4 years later found that the graduation rate was 69.9% (Swanson, 2008), while another report entitled *Who's Counting? Who's Counted?* found that the graduation rate was 75% (Pinkus, 2006). Another study found that the high school

graduation rate was 83% (Mishel & Roy, 2006). Finally, Levin, Belfield, Muennig, and Rouse (2007) found that on-time public high school graduation rates are approximately 66% to 70%, meaning that at least 3 out of 10 students do not graduate through the regular school system within the conventional time allotted. Overall, studies and data have shown that the number of students who earn a high school diploma have remained between 70% and 75% in the United States since the 1960s.

<div align="center">*Who Is At-Risk of Dropping Out?*</div>

How dropouts are counted may be a source of ongoing discussion among researchers, but researchers agree that the data is clear about who drops out. Who drops out of high school is generally determined by individual and family factors, location, and ethnicity. Generally, the largest percentage of students who drop out of high school are males who come from families who live in poverty, have parents who do not have a high school or college degree, or live with one parent (Cataldi et al., 2009; Llagas & Snyder, 2003; Orfield et al., 2004). Students who live in southern states have a greater chance of dropping out than do students who live in the north or west (Balfanz & Legters, 2004). Additionally, students who are an ethnicity other than Anglo or Asian are at higher risk of dropping out.

In nearly every study and report regarding student dropouts, male students drop out at a higher rate than females (Cataldi et al., 2009; Dalton, Glennie & Ingels, 2009; Swanson, 2008). In the most recent study released from NCES, it was found that males ages 16–24 were more likely than females to be high school dropouts in 2007. Cataldi et al. (2009) found that the status dropout rate of males in 2007 was 9.8%, while the female dropout rate was 7.7%. When looking at student dropouts by ethnicity, males leave school at greater rates than females in all ethnic groups (Swanson, 2004b). In 2007, the status dropout rate by ethnicity

was 5.3% for Anglos, 6.1% for Asians, 8.4% for African Americans and 21.4% for Hispanics (Cataldi et al., 2009). Some studies have found that male students drop out more than females because of work, drug related issues or being placed in an alternative school (Esch, 2003). On the average, male students have graduation rates eight percentage points lower than females (Swanson, 2008).

Various studies have affirmed that students who come from families who live in poverty are more likely to drop out of school. Ekstrom, Goertz, Pollack, and Rock, (1986) found that 26% of students who dropped out were classified as low socioeconomic status, while just 8% were classified as high economic status. Twenty years later, it was found that 48% of all dropouts come from the lower quarter of the socioeconomic distribution (Dalton et al., 2009). In addition, poverty appears to be a key reason that some high schools have weaker promoting power than others (Balfanz & Legters, 2004).

Family educational level is another factor that indicates whether or not a student may drop out of school. Across studies, parental education and a parent's educational expectations for his or her child have the most consistent impacts on the probability of dropping out (Dalton et al., 2009; Ekstrom et al., 1986; Rumberger, 1983). Among dropouts, 47% had parents with a high school degree or less, and 21% had parents with at least a bachelor's degree (Dalton et al., 2009). Studies have also indicated that a mother's educational level has more of an effect on student dropout rates than the father's educational level. Sophomore students whose mothers did not graduate from high school were twice as likely to drop out as sophomores whose mothers graduated from high school but did not go on to college (Barro & Kolstad, 1987; Ekstrom et al., 1986). Researchers found that the mother's educational level determined how involved they were with their child's high school education and the type of encouragement provided. Parents with

higher educational levels were more involved in the selection of their child's high school curriculum and provided stronger educational support (Ekstrom et al., 1986).

Dropout rates differ substantially by regions of the United States and among high schools located in urban or rural places. Schools in certain places in the United States cause more students to drop out of school. Overall, the rates are about one-third higher in the South and West than in the Northeast and North Central regions, about 40% higher in urban than suburban places (Barro & Kostad, 1987). Five southern states—Georgia, South Carolina, North Carolina, Florida, and Texas—have collectively lead the nation in both total number and level of concentration of high schools with weak promoting power (Balfanz & Legters, 2004). Additionally, it was found that dropout rates are greater in urban areas as compared to rural areas. Swanson (2008) found that only about 52% of students in the largest cities in the United States complete high school with a diploma. One finding related to location and ethnicity found that Anglo dropout rates were 50 to 60% higher in the South and West than in the Northeastern and North Central states while African American dropout rates were 50 to 60% higher in Northeast and North Central regions than in the South and the West (Swanson, 2008).

Studies show that graduation rates also vary by ethnicity. On time graduation rates were 71% for Anglo males compared with 48% for Hispanic males and 43% for African American males (Levin et al., 2007). Female rates vary similarly across races, but with higher graduation rates overall. One of the most recent studies confirmed similar findings - that status completion rates varied by ethnicity as follows: Anglo, 93%; Asians, 93%; African Americans, 88%; and Hispanics, 73% (Cataldi et al., 2009). Table 4 shows graduation rates by ethnicity and gender in 2001.

Table 4

National Graduate Rates by Ethnicity and Gender, 2001

Ethnicity	percent	Female	Male
American Indian	51.1	51.4	47.0
Asian/Pacific Islander	76.8	80.0	72.6
Hispanic	53.2	58.5	48.0
African American	50.2	56.2	42.8
Anglo	74.9	77.0	70.8
All Students	68.0	72.0	64.1

Note: *Losing our Future: How Minority Youth are Being Left Behind by the Graduation Rate Crisis*, *by* G. Orfield, D. Losen, J. Wald and C. B. Swanson, 2004, Boston, MA: Harvard University.

Figure 6 shows the status dropout rates and trends from 1972 to 2007 by ethnicity. Status dropouts are estimates gathered periodically from the Current Population Survey conducted by the U.S. Bureau of the Census.

Why Do Students Drop Out?

The factors that cause students to drop out of school have been studied by a variety of researchers. Ayres (1909) was one of the first to study these factors. In his study, he found that the education of students who were "defective in mind, body or morals is a matter of great importance for the future of the state." It is important to note that in the early 1900s, school attendance was not compulsory and that if students did attend school, they attended school from ages seven to fourteen. Ayres' study examined students in five different cities. He found that students left school for three main reasons: 1) to go to work; 2) illness; and 3) left the city. Although there were just 5% of students who left because of a lack of
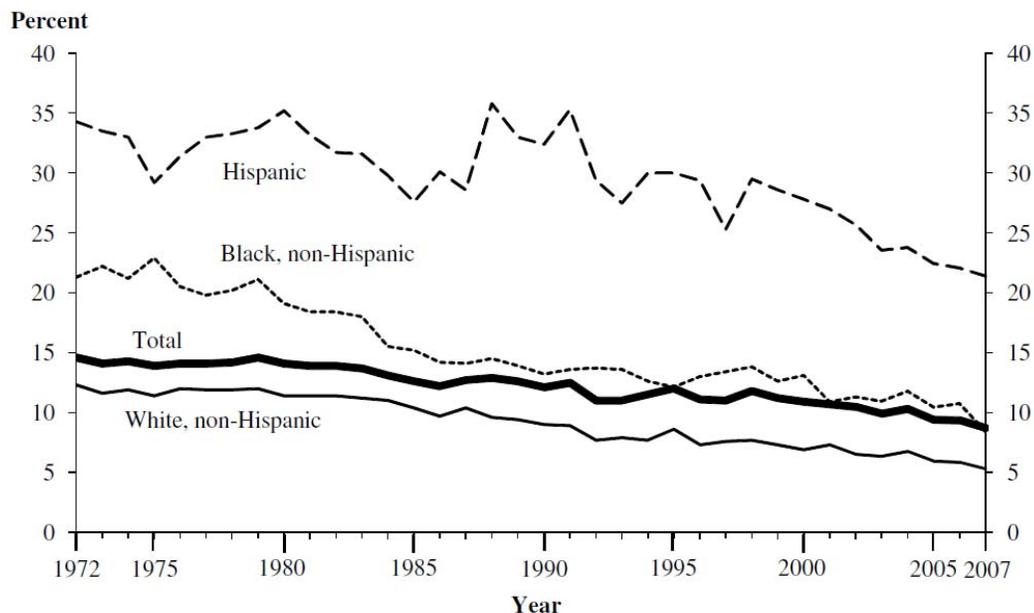
Figure 6. Status dropout rates and percentages for 16 through 24-year-olds by ethnicity, 1972-2007. From *High School Dropout and Completion Rates in the United States: 2007,* by E. F. Cataldi, J. Laird, A. KewalRamani, and C. Chapman, 2009, Washington, D.C.: U.S. Department of Education.

success, Ayres concluded, "lack of school success is probably the greatest single cause which impels pupils to drop out of school" (p. 101).   Every report and study since this found similar results.

Cervantes (1965) defined a dropout as "any youth who for any reason, except death, has left school before graduating from high school and without transferring to another school." His research categorized reasons for dropping out into factors including: school, family, and peers. He also produced a "dropout prediction table" as a result of his research (see Appendix A). Wehlage et al. (1989) also divided the "at-risk of dropping out" characteristics into three categories which are consistent with other dropout literature as shown in Table 5.

Table 5

At-Risk Characteristics of Dropping Out

Family and social factors	Personal / Individual factors	School factors
• Low socioeconomic status • Minority race/ethnicity • Single parent home • Low parental support • Family crisis • Community stress/conflict • Family mobility • Limited experience of dominant culture	• Substance abuse • Pregnancy/parent • Learning problems • Legal problems • Low aspirations • Low self esteem • Alienation • Rejects authority • Mental/physical health problems	• Course failure • Truancy • Passive/bored • Disciplinary problems • Credit deficient • Retained in previous grade

Note: From *Reducing the Risk: Schools as Communities of Support,* by G. G. Wehlage, R. A. Rutter, G. A. Smith, N. Lesko, and R. R. Fernandez, 1989, New York: Falmer Press.

Additionally, Hammond (2007), as part of the National Dropout Project at Clemson University, published the report *Dropout Risk Factors and Exemplary Programs* which included a list of research based significant risk factors for dropping out (see Appendix B).

Mann (1986) further differentiated between the types of dropouts. Some students drop out because of individual or family reasons, while those who dropped out because of school factors are termed "push outs" or "fade outs." Push outs are students who are perceived to be difficult, dangerous or detrimental to the success of the school and are encouraged to withdraw from the school, transfer to another school, or are simply dropped from the school if they fail too many

courses or miss too many days of school or are past the legal dropout age (Balfanz, 2007). Fade outs are students who have generally been promoted on time from grade to grade and may even have above grade level skills but at some point become frustrated or bored and stop seeing the reason for coming to school. Many of these students leave once they reach the legal dropout age, convinced that they can find their way without a high school diploma or that a GED will serve them just as well (Balfanz, 2007).

Mann (1986) specifically categorized dropouts as either "children who failed to learn" or "schools that failed to teach" (p. 309). A number of researchers have suggested that it is the latter category – school factors – that contribute to the majority of dropouts (Natriello et al., 1990; Rumberger, 1987; Schussler, 2002; Wehlage & Rutter, 1985).

Dropping out is not a single event, but a culmination of events over time, usually a disengagement with school (Finn, 1989). Few students drop out because of one negative experience with school. Most students only drop out after repeated failures or disengagement experiences with school (Finn, 1989) or they fall so far behind that success seems impossible (Balfanz, 2007). Student engagement in their education is a prerequisite to acquiring knowledge and skills (Wehlage et al., 1989).

Some researchers have suggested that individual or family factors are the main reasons students drop out (Cervantes, 1965), while others have studied how the school or institutional factors lead students to dropping out (Finn, 1989; Wehlage et al., 1989). Historically, during the 1960s and 1970s, because the number of high school graduates was increasing, most attention was on individual and family factors as reasons students were not earning high school diplomas. However, as the graduation rate leveled out in the 1980s and 1990s, more attention

was given to the school or institutional factors that cause students to drop out. Overall, most researchers agree that it is a combination of factors – individual, family and institutional - that cause a student to drop out of school over time (Natriello et al., 1990; Rumberger, 1987).

Qualitative studies have been conducted that include interviews and focus groups of students, while other studies have surveyed students regarding their reasons for dropping out of school. The two top reasons identified by students as reasons for dropping out of school is because school and/or classes are boring and because of failing courses or being behind in units (Anderson, 2003; Bridgeland et al. 2006; Ekstrom et al., 1986; Esch, 2003; Haley, 2007). Table 6 identifies the reasons that students leave high school based on various research studies.

Table 6

Reasons Students Leave School by Research Study

Researcher	School/ classes boring	Mis- sing school	Failing classes/ behind in units	Friends not in school	Too much freedom at home	Living in poverty	Alcohol / drug abuse	Lack of caring adult
Haley (2007)	X							X
Bridgeland et al. (2006)	X	X	X	X	X			
Redditt (2005)						X	X	
Anderson (2003)			X					
Esch (2003)	X		X	X				
Eckstrom et al. (1987)	X		X					

In 2006, the report *The Silent Epidemic* was published based on interviews with 467 ethnically and racially diverse students aged 16 through 25 who had dropped out of public high school throughout the United States (Bridgeland et al., 2006). The participants interviewed said the main reasons for dropping out of school included classes not being interesting, missing too much school, spending time with people who were not interested in being in school and having too much freedom and not having enough household rules, and failing in school. Ekstrom et al. (1986), 20 years earlier, found similar reasons that students left school including not liking school and having poor grades. Anderson (2003) and Esch (2003), based on student surveys, found similar reasons that students say they leave school including being behind in credits, failed courses, low grades, and because their friends did not go to school.

In summary, student interviews and surveys validate the findings of other researchers in that there are individual and institutional factors that cause students to leave school. Studies have found that for some students, there are individual factors such as drug abuse or family poverty that cause them to leave school, but that the major factors causing students to leave school are institutional factors such as failing grades, boring classes, and lack of a caring adult.

What Types of Programs Decrease the

Number of Dropouts?

Researchers have studied the effectiveness of dropout prevention programs. Donmoyer and Kos (1993) arranged dropout prevention programs into six categories including supplemental, whole school restructuring, therapy programs intervention team approaches, community/home/school partnership programs, and eclectic (community based approaches). After reviewing these types of programs they concluded that

no matter how effective a policy, program or practice may be, it will not be effective for everyone…We must develop policies, programs and practices, therefore, which provide sufficient discretion at the local level to accommodate those individuals who do not quite fit into the structures we have fashioned. (p. 402)

Donmoyer and Kos (1993) further concluded that research provides an obstructed view of reality and that to reach at-risk students requires an individualized approach. Similar to the reasons students drop out of school, effective dropout prevention programs and strategies can be organized by individual programs (within traditional school), institutional programs (within or in partnership with traditional school) or alternative programs (outside of traditional school).

Rumberger (2004) found that the effectiveness of dropout prevention programs within traditional schools is generally weak because few have rigorous evaluation components and the programs that do have rigorous evaluations fail to show effectiveness. Many researchers have validated that for a program to be effective, it should be replicable. However, researchers have found few dropout prevention programs that are effective and replicable (Levin et al., 2007; Rumberger, 2004; Slavin & Fashola, 1998).

There are two programs that have been found to be effective and replicable that support traditional schooling. It is important to note that for any program to be successful with at-risk youth, it needs to have the right amounts of financial and human resources. One supplemental program that exists in Los Angeles, California is called Achievement for Latinos through Academic Success (ALAS). ALAS treated a group of Latino students as a cohort and provided them with the following specific interventions (Rumberger, 2004, p. 245):

- Remediation of students' ineffective problem solving skills regarding social interactions and task performance through instruction during a 10-week problem-solving course

- Personal recognition and bonding activities, such as praise, outings, recognition ceremonies, positive home calls to parents to discuss goals

- Intensive attendance monitoring to communicate a personal interest in student attendance

- Frequent teacher feedback to parents and students regarding classroom behavior, missed school work

- Direct instruction and modeling for parents on how to reduce their child's inappropriate or undesirable behavior

- Integration of school and home needs with community services

The second dropout prevention program that partners with public schools and has proven to be successful for some at-risk students is the community based program called Community in Schools (CIS). This program was initially developed in New York City and eventually expanded into 200 other cities across the United States. The mission of CIS is to help kids to stay in school and prepare for life. Through partnerships with schools and community based organizations, CIS creates a support system for each student (Milliken, 2007). The CIS program is a year-round in-school program that utilizes case management and a multi-disciplinary approach to help students. This support system includes full time staff that works in the schools as case workers for individual students, establishment of a local non-profit corporation to seek donations and organize community resources, provide ongoing community events for students and their families, and provide support systems to meet the needs of students and their families. To be successful in each community, the support systems developed

must include support from seven different groups including educators, parents, students, private sector business, faith community leaders, government and community leaders, and health and justice professionals (Milliken, 2007).

Grinnan (2003) found that the CIS program in Texas did make a significant difference in graduation rates for students who were age appropriate or over aged and served by the CIS program as compared with students who were not in the CIS program. Additionally, it was found the CIS program did not have a significant effect on graduation rates of students who had passed a state standardized test in eighth grade and were involved in the CIS program as compared with students not in the CIS program (Grinnan, 2003).

Wehlage et al. (1989), who completed one of the most extensive reviews of programs for at-risk youth that exist within traditional schools and outside of traditional schools, found that alternative schools are part of the comprehensive strategy to cause more students to graduate from high school. Overall, their study of 14 programs and schools found that effective schools provide a sense of belonging, membership and engagement, and a community of support for students. The authors found that:

> Conditions that accompanied this environment were a professional culture among educators that accepted moral responsibility for educating at-risk students…which resulted in certain attitudes and practices that fostered a positive school culture and caring approach, thereby making student success more likely. (p. 223)

They concluded that schools without this basic professional commitment will remain ineffective with at-risk youth (Wehlage et al., 1989).

Individual programs and strategies have been found to be successful with some at-risk students and with some ethnic groups who attend traditional schools.

A number of studies have found that mentor programs or the presence of a significant caring adult can cause at-risk students to remain in school (Outlaw, 2004; Rysewyk, 2008;). Outlaw's (2004) case study approach revealed that mentor training programs increased the engagement in learning among at-risk youth while Rysewyk found that students he interviewed believed that "a loving caring adult invest time and energy in them had caused their confidence to soar" (Rysewyk, 2008). In the African American culture, mentoring has a long tradition as part of the transition from youth to adulthood (Pettiford, 2006). This similar experience can be duplicated in schools with programs such as one-to-one business mentorships or developing African American fraternities that focus on family and education and include adult mentors (Dancy, 2007; Pettiford, 2006; Smith, 2006). Similar findings have been revealed for Hispanic students. Developing Hispanic mentoring programs where students meet in an ongoing way with a caring adult inside or outside of the school results in higher graduation rates (Anderson, 2003; Crain-Dorough, 2003). Overall, research indicates that the presence of a caring adult can make the difference for many students whether or not they stay in school.

The concept of caring has been developed as an alternative approach to education. Noddings (2005) defines a caring relationship as "a connection or encounter between two human beings" (p. 15). Her book suggests six steps that lead to more caring schools including 1) the main aim of education should be to produce competent, caring, loving, and lovable people; 2) take care of affiliative needs; 3) relax the impulse to control; 4) get rid of program hierarchies; 5) give at least part of the day to themes of caring; 6) caring in every domain implies competence (p. 174). Various studies have affirmed that the presence of a caring atmosphere and a caring adult can lead to more students graduating from high

school. Camak (2007) surveyed eleven students who did not graduate from high school and found that the participants wanted a caring teacher who they were comfortable to talk with and who made them feel important among other attributes. This has been validated by other qualitative studies and reports that have shown the importance having a caring adult present in the school (Bridgeland et al., 2006; Mulroy, 2008; Wehlage et al., 1989).

Finally, the area of the literature that has yet to be explored is the effectiveness of at-risk students in charter schools or online schools. The next two sections will review the literature in these areas.

<div align="center">Charter School Literature</div>

This section of the literature review provides information regarding the historical and policy perspective of charter schools, types of charter schools, and how success is measured in charter schools.

<div align="center">*What Is the History of Charter School*

Ideas and Policies?</div>

Charter schools are independent public schools of choice, freed from rules but accountable for results (Finn et al., 2000). Most charter school can be distinguished from traditional schools because they can be created by anyone, are exempt from some state and local regulations, and are chosen by families. The charter itself is a legal document between the charter operator and the sponsoring school district (Finn et al., 2000).   Since states are the entities that are entrusted with public education, they are the ones who must first pass laws that allow charter schools.

The idea of modern charter schools grew out of the "school choice" movement that was first theorized by Milton Friedman in 1955. Friedman suggested that increased competition among schools would improve the quality of

educational services and that parents are far better at choosing the best setting to meet their children's unique strengths and challenges (Friedman, 1955).   In the 1960s and 1970s, the roots of the charter and choice movement gained greater favor when school choice programs emerged as magnet schools to facilitate voluntary desegregation (Hill & Jochim, 2009). The idea of charter schools gained further traction following the ideas written in the book, *Politics, Markets and America's Schools* (Chubb and Moe, 1990). They stated, that "choice offers an array of institutional possibilities, not a determinate formula" (p. 218). The authors offered a list of attributes for a choice system of schools including designating the states as the entity responsible for setting the choice criteria, that any group could apply to be chartered, that funding for these schools should be centralized at the state level, and that parents and students should be free to attend any public school in the state, regardless of the district where they live. This direction took root when the first charter school laws were passed in Minnesota in 1991, and then in California in 1992. Gradually, the number of states passing a charter school law increased from 19 in 1995 to 42 in 2004. While choice has not yet revolutionized American education, policymakers have moved beyond the "one best system" belief about K-12 education that developed throughout America in the early 1900s (Tyack & Cuban, 1995).

The first charter school developed was City Academy in St. Paul, Minnesota in 1992 (Nathan, 1996). This high school has grown to 133 students in 2008 and as of this date, has graduated 93 students. Throughout the nation, there are currently 4,600 charter schools that serve 1.4 million students in 40 states and the District of Columbia (Allen et al., 2009). Approximately 75% of all charter schools operate at the K-8 grade level and 73% of all charter school students are in grades K-8 (Tice et al., 2006). The percentage of children in charter schools

continues to increase each year. Charter school enrollment increased from 11% to 15% each year between 1993 and 2003 while at the same time, the percentage of children enrolled in their assigned school decreased between 1993 and 2003 (Tice et al., 2006). The number of students enrolled in charter schools as compared to all public schools in the U.S. was 2.3% in 2006-2007 and 2.6% in 2007-2008 (Allen & Consoletti, 2010).

What Are the Types of Charter Schools?

A variety of charter schools have developed over the past 18 years. Carpenter (2006) was one of the first to develop a typology for charter schools so that researchers could better focus on certain types of charter schools and student achievement. Developing the typology resulted from analyzing 1,163 charter schools in 2002 from Arizona, California, Florida, Michigan, and Texas which were home to 59% of the charter schools at the time. The types of charter schools include traditional, progressive, vocations, general and alternative delivery. This data was further divided by students who were targeted or open enrollment, by minority group and eligible for free or reduced price lunches. The figure below defines each type of charter school and the percentage of each type that existed at the time (Carpenter, 2006). It is important to note that in 2003 when this research was completed, virtual or online charter schools were just developing and in this study were typed as alternative delivery schools. Table 7 shows the identified types of charter schools in the U.S. as well as the number and percentage for each.

Huerta, d'Entremont and González (2009) defined the "alternative delivery" category Carpenter (2006) described, and further illustrated the concept. They compared the characteristics of home school charters and cyber (online) charters with traditional schools and categorized the teaching and learning,

organizational, governance, and fiscal components for each. Table 8 shows the characteristics of home school charters, cyber charters and traditional schools.

Table 7

U. S. Charter School Numbers and Percentages by Type

Type	Definition	Number	Percent
Traditional	Schools that stress high standards in academics and behavior, rigorous classes, lots of homework, and other earmarks of a "back-to-basics" approach.	268	23.1%
Progressive	Schools that subscribe to educational philosophies and/or practices aligned with "progressivism," which places a premium on individual development.	337	29%
Vocational	Schools seek to equip students with practical, career-related skills that will help them make the transition from school to work.	143	12.3%
General	Schools in this category, including "conversion" schools that were previously operated by a district, are essentially indistinguishable from conventional neighborhood public schools.	342	29.5%
Alternative Delivery	Schools that provide most instruction outside of traditional school buildings or classrooms, such as "virtual" charter schools.	73	6.2%

Note: Playing to Type? Mapping the Charter School Landscape, by D. M. Carpenter, 2006, Washington, D.C.: Thomas B. Fordham Institute.

Carpenter (2006) and Huerta et al. (2009) have illustrated that there are different types of charter schools that operate differently, and serve different types of students. Charter school researchers have discovered that it is important to study charter schools based on their type and the different attributes that constitute successful schools, including student achievement, student retention and student engagement.

Table 8

Defining Characteristics of Cyber (online) and Home School Charter Schools

Component	Home school Charters	Cyber Charters	Traditional Schools
Teaching and Learning	*Primary Source* • Parents	*Primary Source* • Computer software • Third party curriculum • External teacher (synchronously or asynchronously)	*Primary Source* • Teachers • Directed classroom instruction
	Supplemental Sources • Resource centers • Third party curriculum • Paraprofessionals • Computer software • Support groups • Library • Tutors	*Supplemental Sources* • Parents • Teachers • Resource centers • Paraprofessionals • Library • Tutors	*Supplemental Sources* • After-school programs • Parents • Library • Tutors • Field Trips • Extracurricular activities
Organizational Model	• Home-based setting • Parent-directed instruction • Individualized curriculum • Varied pedagogy • Parental oversight • Peer Involvement (voluntary)	• Varied educational setting (minimum site based learning) • Computer based instruction • Tailored mass curriculum • Information/dissemination based pedagogy • Parent/Teacher oversight • Peer Involvement	• Defined classroom-based educational setting • Classroom directed instruction • Mass curriculum • Group/cooperative-based pedagogy • Teacher and administrative oversight • Peer involvement (mandatory) •
Governance	*Immediate Authority* • Parents	*Immediate Authority* • Cyber School • Teachers • Third-party curriculum provider	*Immediate Authority* • Teachers • Adminstrators
	Ultimate Authority • Charter school board • Charter granting agency • State regulatory agency	*Ultimate Authority* • Charter school board • Charter granting agency • State regulatory agency	*Ultimate Authority* • Superintendent /district • Board of Education • State regulatory agency

Table 8. (Continued)

Component	Home school Charters	Cyber Charters	Traditional Schools
Fiscal	• Fiscal • Charter granting agency • Achievement testing (if required) • Market driven parental choice	• Fiscal • Charter granting agency • Achievement testing (if required) • Market driven parental choice • Third-party curriculum providers	• Regulatory/rule based • Fiscal • Student attendance • Achievement testing • District oversight

Source: Perspectives on cyber and home school charters, by L. A. Huerta, C. D'Entremont, and M. F. Gonzales, 2009, in M. Berends (Ed.), *Handbook of Research on School Choice* (pp. 533-554). New York: Routledge.

How Is Success Measured in Charter Schools?

Success in charter school has mostly been measured by student achievement. The majority of all research on charter schools has been in regards to student achievement. Proponents of charter schools not only point to student achievement as a measure of success, but also to the growth of charter schools as well as graduation rates and college attendance (Finn et al., 2000; Nathan, 1996). Opponents of charter schools suggest that charter schools are doing no better than traditional public schools with student achievement and are not serving minorities or poor students (Wells, 2002).   Overall, it has been found that charter elementary schools are showing better academic growth when compared with comparable traditional public schools in some academic areas than similar analyses for middle school and high school charter schools. More established charter schools tend to produce stronger academic outcomes as compared to traditional schools (Betts & Tang, 2008; Teasley, 2009).

Individual studies have been conducted regarding charter schools and student achievement throughout the nation. In Boston it was found that students

who attend middle school and high school charter schools make significantly larger gains than students who attend traditional public schools (Abdulkadiroglu et al., 2009). In Los Angeles, charter schools outperformed comparable schools according to API growth (Elliot, 2009; Toney & Murdock, 2008). Students who attend the KIPP charter schools in the San Francisco Bay Area in California make larger achievement gains than comparable students in traditional public schools (Woodworth, David, Guha, Wang, & Lopez-Torkos, 2006). Hoxby and Rockoff (2005) found that charter schools in Chicago outperformed the surrounding traditional public schools, and later found positive achievement results for charter schools in New York City (Hoxby, Murarka, & Kang, 2009). According to Hill, Angel and Christensen (2006), the five most complete studies regarding charter schools and student achievement show mixed results. Of these studies, two are positive about charter school effects, two report mixed results, and one finds in the negative. A recent Rand Report which analyzed charter school achievement studies found that charter schools have "marginally greater variation" in performance than traditional public schools and that charter schools do not do well in their first year of operation, but improve over time (Zimmer et al., 2009). Wells (2002), based on her extensive study of charter schools in California in 1998, found that there was no strong or consistent evidence that charter schools were improving student achievement. However, the more recent studies regarding charter schools and student achievement suggest that students were achieving at the same or higher level when compared with students in schools in the region where they are located.

A few studies have focused on student graduation and college attendance rates among students in charter schools. Several studies have found that high school students who attended charter schools in Illinois, Florida, and Texas have

higher graduation rates and a greater probability of attending college than comparable traditional public schools (Booker et al., 2008; Zimmer et al., 2009).

Parent involvement and satisfaction regarding choice in attending charter schools is another area that has been studied. Gill, Timpane, Ross, Brewer, and Booker (2007) found that parent satisfaction with charter schools is "strongly and uniformly positive." In one study in Massachusetts, a 1998 survey compared the perceptions of charter-school parents with the perceptions of public-school parents in the communities where charter schools were operating. Charter-school parents were far more likely to give their children's schools 'A' grades, by a margin of 60% to 37%. Sixty-seven percent of charter-school parents and 35% of public school parents regarded the educational program of their child's school as excellent (Lange, Lehr, Seppanen, & Sinclair, 1998). In addition, for those who question whether parents are important in charter schools, it is important to note that successful charters bring together new communities of parents, educators, schoolchildren, and civic organizations towards a common cause. Some have even created new communities based on educational philosophy, shared values, or special needs. Though some charter schools appeal to certain ethnic groups, charters by law accept all comers. Most profit-seeking charter operators work closely with grassroots groups, typically utilizing a structure in which the local group holds the charter. The public's most important safeguard is that no one can profit for long from a bad school that nobody wants to attend (Peterson & Campbell, 2001).

Research in traditional schools has found that leadership is critical for student and institutional success (Fullan, 2001). For a charter school, having the autonomy as well as strong leadership is important to move from an idea to implementation to sustainability. Hays (2009) found that leadership and site

autonomy most contribute to the success of charter schools. Charter schools have the most autonomy throughout most states because they choose their curriculum, programming, scheduling, calendar, and staffing. In most charter schools, teachers work on a year-to-year contract. Hays (2009) found that it was the autonomy provided by charter school policy combined with leadership that caused student achievement to improve and leadership that caused charter schools to be successful. The literature in the area of charter school leadership is limited, but should be further explored.

Researchers have continually studied the broader purpose of charter schools such as choice, competition and meeting the needs of diverse students. Proponents have argued that charter schools would increase competition between schools causing all schools to improve student achievement and graduation rates. At this point in time, with less than 3% of all public school students attending charter schools, there has been limited impact (Wells, 2002). Although other researchers found that more than one-third of 206 separate estimates report a statistically significant correlation between increased competition and higher achievement in public schools (Belfield & Levin, 2002), while others suggest that the public and lawmakers should look no further than the 4,600 charter schools serving 1.4 million students in 40 states and the District of Columbia to see the pillars of choice, competition and reform at work. Nearly 18 years since the first charter school opened, individual state data indicates that charter schools were outpacing their conventional public school peers with fewer resources and tremendous obstacles (Allen et al., 2009).

One area of concern voiced by some researchers is that charter schools were not racially or socioeconomically diverse (Wells, 2002). However, more recent studies have found that African American students were over represented as

compared to nearby traditional public schools in six of seven locations, while white and Hispanic student enrollment is mixed (Booker, Gilpatric, Gronberg, & Jansen, 2008; Gill et al., 2007). There was also concern among some that charter schools would disproportionately remove non-minority, non-poor high achieving students from the traditional school system. However, there is little evidence that this has occurred (Hoxby & Rockoff, 2005). Despite concerns about lack of diversity in charter schools and questions regarding how choice and competition in transforming schools, charter schools continue to develop and enrollment continues to increase which will yield further research in these areas.

Charter schools developed because of a gradual change in how voters and lawmakers viewed choice and their belief that choice can improve education over time. As has been stated, lawmakers in 40 states and the District of Columbia have affirmed through legislation that there should be choice regarding K-12 schooling. Charter schools have emerged as a powerful force in American school reform (Loveless & Field, 2009). There is further evidence of the power of the charter school movement and the way the federal government influences policy with the competition for the federal Race for the Top money. In order for states to apply for the money, there must be charter school legislation in place and there must not be a cap for the number of charter schools (Song & Felch, 2009). Research from the first 18 years of the existence of charter schools has shown mixed results regarding student achievement but show some promising results regarding choice and parent satisfaction in schools. Future studies will determine the progress and success of what some call the most important school reform of the last quarter century (Betts, 2009). Others write that because charter schools consistently fail to raise student achievement that they may not be the vehicle of school reform that proponents have suggested (Carnoy, Jacobsen, Mishel, &

Rothstein, 2005). Most charter schools look similar to traditional schools in the sense that there are teachers, classrooms and a physical space (Carpenter, 2006). Some charters differ in the type of curriculum used or methodologies or strategies applied. As with any innovation, the first iteration examined can only be in structures that have existed. One of the more recent innovations within the charter school movement is the development of online charter schools.

<div align="center">Online School Literature</div>

This section of the literature review provides information regarding the historical and policy perspective of online schools, types of online schools, and how success is measured in online schools. The idea of online learning has its roots in what is known as distance learning, distance education or distance teaching. Moore (1973) defines distance teaching as "the family of instructional methods in which the teaching behaviors are executed apart from the learning behaviors, including those that in a contiguous situation would be performed in the learner's presence, so that communication between the teacher and the learner must be facilitated by print, electronics, mechanical or other devices" (p. 664).

Early versions of distance education were known as correspondence courses where a learner would receive lessons by mail and return them completed by mail. With the advent of the Internet, distance education and online learning became synonymous and included many variations (Clark, 2001). The idea of distance education, which dates back to 1891, and online learning, which began in 1997, can both be considered innovations (Greenway & Vanourek, 2006).

An innovation is an idea, practice, or object perceived as new by an individual or other unit of adoption (Rogers, 2003). Rogers (2003) theorized that any new idea or innovation diffuses through a "process by which alteration occurs in the structure and function of a social system" (p. 6). During his 40 years of

developing and refining the theory called "diffusion of innovations", no matter what the innovation (hybrid corn seed, water purification systems, new policies, or educational technology) the innovation went through the same adoption process. Those who adopt the innovation at the beginning of the new concept or idea are called innovators and early adopters (generally about 16% of the population), while those who adopt an innovation at the end of the cycle of use are called late adopters and laggards (generally about 50% of the population). Before an idea or concept can be studied, it has to first be adopted and used (Rogers, 2003). The idea of charter schools appears to be further along the adoption process than online learning because of the total numbers involved as well as the yearly increases in the number of schools and enrollments. Both ideas are relatively new, and because of this, research has focused on defining the innovation.

The bulk of studies regarding online learning have focused first upon defining, and then describing the benefits and challenges of K-12 online learning (Cavanaugh et al., 2009). Similar to charter school research, part of the issue is the newness of the innovation – the first K-12 online school began in 1997 – making online learning just 11-years-old. Secondly, researchers are still defining the type of research that is needed regarding online learning since it is important to know "how students engage in their learning in this environment prior to conducting any rigorous examination of virtual schooling (Cavanaugh et al., 2009, p.3). Finally, there are a variety of online school variables (full time or part time students, synchronous or asynchronous course strategies, hybrid or fully online courses, etc.) that exist which make it challenging to either compare two different online schools, or to compare online schools with traditional schools. Much of the published literature is based upon the personal experiences of those involved in the practice of virtual schooling. As other researchers have noted, few experimental

or controlled quasi-experimental studies have been found in published literature from 1996 to 2008 that compare the learning effectiveness of online learning with face-to-face instruction (Means, Toyama, Murphy, Bakia, & Jones, 2009). Because of the various types of online schools and programs, it is difficult to design an "experimental or controlled quasi-experimental" study that can compare success in an online school with a traditional school. Research reviewed for this section includes foundational descriptive reports and studies – similar to what develops with any new innovation in any field. Furthermore, because of the various types of online schools, it is extremely difficult to design an "experimental or controlled quasi-experimental" study that can compare success in an online school with traditional school. Picciano and Seaman (2008) explain that online learning in K-12 education is in its nascent stages and significant growth is yet to come.

What Is the History of Online Schools and Policies?

The merging of the idea of distance education with the idea of online learning started when the electronic network known as the Internet began as an electronic network between colleges in 1969. By 1991, when the web browser was invented and provided a more graphical view of the Internet, the World Wide Web, as it is known today, was born. Gradually, many aspects of business, including advertising, purchasing, and communicating with customers moved to the Web. Many aspects of education also moved to the Web, first with teachers communicating with one another and with parents, and then as a place for posting and sharing lesson plans. Eventually, the aspects of business and education developed into what became known as online learning, virtual learning, cyber learning or e-learning. Online learning, like charter schools, is an innovation that developed in the mid-1990s.

The first formal online courses began at the college level and then moved into the K-12 environment. At the college level, the first modern day online or virtual school courses began in 1970 at the Open University in the United Kingdom, now known as the United Kingdom Open University. The first distance learning university in the United States was New York State's Empire State College which began in 1971.   Prior to this, the first community college distance learning program had been initiated in 1986. The Quantum Link Community College in New Hampshire offered non-credit courses through live online group instruction and later became CAL Campus with fully online courses (Nasseh, 1997).

The first K-12 online schools, and specifically online high schools, were developed at a regional level and then expanded state wide in Utah, Florida and Massachusetts between 1994 and 1997. One of the first online schools that opened under charter school laws was Choice 2000 which opened in California in 1994. Some online schools have developed under charter school laws, others were developed based on state legislation and in some cases, policies were developed after online schools were developed which would be the case in some individual schools or school districts where perhaps one teacher in one school established some type of online course (Watson, Winograd, & Kalman, 2004). In most cases, online schools developed because of some type of implementation grant or special funding received from the federal or state government or from a foundation.

Clark (2001) was one of the first researchers to survey K-12 virtual schools. He found that there were five states (Florida, Kentucky, Michigan, New Mexico and Utah) that had some state funding allocation and legislation to develop online courses for high school students in their respective states. In addition, he identified two other online school initiatives: the Virtual High School in

Massachusetts which developed the first collaborative model through a federal technology challenge grant and the CLASS online program developed by the University of Nebraska through a grant and then developed as a course content provider known as Class.com (Clark, 2001). A more extensive study undertaken in 2001 found that there were at least 14 states that had sanctioned entities to implement virtual schools (Clark, 2001). Other reports suggested that online education initiatives developed in the 1990s because of budget surpluses in many states and that virtual education was quickly becoming an accepted educational delivery mechanism (Freedman et al., 2002). By 2009, there were 27 states with statewide virtual schools, an additional six states that offer state-led online learning initiatives (Watson et al., 2009).

In higher education, there has been a more rapid adoption of online learning. During the 2000–2001 academic year, 56% of all 2-year and 4-year degree-granting institutions offered distance education courses with 3,077,000 course enrollments (Waits & Lewis, 2003). Six years later in the 2006-2007 school year, there were 66% of 2-year and 4-year degree granting institutions offering online, hybrid/blended online, or other distance education courses with 12.2 million course enrollments (Parsad & Lewis, 2008). Nearly 20% of all U.S. higher education students were taking at least one online course in the fall of 2006. Online course enrollments in higher education have increased by more than 10% each year since 2005 (Allen & Seaman, 2007, 2010). Counting the number of students enrolled in higher education online courses is similar to the way face-to-face course are counted in colleges and universities: one student in one course for one semester equals one course enrollment. As various reports have illustrated, the number of online courses offered and the number of students taking online courses continues to increase thus causing online learning at the college level to

have reached a tipping point or the point at which online learning has become part of the mainstream at most higher education institutions (Allen & Seaman, 2005, 2008, 2010). Enrollment in online courses at the K-12 level has increased, but has not yet reached the mainstream in the same way as it has at the college level.

There is not a standard way that students enrolled in online courses at the K-12 level are counted. Researchers have depended on volunteer surveys to determine the estimated number of students enrolled in online courses. Reports have shown that the number of K-12 students taking online courses has increased and, in particular, at the high school level (Clark, 2001; Setzer & Lewis, 2005; Watson et al., 2009). Clark (2001) estimated that 40,000 to 50,000 students would enroll in an online course in 2001-2002. During the 2002-2003 school year, it was estimated that there were 328,000 student enrollments and of these enrollments, 76% were in high schools, 15% were in ungraded schools (schools where students are placed by ability and not by grade level), 7% were in middle or junior high schools, and 2% were in elementary schools (Setzer & Lewis, 2005). A different report (Picciano & Seaman, 2008) estimated that approximately 1,030,000 public school students were enrolled in online and blended learning courses in the 2007-2008 academic year. The new estimate represented a 47% increase in enrollments over two years, or a compound annual growth rate of 21.3%.

Counting the number of students enrolled in online courses has not yet been standardized which is one of the challenges for researchers studying online schools. Students who attend online schools may attend full time or part-time. In schools where students attend online courses part time, students who take one online course for one semester are counted as one course enrollment (Final report, 2007; Watson et al., 2009). With this definition, one student who takes one class over two semesters is counted as two course enrollments. Technically, if a student

is enrolled full time in six online courses over two semesters is counted as 12 course enrollments. A few examples illustrate the difficulty in comparing different online schools. The Florida Virtual School, a well established state-lead school and VHS, Inc., a non-profit consortium-lead online school, both count student enrollments by half credit enrollments (one student in one semester course counts equals one student enrollment), while Connections Academy, a company-led system that runs many online schools and online charter schools across the nation, only enrolled full time students. One student in Connections Academy takes from four to six courses for one year and is counted as one student enrollment. Currently, most enrollment figures in online schools are based on self-reporting surveys submitted by online school operators to researchers. The exception are enrollment figures for students who attend full time online charter schools who are formally counted in the same way as traditional schools by state reporting methods and enrollment figures formally counted by state-led virtual schools. A standard way of counting enrollments in online schools does not currently exist and no report has yet delineated the number of full time and part time enrollments in online schools in the United States (Watson et al., 2009). Regardless of how online student enrollments are counted, the number of students taking online courses – either part time or full time – continues to increase every year as Table 9 illustrates.

Further adding to the adoption of online learning at the K-12 level are grants and commissioned reports by the federal government and laws adopted by states. Although the federal government does not have direct constitutional responsibility for education, various federally commissioned reports and studies as well as federal grants have continued to influence state policy and direction regarding online schools through grants of money, vision reports, and

Table 9

Enrollment Growth in Selected Online Schools across the U.S.

State/organization	Full-time or supplemental	2007-2008 enrollment	2008-2009 enrollment	Annual increase
Florida Virtual School	Supplemental	120,000	154,125	25%
Idaho Digital Learning Academy	Supplemental	6,619	9,646	46%
Alabama ACCESS	Supplemental	18,955	28,014	48%
Michigan Virtual School	Supplemental	11,000	16,000	45%
Minnesota (state)	Both	23,722	28,332	19%
Colorado (state)	Full-time	9,238	11,641	26%
Ohio (state)	Full-time	24,011	27,037	13%
Arizona (state)	Both	15,000	23,000	24%
Connections Academy (across U.S.)	Full-time charter	13,000	20,000	54%
K12, Inc. (across U.S.)	Full-time charter	39,500	56,000	42%

Note: From *Keeping Pace With K-12 Online Learning,* by J. Watson, B. Gemin, J. Ryan, and M. Wicks, 2009, Denver, CO: Evergreen Education Group. One supplemental enrollment is counted as one student enrolled in one semester-long online course. One full-time online student equals 10 to 12 semester courses per year.

commissioned research. For example, the Virtual High School or VHS, Inc., which is a collaborative virtual school that offers online courses across the nation, was originally funded by a 5-year, $7.5 million federal Technology Innovation Challenge grant that began in 1996 (Sack, 2003). Federal reports suggesting a perspective in the direction the use of technology in education were first published in 2000 with two documents: *The Power of the Internet for Learning: Moving From Promise to Practice* (Kerrey & Isakson, 2000) and the National Educational Technology Report entitled *E-Learning: Putting a World Class Education at the Fingertips of all Children* (Riley, Holleman, & Roberts, 2000). Both reports produced by different divisions of the federal government set forth similar goals. The Web Based education report issued a call to action regarding a number of initiatives including the development of "high quality online educational content that meets the highest standards of educational excellence" (Kerrey & Isakson, 2000, p. 12). The U.S. Department of Education Office of Education Technology report set forth five goals, one of which was that "digital content and networked applications will transform teaching and learning" (Riley et al., 2000, p. 48). A subsequent updated report from the Department of Education Educational Technology Office called for seven major action steps and one of these was "support e-learning and virtual schools…and provide every child with access to e-learning" (Paige, Hickock & Patrick, 2004, p. 41). Research reports from NCES and U.S. Department of Education have furthered the knowledge of online learning, as well as the direction toward the adoption of K-12 online learning (Setzer & Lewis, 2005; Spellings, 2007, 2008).

Individual states have passed laws and adopted policies that continued to fuel the growth of online schools. There were 27 states with state-led virtual schools, while another 18 states have some statewide online initiative and 45 states

that have some type of state policy regarding virtual or online schooling in 2009 (Watson et al., 2009). Statewide policies vary from defining a virtual school in Kansas to programmatic and reporting requirements in Nevada to monitoring the design of online courses in Wyoming to yearly reporting requirements in Colorado and Minnesota to policy that developed statewide online schools in Michigan (Watson et al., 2009). In examining statewide policies regarding online schools, it is interesting to note that some states have specific policies for online learning which include charter online schools, while other states only have online learning policy or only charter school policy in place. Michigan, Alabama and Florida have adopted laws requiring some type of online learning experience for students in order to graduate from high school (Watson et al., 2009). The U.S. Department of Education and organizations such as the International Association for K-12 Online Learning (iNACOL) have commissioned reports and studies which have caused many state legislatures to develop policies regarding online learning which, in turn, have caused more K-12 online learning programs to develop at state, regional and local levels.

How Are Online Schools Defined?

The way traditional schools are categorized is generally the same and include full time students, full time teachers, curriculum based on statewide standards, use of lecture, textbooks, and technology for the delivery of the curriculum, and a school day with a total of six periods that lasts about 6 hours per day. Charter schools follow similar categories or typologies as was explained in the charter school section of this literature review. However, as schools and courses have moved online, a clear consistent way to categorize online courses has not emerged (Barbour & Reeves, 2009).

Online schools and online charter schools do not fall into neat categories in the same way as traditional schools. Over the past 10 years, researchers have worked to define the categories or types of online schools. Clark (2001) identified online school programs by four categories: state-sanctioned/state led, college or university based, consortium or regionally based, and local education agency based. Another study identified five categories including: statewide supplemental programs, district-level supplemental programs, single-district cyber schools, multi-district cyber schools, and cyber charters (Watson et al., 2004). The types of schools were further refined into four categories including: state virtual school, multi-district, single-district, or consortium (Watson et al., 2009). In addition to different categories of online schools, there were a variety of other components that defined online schooling as illustrated in Figure 7.

Online schools are defined in a variety of ways including the entity that develops the online school, whether students attend full time or part time, how instruction is delivered, the technology used, the amount of time students meet face-to-face with a teacher, and how they are funded. The entity that develops and maintains the online school can be state-led, county, region or consortia-led, company-led, or district-led (Watson et al., 2009). In some cases, online schools are home grown by a few teachers in a school district, chartered in a district or developed by a company that administers online charter schools across many states. In some state-led schools such as Idaho, all students who attend are part time, while in other online schools and, especially in charter online schools, students only attend full time. How an online course is delivered is another way researchers define online courses. Some institutions consider online courses as courses in which 100% of the instruction was delivered online, while others used various percentage cutoffs such as 80%, 70%, and 50% of online instruction

COMPREHENSIVENESS	Supplemental program (individual courses)			Full-time school (full course load)		
REACH	District	Multi-district	State	Multi-state	National	Global
TYPE	District	Magnet	Contract	Charter	Private	Home
LOCATION	School		Home		Other	
DELIVERY	Asynchronous			Synchronous		
OPERATIONAL CONTROL	Local Board	Consortium	Regional Authority	University	State	Independent Vendor
TYPE OF INSTRUCTION	Fully Online	Blending Online & Face-to-Face			Fully Face-to-Face	
GRADE LEVEL	Elementary		Middle School		High School	
TEACHER-STUDENT INTERACTION	High		Moderate		Low	
STUDENT-STUDENT INTERACTION	High		Moderate		Low	

Figure 7. Defining dimensions of online programs. From *Keeping Pace with K-12 Online Learning,* by J. Watson, B. Gemin, J. Ryan and M. Wicks, 2009, Denver, CO: Evergreen Education Group. Reprinted with permission.

(Parsad & Lewis, 2008). Some schools provide primarily asynchronous instruction while others provide primarily synchronous instruction. Different technologies used may cause curriculum to be delivered in different ways. Setzer and Lewis (2005) found that school districts who were engaged in distance learning courses reported using the following technologies for online course:

- 49% reported using two-way interactive video

- 35% reported using Internet courses with asynchronous instruction

- 9% reported using Internet courses with synchronous instruction

- 7% reported using one-way prerecorded video

- 1% reported using other technologies

Another variable used for categorizing online schools is how often students may meet in person with a teacher either in a traditional classroom or individually. Some online programs deliver content fully online where students do most of their coursework from home, while other programs known as hybrid or blended online courses use online courses for instruction but meet students in a regular classroom on a daily or weekly basis (Watson, 2008). Allen, Seaman, and Garrett (2007), who have surveyed online learning in higher education have categorized online courses in four distinct different ways including traditional, web facilitated, blended/hybrid and online. Table 10 shows a typology of online schools utilized at the college level but applicable in K-12.

In a similar way, Watson (2008) developed a continuum that shows the types of K-12 online schools and examples of specific schools. Table 11 shows the range of ways that online instruction is delivered.

The way an online school is funded and whether or not it is diploma granting is another way that online schools are defined. In most every case, charter online schools enroll full time students, are diploma granting, and receive

Table 10

Types of Online Courses

Type of course	Proportion of content delivered online	Typical description
Traditional	0%	Course with no online technology used – content is delivered in writing or orally.
Web Facilitated	1 to 29%	Course which uses web-based technology to facilitate what is essentially a face-to-face course. Uses a course management system (CMS) or web pages to post the syllabus and assignments, for example.
Blended/hybrid	30 to 79%	Course that blends online and face-to-face delivery. Substantial proportion of the content is delivered online, typically uses online discussions, and typically has some face-to-face meetings.
Online	80+%	A course where most or all of the content is delivered online. Typically have no face-to-face meetings.

Note: From *Blending In: The Extent and Promise of Blended Education in the United States,* by I. E. Allen, J. Seaman, and R. Garrett, 2007, Newburyport, MA: The Sloan Consortium.

Table 11

K-12 Online Course Instruction Continuum

FULLY ONLINE INSTRUCTION

- Fully online curriculum with all learning done online and at a distance and no face-to-face component

- Fully online curriculum with options for face-to-face instruction, but not required

- Mostly or fully online curriculum with select days required in classroom or computer lab

- Mostly or fully online curriculum in computer lab or classroom where students meet every day

- Classroom instruction with significant, required online components that extend learning beyond the classroom and beyond the school day

- Classroom instruction integrating online resources, but limited or no requirements for students to be online

- Traditional face-to-face setting with few or no online resources or communication

TRADITIONAL FACE-TO-FACE INSTRUCTION

Note: From *Blended Learning: The Convergence of Online and Face-to-Face Education,* by J. Watson, 2008, Vienna, VA: North American Council for Online Learning.

state educational funding based on an attendance formula typically for non-classroom based schools (Huerta et al., 2009). In states where students take online courses part time or in addition to courses in traditional brick-and-mortar schools, a part time funding formula has been developed. For example, the Florida Virtual School is funded based on students who complete courses but is not diploma granting (*Final Report*, 2007). In Michigan, state law created the Michigan Virtual School in 2000 and the state superintendent in 2008 allowed individual schools to apply for a waiver from the traditional seat time requirement for online students (Watson et al., 2009). The Kentucky Virtual School was also created in 2000 by the governor and the state legislature. Kentucky state education funds finance the state-led virtual school each year. Florida, Michigan and Kentucky mostly provide online courses for part time students while other state-led or regional-led and charter online schools provide online courses for full time students. Because of the range of variables – full time or part time students, synchronous or asynchronous instruction, blended or fully online, charter or non-charter – it has been challenging for researchers to compare online schools and to compare online schools with brick-and-mortar schools. Researchers have also explored if online learning costs less than brick-and-mortar schools.

The cost of establishing and maintaining an online school has been examined, mostly through the case study and interview approach. When discussing online schools, researchers note that the greatest barrier to developing an online school is the cost (Bearden, 2008; McFadden, Marsh, & Price, 1999). The best way to determine the overall cost of an online course or online school is to determine the average cost per student (Morgan, 2000). An analysis of costs for cyber schools completed for the Colorado legislature suggests that the cost for an online student is the same as a face-to-face student. However, as enrollments

increase, some economies of scale may result in the cost per student to decrease (Kalmon & Watson, 2004). The operating costs of online programs are about the same as the operating costs of regular brick-and-mortar schools (Anderson, Augenblick, DeCesare, & Conrad, 2006; Annetta, 2004). Operating costs include ongoing costs such as content, the course management system, teacher training, and teachers. The costs for a part time online school as compared to a full time online school may be less overall, but proportionately, the cost per student to educate a student in an online course is generally the same. One other development that may influence the cost of online schools is the open educational resource or OER movement. Educators around the world are putting their work and content online which allows free access for all. As more networks of open source educators develop, the cost of online content for online schools could decrease (Downes, 2007). Table 12 illustrates the cost components for traditional brick and mortar schools compared with online schools.

How Is Success Measured in Online Schools?

Similar to charter school research, online school research has focused primarily on student achievement. Much research has been focused on determining if students in online courses achieve at the same levels as in traditional courses. Overall, researchers have found that the nature of student achievement and completion/retention in online courses makes it difficult to develop comparable or treatment groups (Dickson, 2005). Student achievement is generally measured by achievement on state standardized tests. Various meta-analysis studies have examined student achievement and computer-assisted instruction and found that there were positive effects (Kulik, 1994; Russell, 1999). Smith et al. (2004) examined several meta-analysis for both postsecondary and K-12 online learning. They found that in each case there was no significant

Table 12

Traditional School vs. Online School Cost Comparison Chart

Costs for traditional schools only	Costs for both traditional schools and online schools	Costs for online schools only
• Buildings and Grounds • Maintenance • Security • Transportation • Energy • Computer and internet access for teachers • Teacher sub costs (for teacher sick days or professional development) • Athletics • Music Program (e.g. band) • Nursing Services	• Administration • Teachers • Students • Professional Development • Student Information System • State Testing System • Textbooks (print or online) • Courses approved by Governing Board • Access to computers • Special Education Services • Student Support Services (e.g. counseling) • Network Infrastructure • Telephones and Network	• Space for offices and computer lab for students. • Course Management System • Course Content • Computer and internet access for every teacher and student • Mobile communication device for teachers (e.g. cell phone) • Technology Support (e.g. help desk, course updating, server maintenance) • Marketing and Advertising

*Note: B*ased on information from: *Final Report: A Comprehensive Assessment of Florida Virtual School*, 2007, by Florida Tax Watch Center for Educational Performance and Accountability, Tallahassee, FL: Author; *20/20 Vision for Education: Costs and Funding of Virtual Schools* by A. Anderson, J. Augenblick, D. DeCesare, and J. Conrad, 2006, Atlanta, GA: Bellsouth Foundation; *Funding Online Education: A Report to the Colorado Online Education Programs Study Committee* by J. Adsit, 2003, Denver, CO: Author; *Cost Guidelines for State Virtual Schools Development, Implementation and Sustainability*, by the Southern Regional Education Board, 2006, Atlanta, GA: Author.

difference between learning in face-to-face courses or schools as compared to online courses or schools. They supported the conclusion arrived at by others that "on average, students seem to perform equally well or better academically in online learning" (Smith et al., 2004, p.18). Shachar and Neumann (2003) included 86 studies comparing distance versus conventional study. They found that in two-thirds of the cases, students taking courses by distance education outperformed their student counterparts. One of the more recent meta-analysis regarding online learning commissioned by the U.S. Department of Education found that on average, students in online learning conditions performed better than those receiving face-to-face instruction (Means et al., 2009). In all of the above research, studies were included from both postsecondary and K-12 schools, as well as studies that included students who attended online courses both full time and part time.

Other researchers have studied some of the aspects of online learning, including the reasons and benefits of online learning. Similar traditional charter schools, online charter schools have similar benefits. In a review of literature, Barbour and Reeves (2008) found that online or virtual schooling expanded educational access, provided high-quality learning opportunities, improved student outcomes, and allowed for educational choice. Furthermore, with one-to-one computer initiatives, online learning, the need for differentiated instruction and student choice are reasons to increase access to online learning opportunities (Cavanaugh, 2009).

One other aspect of success regarding online learning suggested by various authors is how online learning may better meet the education needs of the newer generations of students (Christensen et al., 2008; Howe & Strauss, 2008; Tapscott, 2009). The Pew Internet and Life Program, a project of the Pew Charitable Trusts

is a nonprofit, nonpartisan "fact tank" that provides information on the issues, attitudes and trends shaping American life, began monitoring and issuing reports regarding online and Internet use in 2000. They recently issued a report showing how different generations use the Internet (Jones & Fox, 2009). Table 13 shows the various generations and the amount of Internet use.

Table 13

Generational Categories and Internet Use

Generation Name	Birth Years, Ages in 2009	Percent of total population	Percent of adult internet-using population
Next Gen	Born 1991-present, Ages 0-17	13%	
Gen Y (Millennials)	Born 1977-1990, Ages 18-32	26%	30%
Younger Boomers	Born 1955-1964, Ages 33-44	20%	23%
Older Boomers	Born 1946-1954, Ages 55-63	13%	13%
Silent Generation	Born 1937-1945, Ages 64-72	9%	7%
G.I. Generation	Born 1936 or before, Age 73+	9%	4%

Note: Based on information from *Pew Internet Project Data Memo: Generations Online in 2009* by S. Jones and S. Fox, 2009, Washington, D.C.: Pew Internet & American Life Project and *Grown up Digital: How the Net Generation is Changing Your World* by D. Tapscott, 2009, New York: McGraw-Hill.

The millennial generation was the first to be born in an online/Internet world. Over 90% of this generation uses the Internet on a daily basis and the next generation is already doing the same (Jones & Fox, 2009). In addition, various authors have identified the traits of the millennial generation which relate to both

the increased use of online learning and in attending charter schools. Howe and Strauss (2008) have defined the millennial generation traits to include: special, sheltered, confident, team oriented, conventional, pressured, and achieving. Tapscott (2009) suggested that the millennial generation extends from 1977 to 1997, is currently aged 11 to 20, and has more than 80 million members. This millennial generation norms include freedom, customization, scrutiny, integrity, collaboration, entertainment, speed, and innovation (Tapscott, 2009). Knowing the characteristics of the millennials have led authors to suggest how education should change to meet their needs. Howe and Strauss (2008) recommended that "this generation needs greater choice and prefers modular choices such as online courses" (p. 104). Tapscott (2009) expanded with similar findings and suggested that education needs to transition from broadcast learning to interactive learning which causes the players in education to move from teacher-centered to learner-centered, from one-size-fits-all to one-size-fits-one, from instruction to discovery, and from individualistic to collaborative learning. Overall, "interactive learning enables students to learn at their own pace" (p. 133) and will better meet the needs of the millennials and future generations. Tapscott (2009) explained that net geners or millennials are not content to sit quietly and listen to a teacher lecture, they expect to talk back, to have a conversation and they want a choice in their education, in terms of what they learn, when they learn it, where, and how. Other authors have suggested that education for this generation and future generations needs to include modularity, interdependence, and be student centric (Christensen et al., 2008).

The research completed regarding millennials by Howe and Strauss (2008), Jones and Fox (2009) and Tapscott (2009), as well as the disruptive innovation research completed by Christensen et al. (2008) suggest that more students will

seek online learning in the future because online courses better meet the characteristics and needs of the millennial generations and the generations of the future.

What Are the Predictors of Success for Completing

Online Courses?

Research has begun to emerge regarding the factors that cause students to be successful in online courses. Most of the current research focuses on students in college online courses. During the start up phase of online schools, regardless of whether it is adults, college or high school students the challenge is the retention of students. It is estimated that attrition rates in online courses are between 20% and 50% and that course completion rates in online courses are 10% to 20% lower than traditional courses (Hernandez, 2008; Lamkins, 2004; Moore, Bartkovich, Fetzner, & Ison, 2002). Reasons for not completing online courses have generally focused on two areas: individual characteristics (demographics, family and peer support) and institutional characteristics (course design, course interactivity, and timeliness of instructor responses). Some researchers have found a combination of individual and institutional characteristics cause students not to complete online courses, while other researchers have found that in reviewing the existing literature related to distance education and course retention, that there is no significant pattern in identifying the variables that cause online course attrition (Storrings, 2005). The reasons that students do not complete online courses are comparable to the factors that cause students to drop out of high school as explained in the *At-Risk and Student Dropout* section of this literature review.

Kember (1989) developed a model of factors that cause students to choose to drop out of an online course. These factors included individual and home, extrinsic or intrinsic goal attainment, academic environment, social and work

integration, and cost/benefit analysis. Porta-Merida (2009) utilized Kember's model and surveyed 877 full time online college students to determine student retention in the online program. She found that students who remained in the online program scored high on social integration (having support from peers and family) and had an average previous GPA of 3.1, which was higher than students who dropped out of the online college courses (Porta-Merida, 2009). Other researchers have categorized the barriers to online course completion which included: (a) situational or the individual's social, economic or personal environment, (b) institutional or having to do with the institution's program, policies or procedures, (c) dispositional or the individual's background including attitude, motivation and learning styles, and (d) epistemological or having to do with course content or pre-requisite knowledge or expectations (Garland, 1993). In follow up research based on Garland's barriers to success in online courses, Moore et al. (2002) surveyed college students about their reasons for not completing online courses. The top reasons included that students did not know a certain course was online (institutional barrier), felt alone and not part of the course (epistemological barrier), course too unstructured (dispositional barrier), and couldn't handle course plus work or family responsibilities (situational barrier). Similar reasons for dropping out of online courses were found by other researchers. In a survey of students who drop out of college courses, it was found that students drop out of online courses for personal reasons, job-related reasons, program related reasons or technology related reasons (Willging & Johnson, 2004), which were similar to the categories identified by Garland (1993).

Other researchers have focused on the institutional factors of online courses that support student success. Kember (1989) found that a number of institutional or faculty factors influenced the retention of students in online courses including

the frequency and nature of contacts, the speed of instructor response to student questions, tutorials, use of telephone, and synchronous communication with students contributed to the positive feelings of a student in an online course. Another study that surveyed online course instructors about online students found that there was a higher dropout rate among younger and less academically experienced students and that there was a significant association between student-teacher interactivity and course completions (Lamkins, 2004). These findings were affirmed in another study that surveyed community college online instructors. The online instructors reported that student success resulted from immediacy or how much a student feels a part of the online course and encouraged by the instructor, technological immediacy or the use of media to teach concepts such as graphics and video clips, and online communication and interactivity or an interesting course design with easy to use on screen formats that caused a high level of interaction between instructor and student (Hernandez, 2008). Chyung (2001) found that course design made a significant contribution to the retention of online students.

Roblyer, Davis, Mills, Marshall, and Pape (2008) were some of the first to examine success characteristics of high school students who were taking one or two online courses in addition to their brick-and-mortar courses. Based on previous research, the researchers identified four factors that lead to success in an online course: (a) technology use/self-efficacy (self-assessment of one's ability with technology); (b) achievement beliefs (confidence in one's ability to learn, an aspect of locus of control); (c) instructional risk-taking (willingness to try new things and risk failure in instructional situations, related to locus of control); and (d) organization strategies (ways to organize for more efficient learning). From this information, the researchers developed a survey instrument based on previous

findings and administered it to part time online high school students. Overall, it was found that a student's past academic ability (GPA) was a significant predictor of success, but that equally important were a student's technology access, self-efficacy and organization beliefs. Results also indicated that environmental (or institutional) variables played an equally important role in causing student success in online courses (Roblyer et al., 2008). Additionally, it has been found that successful online students have the following characteristics: (a) self-motivation, (b) supportive parents, (c) a working knowledge of computers and the Internet, (d) are visual learners, and (e) have strong language skills (Barker, 2001; Roblyer et al., 2008).

Researchers have found that the factors that cause students of any age to be successful in online courses are both individual and institutional (or environmental). Generally, the individual factors that lead to success for online students include previous school success, extrinsic and intrinsic motivation, and a comfort level with the use of technology (Roblyer et al., 2008). The institutional or environmental conditions which cause students to be successful in online courses in include ease of enrollment, course design, course interactivity, the involvement of the instructor, and the timeliness of responses from the instructor (Chyung, 2001; Hernandez, 2008; Lamkins, 2004). In addition to the individual and institutional factors, students who choose online learning fall into two categories: those who are self-motivated and choose online courses as a first choice and those who have been unsuccessful in other types of schooling and online courses are their last choice (Barker, 2001). Generally, students make a choice to take an online course. Once enrolled, students choose whether to complete the needed work or not. Researchers continue to analyze the significant factors that cause students to be successful in online courses.

Summary of Literature

This review of literature has explored the research, reports and studies regarding students who drop out of high school, charter schools, and online schools. The focus has been primarily at the high school level. The literature regarding students who drop out of high school is more developed than the research regarding charter schools or online schools. Student drop out literature has been examined and studied repeatedly ever since the traditional school system was put in place in the early 1900s. Researchers have built on the body of knowledge about what is known about student dropouts, why they drop out, and the individual and institutional factors that cause students to drop out of school (Balfanz & Letgers, 2004; Finn, 1989; Orfield, 2004; Rumberger & Thomas, 2000; Wehlage et al., 1989). The foundation for the research and measurement of charter school and online school success has been established over the past 20 years. New research, especially with more longitudinal data available, will prove to have more conclusive findings in the future.

The idea of choice is the common denominator between dropout literature, charter school literature, and online school literature (Berends, 2009; Huerta et al., 2009; Zimmer et al., 2003). When parents and/or students choose to attend a certain school, the involvement of the student and the parent in the school, as well as student achievement increases (Betts & Yang, 2008). In the case of a student who has dropped out of a traditional school, the decision to go back to school is a personal choice while it is also a person choice to leave a traditional school and attend a charter or online school. As the idea of educational choice becomes part of the mainstream for parents and policy makers, further research will develop in all of these areas. The number of students choosing to attend charter schools and/or online schools is increasing. The number of students enrolled in charter

schools as compared to all public schools was 2.3% in 2006-2007 and 2.6% in 2007-2008 (Lake, 2008). The number of students who have taken at least one online course is estimated to be slightly more than one million or 2% of the overall K-12 student population in 2008 (Watson et al., 2009). The challenge among student dropouts, charter schools, and online schools is how each are counted. The method to count students who drop out of school was standardized by a decree from the U.S. Department of Education (*A Uniform, Comparable Graduation Rate*, 2008). The way student enrollment is counted for public charter schools is the same as it is for counting students in traditional public schools and standardized by each state. However, the way student enrollment is counted for K-12 students who attend online courses, many of whom attend part time, has not been standardized. Once a common definition of online schools and online charter schools is defined, and a formalized way to count online school enrollments, then more reliable studies can be undertaken.

Researchers over the past 40 years have studied the factors that predict when a student may drop out of school. Similar studies identifying the factors that predict when a student may be successful in a charter school or online school have taken place over the past 10 years and are just emerging (Berends, 2009; Means et al., 2009; Roblyer et al., 2008). Studies have shown that students drop out of school because of family, individual and/or school factors. Two of the main factors that cause students to drop out of traditional school have been because they are behind in units towards graduation and because they have had poor attendance (Hammond, 2007). Individual, family or school factors have also been identified as reasons students may not be successful in completing online courses (Roblyer et al. 2008). The nature of part time or full time online courses requires students to take greater ownership of their learning than in a traditional face-to-face course to

be successful. The population of students who attend individual traditional high schools is greater than the population of students who attend most individual charter or online high schools. For students who are more successful in smaller school settings, they may find better success in the smaller setting of charter or online schools (Wehlage et al., 1989). Online schools may provide some students with a smaller school setting as well as a reduction in the distractions from a traditional school such as passing time between classes, waiting for others to learn the material, and the travel time to and from schools (Barbour & Reeves. 2009).

Every innovation takes time to develop and to be examined (Rogers, 2003). Researchers continue to further define the success factors of two important educational innovations of the 21st century and to measure their success with at-risk students: charter schools and online schools.

CHAPTER 3: METHODOLOGY

Introduction/Purpose of the Study

The development of charter schools and online schools in the past ten years in the U.S. has increased educational choice for parents and students. Students choose to attend charter schools and online schools, whether or not the online school is a charter. Researchers have suggested that when students choose to attend a school rather than attending their neighborhood school, that involvement in learning increases by students and parents, and that, ultimately fewer students drop out of high school. A belief held by many charter school and online school personnel is that charter schools and online charter schools are better serving the needs of students who are at-risk of not graduating from high school. For this study, at-risk was defined as any student who is classified as low income or qualifies for the free and reduced price lunch program. Researchers have determined that a majority of at-risk students who drop out of school come from the lower quarter of the socioeconomic distribution (Dalton et al., 2009; Ekstrom et al., 1986). Success was defined as students who were proficient on state standardized tests and did not drop out of high school.

The purpose of this study was to compare student assessment and dropout data for students who attend online charter high schools and traditional high schools in California to determine if there is a significant difference in student achievement and dropout rates. Quantitative data were gathered utilizing archival data for students in both types of schools from publicly accessible websites maintained by the California Department of Education.

Research Questions

The following research questions are explored in this study:

1. Are there a disproportionate number of at-risk students attending online charter schools as compared to traditional high schools in California?

2. Are at-risk students more successful in online charter high schools than in traditional high schools in California?

<div style="text-align: center;">Subjects</div>

Data were gathered from students in online charter high schools and a comparable random sample of students in traditional high schools for two years. It is important to note that some students in high school take online courses part time or in addition to their traditional high school courses, while others attend an online school full time and do not attend traditional high school courses. This study focused on students who attended online charter schools full time.

Online charter high schools in California were first identified based on schools that included grades 9-12 for at least the previous two years. The first year that an online charter high school in California included grades 9-12 was 2004 and, it was only in 2008 that there were more than two online charter schools that included students in grades 9-12 (See Appendix C). Once the online charter schools were identified, a random sample of the same number of traditional high schools was chosen with similar demographics as measured by the percentage of students participating in the free and reduced lunch program. The percentage of students in free and reduced lunch programs in online charter schools ranged from 30% to 50%. Traditional high schools were randomly selected based on schools with similar free and reduced lunch percentages that were located in different geographic regions in California (see Appendix D). Online charter schools opened for the first time in California in 2002 for students in grades K-8. Many online charter schools added one grade level each year after opening. The first year when

there were more than two online charter schools in California with students in grades 9-12 was in 2005.

The next several tables illustrate the demographics of the selected California online charter and traditional high schools. Table 14 shows the student enrollment from the selected schools while Table 15 shows the gender distribution of students. Table 16 shows the ethnic distribution of students in the selected schools.

Table 14

California Student Enrollment of Selected Online Charter Schools and Traditional High School, 2007-2009 (Grades 9-12)

School type	2007	2008	2009
Online Charter Schools (OCS)	728	1517	2734
Traditional Schools (TS)	21,622	21,361	21,261

Note: Data from *Education Data Partnership* data repository maintained by the Alameda County Office of Education in partnership with the California Department of Education, retrieved from http://www.ed-data.k12.ca.us, 2010.

Table 15

California Student Gender Distribution of Selected Online Charter Schools (OCS) and Traditional High Schools (TS), 2007-2009

Gender	OCS 2008-09	OCS 2007-08	TS 2008-09	TS 2007-08
Male	49	51	50	49
Female	51	49	50	51

Note: Data from *Education Data Partnership* data repository maintained by the Alameda County Office of Education in partnership with the California Department of Education, retrieved from http://www.ed-data.k12.ca.us, 2010.

Table 16

California Student Ethnicity Distribution of Selected Online Charter Schools (OCS) and Traditional High Schools (TS), 2007-2009

Ethnicity	OCS 08-09	OCS 07-08	TS 08-09	TS 07-08
American Indian	2%	1%	1%	1%
Asian	2%	3%	21%	21%
Pacific Islander	1%	1%	0%	0%
Filipino	2%	2%	2%	2%
Hispanic	24%	20%	32%	31%
African American	12%	12%	3%	3%
White	49%	57%	38%	39%
Multiple/No Response	9%	5%	2%	3%

Note: Data from *Education Data Partnership* data repository maintained by the Alameda County Office of Education in partnership with the California Department of Education, retrieved from http://www.ed-data.k12.ca.us, 2010.

Instruments

Student demographic data, achievement data and dropout data were obtained for each high school. The following data were collected and analyzed for selected schools: (a) student gender, (b) student ethnicity, (c) 2 years of standardized test scores, and (d) 2 years of student dropout data.

Two instruments were used for data analysis to determine if there is a significant difference between at-risk students and student success in online charter schools as compared with traditional high schools. The first instrument

used was the California Standards Test in English Language Arts (CST ELA). Students in grades 2 to 11 in California public schools take the CST each year in English Language Arts in the spring. Students then receive scores that place them in a category: advanced, proficient, basic, below basic or far below basic. Students who score proficient or advanced have met the state standards. The second instrument used for comparison between schools was student dropout data. In California, dropout data is reported each year in October for the previous school year. Dropout information is reported for students in grades 7 to 12 and are reported by school, grade level, ethnicity, migrant education, limited-English-proficient, special education, and socioeconomically disadvantaged (California Department of Education, 2010).

<div align="center">Procedures</div>

Identifying online charter schools in the state of California took place by utilizing Dataquest and downloading all charter schools in California into one spreadsheet. After eliminating all non-online or site based schools and independent study charter schools, just online charter schools remained. This process identified 12 full time online schools that existed in California in the 2008-2009 school year of which 10 were chosen based on those that had the greatest number of students in grades 9-12 for 2 consecutive years and were in geographically different regions in California (see Appendix D). Online charter schools were defined as schools where 80% or more of the content is delivered online (Allen & Seaman, 2007).

The California Department of Education (CDE) provides data to several publicly accessible repositories of data regarding K-12 student demographics, student achievement and student dropouts. For this study, data were collected from three different data repositories. Enrollment, demographics and free and

reduced lunch data were collected from the Education Data Partnership data repository (Alameda County Office of Education, 2010), student dropout data were collected from the DataQuest data repository (California Department of Education, 2010), and student achievement test data were collected from the Education Results data repository (California Business for Education Excellence Foundation, 2010). Data were then organized on spreadsheets for descriptive and statistical analysis.

Analysis

Data were first analyzed utilizing descriptive statistics and then by significance testing. Enrollment data was collected for the selected schools to examine trends in online charter schools compared with traditional high schools. Proportions of students in online charter schools and traditional schools were calculated by grade level regarding student achievement and student dropouts and compared. Significance testing was completed using the chi-square test for independence for student achievement and dropouts utilizing the SPSS software. Chi-square tests were calculated for significance utilizing CST ELA proficiency levels for students in grades 9, 10 and 11 for both the selected online charter high schools and traditional high schools for 2 consecutive years. Students were coded as proficient or not proficient. Chi-square tests were also calculated for significance utilizing dropout data for students in grades 9, 10, 11 and 12 in the selected online charter high schools and traditional high schools for 2 consecutive years. Students were coded as dropouts or not dropouts.

Limitations

There were two primary limitations of this study related to sample size and location. First, the total numbers of students attending online charter schools were significantly less than traditional high schools. Therefore, it may not be adequate

to generalize to the entire population of at-risk students. Furthermore, this study was limited to a sample of institutions further compromising one's ability to generalize. However, it represents exploratory research in a field where comparing such institutions in the way proposed here is rare and so constitutes an important first study.

CHAPTER 4: RESULTS/OUTCOMES

Review of Methodology

This study examines at-risk students in online charter and traditional schools in California. The issues are whether at-risk students disproportionately attend online charter schools, and whether they are more successful than when they attend traditional high schools. Data for this study were collected from 10 online charter schools and 10 traditional high schools in California. The 10 online charter schools were chosen because they included grades 9-12 for at least 2 years. The percentage of free and reduced lunch program students, an indication of students who are at-risk of dropping out, was examined in the online charter schools. A random sample of students were then selected from 10 traditional high schools (non-charters) from various parts of California matched with the online schools by the percentage of free and reduced lunch range (See Appendix D).

Archival data regarding standardized test scores and student dropouts were examined and compared between the selected online charter schools and traditional high schools over a 2-year period. The English Language Arts (ELA) component of the California Standards Test (CST), administered annually to students in grades 9, 10 and 11 was the measure of student achievement. CST data were examined for the 2007-08 and 2008-09 school years, the most recent years this data were available. Dropout data were self-reported by schools to the state each year, and were examined for the 2006-07 and 07-2008 school years, the most recent years this data were available.

The California Department of Education (CDE) provides data to several repositories regarding K-12 student demographics, student achievement and student dropouts. For this study, data were collected from three different data

repositories. Enrollment and free and reduced lunch data were collected from the *Education Data Partnership* (Alameda County Office of Education, 2010) data repository (www.ed-data.k12.ca.us), student achievement test data were collected from the *Education Results* (California Business for Education Excellence Foundation, 2010) data repository (edresults.org), and student dropout data were collected from the *DataQuest* (California Department of Education, 2010) data repository (data1.cde.ca.gov/dataquest).

Table 17 shows the total enrollment by grade level for the 10 selected online charter schools (OCS) and the 10 selected traditional high schools (TS) used in this study.

Table 17

Enrollment in Selected California Online Charter Schools (OCS) and Traditional High Schools (TS) by Grade, 2006-2009

Grade	2006-07	2007-08	2008-09
9th Grade Enrollment – OCS	373	580	963
10th Grade Enrollment – OCS	195	509	822
11th Grade Enrollment – OCS	79	276	636
12th Grade Enrollment – OCS	81	152	313
Total Enrollment – OCS	728	1517	2734
9th Grade Enrollment – TS	5942	5583	5838
10th Grade Enrollment – TS	5612	5744	5382
11th Grade Enrollment - TS	5306	5136	5196
12th Grade Enrollment - TS	4762	4898	4845
Total Enrollment - TS	21,622	21,361	21,261

Note: Data from *Education Data Partnership* data repository maintained by the Alameda County Office of Education in partnership with the California Department of Education, retrieved from http://www.ed-data.k12.ca.us, 2010.

Findings

The most recent data available were examined by grade level for two years from the California Standards Test English Language Arts test (CST ELA) and from dropout reports. Data regarding reported student test scores on the CST ELA were examined for the 2007-08 and 2008-09 school years for 3,460 online charter high school students (grades 9-12) and 31,309 traditional high school students. Data regarding student dropout rates were examined for the 2006-07 and 2007-08 school years for 2,235 online charter high school students and 42,983 traditional high school students.

Data from CST ELA were first examined and compared to determine if there was a difference in the percentage of students who scored proficient or above in the selected online charter schools and traditional high schools. The percentage of students who scored proficient or above was calculated by adding the percentage of students categorized as "proficient" and the percentage of students categorized as "advanced" at each grade level and in each school. Table 18 shows the percentage and number of students in the selected online charter schools and traditional schools that scored proficient or above on the California Standards Test (CST) in English Language Arts (ELA) for both the 2007-08 school year and the 2008-09 school year.

Comparative percentages of CST ELA scores reveal that more students in traditional high schools scored proficient or above than in online charter schools in grades 9, 10 and 11 for the 2 years examined for this study. Additionally, both online charter schools and the selected traditional schools scored above the statewide average for the percentage of students who scored proficient or above on the CST ELA test in the 2007-08 and 2008-09 school years.

Table 18

Percentage of Students that Scored Proficient or Above on California Standards Test, English/Language Arts in Selected Schools and California by Grade, 2007-2009

Grade	School type	2007-08		2008-09	
		N	Percentage	N	Percentage
9	Online Charter Schools	307	55	457	56
9	Traditional Schools	3373	63	3546	64
	California State Average		49		50
10	Online charter schools	222	46	375	48
10	Traditional schools	3052	57	3056	60
	California State Average		41		44
11	Online charter schools	106	40	255	46
11	Traditional schools	2599	55	2799	57
	California State Average		37		40

The percentage of students in online charter schools who scored proficient or above by grade level ranged from 46 % to 56% for the 2008-09 school year, while the percentage of students who scored proficient or above ranged from 40% to 55% for the 2007-08 school year. In traditional schools, the percentage of students who scored proficient or above by grade level ranged from 57% to 64% for the 2008-09 school, while the percentage of students who scored proficient or above by grade level ranged from 55% to 63% for the 2007-08 school year. Both online charter schools and the selected traditional schools scored above the

statewide average for students who scored proficient or above on the CST ELA test in both years and at all grade levels (state percentages ranged from 37% to 50%). The difference in the percentage of students who scored proficient or above on the CST ELA test between online charter schools and traditional schools ranged from 8% to 11% by grade level for the 2008-09 school year, while the difference in the percentage of students who scored proficient or above on the CST ELA test between online charter schools and traditional schools ranged from 8% to 15% by grade level for the 2007-08 school year. Overall, the percentage of online charter school students and traditional school students scoring proficient or above on the CST ELA test increased each year at each grade level.

Dropout data were then examined and compared for the selected online charter schools and traditional schools by grade level for the 2006-07 and 2007-08 school years (See Table 19). Dropout percentages were calculated by adding all students listed as dropouts by grade level by school type and then dividing that total by the grade level enrollment reported at the beginning of the school year.

A greater percentage of students dropped out of school from online charter high schools than from the selected traditional high schools for the 2006-07 and the 2007-08 school years. Additionally, the number of student dropouts in online charter schools was greater than the statewide dropout average for both years.

The dropout percentage for students in online charter schools ranged from 22% to 59% while the dropout percentage for students in the selected traditional schools ranged from 0.5% to 4%. The difference in the percentage of students who dropped out of school between online charter schools and the selected traditional schools ranged from 21% to 56% by grade level for the 2007-08 school year, while the difference in the percentage of students who dropped out of school

Table 19

Number and Percentage of Dropouts in Selected Schools and California by Grade,
2006-2008

		2006-07		2007-08	
Grade	School type	N	Percentage	N	Percentage
9	Online Charter Schools	6	2	126	22
9	Traditional Schools	38	0.6	39	0.7
9	Statewide	12,426	2	9,737	2
10	Online Charter Schools	11	6	145	29
10	Traditional Schools	48	0.9	28	0.5
10	Statewide	12,862	2	10,995	2
11	Online Charter Schools	-	-	88	32
11	Traditional Schools	60	1	35	0.7
11	Statewide	15,864	3	14,657	3
12	Online Charter Schools	-	-	90	59
12	Traditional Schools	174	4	178	4
12	Statewide	43,209	10	42,794	9
9-12	Online Charter Schools	17	-	449	30
9-12	Traditional Schools	329	1	280	1
9-12	Statewide	84,361	4	78,183	4

Note: In the 2006-07 school year, of the selected online charter schools, there
were less than 70 students enrolled in grades 11 and 12.

between online charter schools and traditional schools ranged from 1% to 5% by grade level for the 2006-07 school year. Overall, a larger percentage of students at each grade level drop out of online charter schools than from traditional high schools. Comparing state dropout percentages with the dropout percentages in online charter schools and traditional high schools examined in this study revealed that at each grade level and in each school year, online charter schools have a higher percentage of dropouts than the state average, while traditional high schools have a lower percentage of dropouts than the state average.

The percentage of dropouts in traditional high schools from year to year has slightly increased at the 9th grade level, has slightly decreased at the 10th grade level, has slightly decreased at the 11th grade level, and has remained the same at the 12th grade level. The percentage of dropouts in online charter schools from year to year has increased at the 9th grade level and increased at the 10th grade level. During the school years examined, there were not enough students in the 11th or 12th grade to determine dropout trends in the online charter schools.

<div align="center">Significance Testing</div>

The chi-square test of independence was utilized to determine significance between data for traditional schools and online charter schools regarding California Standards Test, English/Language Arts (CST ELA) test scores and student dropout rates.

<div align="center">*Standardized Test Data*</div>

CST ELA scores were compiled for students in the selected online charter schools and traditional schools in the 9th, 10th and 11th grade levels. Data were coded as follows: 0 = traditional schools, 1 = online charter schools; 0 = student with CST ELA scores that were proficient or above, 1 = students with CST ELA scores that were below proficient. Analysis was then completed utilizing the

SPSS software program functions as follows: Analysis, Descriptive Statistics, Cross Tabs, Coefficient of Contingency. Chi-square analysis for CST ELA was completed for students in the selected online charter schools and traditional schools in 9th, 10th and 11th grades for 2008 and 2009.

Table 20 shows the chi-square analysis for CST ELA tests by grade level and year.

Table 20

Differences in Percentage of Proficient and Above in Selected Online Charter Schools and Traditional High Schools: California Standards Test, English/Language Arts, 2007-2009

Year	Grade	N	χ^2	Contingency coefficient
	9	5919	13.80	.048
2007-8	10	5840	19.96	.058
	11	5025	20.98	.064
	9	6385	19.90	.056
2008-9	10	5882	40.62	.083
	11	5449	26.44	.069

Note: All statistics were significant at *p* = <.001

Chi-square testing reflects what the descriptive data suggest. There was significance in the proportion of students who score proficient or above on CST ELA tests in online charter schools as compared with a random sample of traditional high schools. Differences were significant for the 9th, 10th and 11th grade levels for both the 2007-8, and the 2008-9 school years.

The coefficient of contingency values in the table indicate the correlation between the type of school (online charter, or traditional high school), and the

proportion of students who scored proficient and above. Although the differences are unlikely to be chance differences, the relationship between school type and performance is quite weak; the correlation for none of the grade levels reaches $C = 0.1$

<div align="center">*Student Dropout Data*</div>

The number of student dropouts was compiled for students in the selected online charter schools and traditional schools in the ninth, tenth, eleventh, and twelfth grade levels. Data were coded as follows: 0 = traditional schools, 1 = online charter schools; 0 = students who did not dropout, 1 = students who did dropout. Analysis was then completed utilizing the SPSS software program functions as follows: Analysis, Descriptive Statistics, Cross Tabs, Co-efficient of Contingency. Chi-square analysis was completed for the number of student dropouts in the selected online charter schools and traditional schools for the 9th, 10th, 11th and 12th grades.

Table 21 shows the chi-square test results for student dropouts in 2006-07 and the 2007-08 school years by grade level.

Chi-square testing reflects what the descriptive data suggest. There was a significant difference in the proportion of students who drop out of online charter schools compared to traditional high schools. Differences were significant for the 9th, 10th, 11th and 12th grade levels in the 2007-8 school years and for the 9th and 10th grades in the 2006-7 school years.

<div align="center">Results of Research Questions</div>

This study examined the number of at-risk students attending online charter schools compared to traditional schools and scrutinized their relative success. The research questions guiding this study were:

Table 21

Differences in Proportion of Student Dropouts in Selected Online Charter Schools and Traditional High Schools by Grade, 2006-2008

_____

Year	Grade	N	χ^2	Contingency coefficient
	9	6162	8.981	.357
2007-8	10	6255	1.357	.422
	11	5418	1.127	.415
	12	5947	9.235	.393

_____

Year	Grade	N	χ^2	Contingency coefficient
2006-7	9	6315	2.808	.206
	10	5807	42.917	.086

_____

Note: All statistics are significant at $p = <.001$. There were less than 70 students attending online charter schools in the 11th and 12th grades in the 2006-07 school year.

1. Are there a disproportionate number of at-risk students attending online charter schools as compared to traditional high schools?

2. Are at-risk students more successful in online charter high schools than in traditional high schools?

Based on the examination of statistics for 2 years, data showed that there were similar percentages of at-risk students (as defined by free and reduced lunch percentages) attending online charter schools as there were in traditional high schools.

Success in this study was measured by the percentage of students who scored proficient or above on the CST ELA test and did not drop out of high school. Analysis of CST ELA data revealed that more than 40% of both online charter school and traditional school students scored proficient or above in 2007-08 and 2008-09, both greater than the statewide average. There were a greater percentage of students in traditional schools as compared with students in online

charter schools who scored proficient or above at every grade level in 2007-08 and 2008-09. The difference in the percentage of students who scored proficient or above between online charter schools and traditional schools varied slightly by grade level. At the 9th grade level, there was a difference of 7% in 2008 and 5% in 2009. At the 10th grade level, there was a difference of 7% in 2008 and 9% in 2009. At the 11th grade level, there was a difference of 11% in 2008 and 4% in 2009.

Regarding dropout data, there were a greater percentage of students in online charter schools that drop out of school than in traditional high schools. Analysis of the data showed that in traditional schools at each grade level, the percentage of dropouts stayed fairly constant. At the 9th grade level, the percentage of dropouts was less than 1% for the 2006-07 and 2007-08 school years. At the 10th grade level, the percentage of dropouts was less 1% for the 2006-07 and 2007-08 school years. At the 11th grade level, the percentage of dropouts was 1% or less than 1% for the 2006-07 and 2007-08 school years and at the 12th grade level, the percentage of dropouts was 1% in the 2006-07 and 2007-08 school years. In online charter schools, the percentage of dropouts in the ninth grade was 2% 2006-07 and 23% in 2007-08. At the tenth grade level, the percentage of dropouts was 5% in 2006-07 and 30% in 2007-08. At the 11th grade level, the percentage of dropouts was 38% in 2007-08, and at the 12th grade level, the percentage of dropouts was 60% in 2007-08. The number of students who attended online charter schools in the 11th or 12th grade was less than 60 students in 2 of the identified online charter schools.

In summary, analysis for this study reveals several findings. First, this data shows that there were a disproportionate number of at-risk students who attended online charter schools because there were greater percentages of students who

dropped out of online charter schools compared with traditional high schools. Second, there were similar percentages of students scoring proficient or above on CST ELA tests in both online charter schools and traditional high schools.

CHAPTER 5: DISCUSSION

Summary of Findings

The focus of this study was to determine if there was a disproportionate number of at-risk students attending online charter schools and if at-risk students were more successful in online charter schools in California. The review of literature discussed research regarding at-risk students, charter school students and online charter school students. The research regarding at-risk students revealed that there are common reasons that cause students to drop out of high school including individual, family and school factors (Natriello et al., 1990; Rumberger, 1987; Wehlage & Rutter, 1985) as well as poverty level (Balfanz & Legters, 2004; Dalton et al., 2009; Ekstrom et al., 1986). Few dropout intervention programs that have been implemented in traditional public schools have been successful (Rumberger, 2004). However, some alternative programs and schools outside of traditional schools have been successful in causing at-risk students to earn high school diplomas. Research indicated that at-risk students can be successful and earn a high school diploma when they have a caring adult in their lives or a mentor who focuses on education (Noddings, 2005; Wehlage et al., 1989). Charter school research indicated that more families are choosing charter schools in California and across the nation each year since state charter school laws were passed in 1992. The available research regarding charter schools showed that student achievement in charter schools varies by grade level and type of charter school. Students in charter elementary and middle schools have been shown to generally have greater achievement on standardized tests while students in charter high schools show similar results on standardized test scores (Finn et al., 2000; Nathan, 1996). The results also vary depending on the type of charter school. In addition

to being organized by grade level, charter schools are typed as traditional, progressive, vocational, general and alternative, which includes online charter schools (Carpenter, 2006). The primary research regarding charter schools has focused on student achievement with little attention regarding other factors such as why parents choose charter schools, the satisfaction level of students, or how charter schools are handling at-risk students. Throughout the U.S. the percentage of students enrolled in charter schools in 2007-2008 was just 2.6% of the overall student population (Lake, 2008). Online school research is limited as well since this innovation is just 14 years old and has only been embraced by a small percentage of the overall student population. However, studies and surveys indicate that the percentage of students enrolling in online schools, whether part time or full time, has been increasing by at least 30% each year for the past three years and it is estimated that more than one million high school students took an online course in the 2007-2008 school year (Picciano & Seaman, 2008). In California, the researcher found that the number of full time students attending online charter schools increased at least 80% in each of the previous 2 years. Research regarding online schools and student achievement has shown that there is no significant difference in the achievement levels of students who attend online high school courses as compared with students in traditional high school courses (Russell, 1999; Smith et al., 2004;). Similar to charter schools, there are different types of online schools including traditional, web facilitated, blended or hybrid and online (Allen et al., 2007). Some students attend these schools full time and some attend these schools part time. Emerging research is examining how students are learning in online schools regarding online interaction (Lowes, Peiyi, & Yan, 2007), parent and student satisfaction in online charter schools (Butz,

2004). completion/retention (Porta-Merida, 2009; Storrings, 2005), and what makes successful online teaching (DiPietro, Ferdig, Black, & Preston, 2008)..

The purpose of this study was to compare students who attended online charter schools full time with students who attended traditional high schools. The independent variable were the students who attended the schools examined in the study while the dependent variables were student achievement as measured by CST ELA test scores and the number of student dropouts. Examining students in one state allowed comparison of schools based on similar state standards, similar testing, and similar methods of tracking and counting students.

This study compared student achievement and dropout rates between randomly selected online charter schools and traditional high schools in California and found that:

- The percentage of students who scored proficient or above on CST ELA tests over a 2 year period was slightly greater in traditional high schools as compared to online charter high schools (a difference of between 8% to 11% depending on the grade and year) (Table 18)
- The percentage of student dropouts is much greater in online charter high schools than in traditional high schools (Table 19)
- The percentage of "at-risk" students as determined by free and reduced lunch is similar in online charter schools as compared with the sample of traditional schools (percentages ranged from 33% to 45% in both online charter high schools and traditional high schools) (Appendix D)
- The number of students enrolling in charter schools and in online charter schools has increased each year from 2006-2009 (Table 23)
- The percentage of students choosing to enroll in online charter schools has increased each year by 80% between 2006 and 2009 (Table 23)

Overall, there was a broader percentage of free and reduced price lunch students in traditional high schools than in online charter schools because there were many more students who attended traditional high schools than who attended online charter schools.

Table 22 shows the number of students who were enrolled in online charter schools in California between 2006 and 2009.

Table 22

California Online Charter School Enrollment, 2006-2009

Grades	2006-07	2007-08	2008-09
K-12	5399	7454	10502
9-12	773	1618	2992

Note: Data from *Education Data Partnership* data repository maintained by the Alameda County Office of Education in partnership with the California Department of Education, retrieved from http://www.ed-data.k12.ca.us, 2010. Full time online charter school students are the only online students formally counted in California.

The enrollment and percentage of students who attended different types of schools in California including traditional, charter and online charter from 2006 to 2009 are shown in Table 23.

Table 23

California Enrollment and Percentages of Students in Different Types of Schools, 2006-2009

Comparisons by School Type	2006-07	2007-08	2008-09
Total school enrollment (K-12)	6,286,943	6,275,469	6,252,011
Total high school enrollment (9-12)	1,814,728	1,820,469	1,823,599
Total charter school enrollment (K-12)	222,942	251,722	285,617
Total charter high school enrollment (9-12)	90,156	96,292	111,822
Total online charter school enrollment (K-12)	5,399	7,454	10,502
Total online charter high school enrollment (9-12)	773	1,618	2,992
Percentage of charter school students compared to total enrollment (K-12)	3.55%	4.01%	4.57%
Percentage of charter high school students compared to total high school enrollment (9-12)	5%	5%	6%
Percentage of online charter school students compared to total school enrollment (K-12)	0.09%	0.12%	0.17%
Percentage of online charter high school students compared to total high school students (9-12)	0.04%	0.09%	0.16%
Percentage of online charter school students compared to total charter school students (K-12)	2.42%	2.96%	3.68%
Percentage of online charter high school students compared to total charter high school students (9-12)	0.86%	1.68%	2.68%
Percentage of online charter high school students (9-12) compared with total K-12 online charter school students	14%	22%	28%

Note: Data from *Education Data Partnership* data repository maintained by the Alameda County Office of Education in partnership with the California Department of Education, retrieved from www.ed-data.k12.ca.us, 2010.

Discussion of Research Questions

The research questions guiding this study were:

1. Are there a disproportionate number of at-risk students attending online charter schools as compared to traditional high schools in California?

2. Are at-risk students more successful in online charter high schools than in traditional high schools in California?

The data showed that there were a greater percentage of students who dropped out of online charter schools than from traditional schools. This suggests that there were a greater proportion of at-risk students that attended online charter schools during the 2007-08 school year. Overall, the percentage of students that attended online charter schools in California in 2007-08 and 2008-09 was less than 0.2% of the overall high school population in California. A greater sample of students that attend online charter schools in grades 9-12 is needed before specific trends or conclusions regarding at-risk students in online charter schools can be determined.

Why are there a greater percentage of dropouts in online charter schools than traditional high schools in California? The data collected in this study does not answer this question. However, researchers have suggested some reasons why greater percentages of students may drop out of online charter schools. Dropout researchers such as Mann (1986) found that students drop out of school because they are either "pushed out" of school (due to discipline problems) or "fade out" of school (due to lack of school relevancy) or because once students reach a legal age, they believe that not having a high school diploma or earning a GED will serve them just fine (Balfanz, 2007). Students who have had some negative experiences with traditional schools before attending a charter school enter a charter school or online charter school hoping to have a more positive educational

experience. Charter school researchers have shown that students who attend charter schools tend to change schools more often than students in traditional schools (Carnoy et al., 2005) and that students transferring into charter schools had prior test scores that were below district wide or statewide averages (Zimmer et al., 2009). Students who moved between many schools have more difficulty achieving academic success than students who attend fewer schools. Finally, the online charter schools in California that were part of this study have only existed at the high school level since 2005 and had a total enrollment of 2,992 students in the 2008-09 school year, a little larger than the total enrollment of many traditional high schools in California (see Table 23). More research and a greater sample are needed to provide further insights into how at-risk students are being served in online charter schools and why a greater percentage of students drop out of online charter schools than from traditional high schools.

Students in online charter schools appear to be achieving at similar levels when compared with a sample of traditional high schools. As the data has shown (Table 18), the average difference in the percentage of students scoring proficient or above on CST ELA tests in 2008-09 in online charter schools compared with traditional schools was 9%. The findings in this study are consistent with other studies that examined student achievement and test scores in charter schools. In Arizona, eighth grade reading scores were 67% for charter schools as compared to 63% in conventional schools in 2008-09 (Allen et al., 2009). A California specific study found that charter schools generally have comparable or slightly lower test scores (Zimmer et al., 2003). Zimmer et al. (2009) also conducted research for the Rand Corporation that found that non-primary charter schools are producing achievement gains that are equivalent to those of traditional public schools in most locations. However, Zimmer et al. (2009) also found that virtual middle schools in

Ohio lagged substantially behind classroom based charter schools in achievement test scores. This same report recommended that virtual or "nonclassroom-based schools" were an area of concern regarding student achievement. The 2009 report referred to a 2003 report entitled *Charter School Operations and Performance, Evidence from California* (Zimmer et al., 2003). An important note regarding the 2003 Rand Report is that student data was used from the 2001-02 school year when there were no online charter schools operating in the school districts (Chula Vista Elementary, Fresno Unified, Los Angeles Unified, Napa Valley Unified, San Diego City Unified, and West Covina Unified) utilized in this study. Therefore, the "nonclassroom-based schools" referred to in the 2003 Rand Report were not online charter schools, and researchers should be cautioned in generalizing the findings in the Rand reports to student achievement and online charter schools. Overall, further research will better identify the differences in student achievement for students in online charter schools as compared with students in traditional schools.

<div align="center">Recommendations</div>

Knowing the number of students who attend charter schools or traditional schools, who are proficient on state tests or not, who dropout or graduate, or who attend college or don't attend college are important so that studies can be designed to discover why these trends are occurring and to examine the types of programs and strategies that cause greater student achievement and student success. In addition, knowing how to count students who attend certain types of schools are increasingly important for research and learning. In 2008, the federal department of education defined how to count students who drop out of school (*A Uniform, Comparable Graduation Rate*, 2008). This occurred after decades of research and debate by scholars. This common metric, known as the averaged freshman

graduation rate (or AFGR) has allowed researchers to begin to examine trends based on this common metric. A common metric such as this does not exist for counting students who attend full time or part time online schools in the U.S.

The first recommendation is that the State of California and other states should determine a uniform way to count students who attend online schools and online charter schools. Currently, every study that has examined student learning in either part time or full time online school programs has counted students based on self-reported surveys completed by officials who work in online schools. Students who take one online course (part time) are often counted the same way as students who take six online courses (full time). Generally, in California, K-12 students are counted as either attending a traditional school or a charter school. A common method for counting online students at K-12, community college and four-year institutions would provide important trend data for researchers and would better inform state lawmakers regarding future legislation regarding online learning.

The second recommendation is that the state of California and other states should provide funding in the form of innovation grants for the development of full and part time online charter schools. The theory regarding disruptive innovations, such as online schools, suggests that for these types of innovations to be successful, they need to be built outside the established company or system (Christensen et al., 2008). The state of Wyoming provided $250,000 in startup and maintenance grants for school district distance education providers while Colorado provided $480,000 annually to provide online courses for school districts and sets a cap of $200 per student per semester that can be charged to school districts for students attending online courses (Watson, et al., 2009).

The third recommendation is that the State of California should adopt an ongoing funding/attendance model for students who attend online schools. This should allow dual enrollment in both traditional schools, online schools and/or online charter schools. Currently, there are two attendance models in California (average daily attendance and independent study) and both are based on the industrial age education belief that students need to be sitting in a chair and in front of a teacher in order for measureable learning to occur. Other states including Minnesota, Texas and Florida have adopted attendance funding models for online schools that should be considered for California (Watson et al., 2009).

The final recommendation is that the state and federal government, as well as public and private foundations, should fund more research in the area of online learning for both online charter schools and online schools that are not charters. At this current point in time, more and more students are choosing this type of learning. However, there is less and less money available to promote and develop online learning opportunities for K-12 students.

To better understand why students choose this type of learning and what makes them successful in online schools is critical towards understanding how more students can be better educated in the United States and, ultimately, how more students can earn a high school diploma.

Implications for Practice

Prior to the development of charter schools, all students were served by either a traditional high school or by an alternative high school within the same school district. Students who left the district high school or alternative school without a high school diploma were classified as dropouts. With the development of charter schools, students who are having difficulty in school may now choose to attend charter schools rather than traditional schools. The result is that charter

schools are often the last school that students attend before choosing to drop out and not earn a high school diploma.

Online schools and online charter schools have not been in operation in grades 9-12 long enough to provide significant longitudinal data. Additionally, some students attend an online charter school for one semester while others attend for four years. As charter schools become more established and enrollment increases, better data will be available to do more extensive analysis about students who choose to attend online charter schools or take online courses.

This study has shown that students and parents in California are already embracing online charters schools by choosing to enroll in online charter schools. There has been an 80% increase in enrollment in online charter schools each year between 2006 and 2009 in California (See Table 23). Additionally, the results of student achievement test comparisons in this study indicate that online charter schools are producing similar results as traditional schools after just three years. The larger percentage of students who drop out of online charter schools suggests that online charter schools are serving a larger percentage of at-risk students who have not been successful in traditional schools. Overall, online charter schools provide accessibility to education that had not been previously available to many student populations in California.

All levels of education whether K-12, community college or university, should be identifying how they will provide online courses in order to meet the needs of present and future students. As this study and other studies have shown, the number of students choosing to attend online courses at every level of education has increased every year for the past five years and will continue to do so in the future.

Implications for Future Research

Future research could replicate and expand this current study to compare student achievement and dropout data for students who attend charter independent study schools and site-based charter schools, and compare these schools with traditional and online charter schools in California and other states. There is a need to better understand why students leave traditional schools and attend charter schools or online charter schools as well as the reasons that students stay in or leave charter schools. A qualitative study could research why students attend charter high schools and online charter schools and include student and parent interviews or focus groups. Studying these same students over time in a longitudinal study could provide insight for charter schools and online charter schools about what makes a successful charter or online charter school. Finally, further research could study what causes students to specifically drop out of charter online schools at larger percentages than from traditional schools.

Conclusion

Dropout research has shown that few dropout intervention programs reduce the number of student dropouts in traditional high schools (Wehlage et al., 1989). Currently in California, there are a greater percentage of students dropping out of online charter schools than from traditional high schools. Online learning is an innovation that is in its infant stages. As it grows, it needs to be different than traditional schools to better meet the needs of the increasing number of students dropping out of high school in California. Charter schools have the opportunity to make institutional changes in ways that traditional schools do not. If charter schools or online charter schools are to better meet the needs of at-risk students then they need to look and feel different than traditional schools. The components of school that cause students to succeed include a feeling of community, caring

mentors, and ways to become part of the school culture. If online charter schools, in addition to giving students the flexibility to learn and the ability to better own their learning, can develop a community of learners with caring mentors and a caring school culture, then research has shown that more students should be successful and should earn their high school diploma. Currently, charter schools and online charter schools are the only online options for students who do not fit the traditional school setting.

The idea of charter schools is part of a 200-year effort to expand educational opportunity, especially for those who are not wealthy and powerful and partly grew out of the belief that American public schools can and should do a better job of helping young people to learn (Nathan, 1996). Private schools have been able to exist side by side with public schools, but can only be attended by those who can afford them. Charter schools are part of the answer to allow any student to attend. Charter schools have the potential to transform American public education (Finn et al., 2000) and provide choice to families that did not exist prior to charter schools. Overall, charter schools are a relatively low-risk activity for a "big country whose education system needs a thoroughgoing overhaul (Finn et al., 2000)."

If K-12 public education is going to change and better meet the needs of students who don't fit in traditional schools or the students of the millennial and subsequent generations, then new educational innovations must be developed in addition to traditional schools. To be effective, these educational innovations will likely have to be developed outside of the traditional educational system (Christensen et al., 2008). Since the 1960s, traditional high schools have been graduating 70% of all students in the U.S. (Wehlage et al., 1989). The other 30% of students who are not earning high school diplomas are critical to improving the

well being and productivity of the overall workforce and economy of the United States. Charter schools, and in particular, online charter schools have the ability to provide the modularity and the personalized education that many students desire, but do not experience in traditional schools. Charter schools and online charter schools are the types of educational innovations that can provide the path for many students to earn a high school diploma that prepares them for college and the world of work.

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APPENDIX A: DROPOUT PREDICTION TABLE

Prediction table from: Cervantes, L. F. (1965). *The dropout: Causes and cures*. Ann Arbor: University of Michigan Press.

The following twenty characteristics are commonly found among youth who are potential or actual dropouts:

School

1. Two years behind in reading or arithmetic at seventh grade level. Majority of grades are below average.
2. Failure of one or more school years (1st, 2nd, 8th, 9th grades most commonly failed; 85% of dropouts behind one year; 53% two or more years).
3. Irregular attendance and frequent tardiness. Ill-defined sickness given as reason.
4. Performance consistently below potential.
5. No participation in extracurricular activities.
6. Frequent change of schools.
7. Behavior problems requiring disciplinary measures.
8. Feeling of "not belonging" (because of size, speech, personality development, nationality, social class, family disgrace, retardation in school, dress, lack of friends among schoolmates or staff, etc.).

Family

9. More children than parents can readily control (e.g., only child for divorced and working mother; five or more for non-divorced and working mother of blue and lower white-collar class).
10. Parents inconsistent in affection and discipline.
11. Unhappy family situation (common acceptance, communication, and pleasurable experiences lacking; family solidarity minimal).
12. Father figure weak or absent.
13. Education of parents at eighth grade level.
14. Few family friends; among these few many problem units (divorced, deserted, delinquents, dropouts).

Peers

15. Friends not approved by parents.
16. Friends not school oriented.
17. Friends much older or much younger.

Psychological Orientation

18. Resentful of all authority (home, school, police, job, church).
19. Deferred gratification pattern weak.
20. Weak self-image

APPENDIX B: SIGNIFICANT INDIVIDUAL AND FAMILY RISK FACTORS

BY SCHOOL LEVEL

Charts from: Hammond, C. (2007). *Dropout risk factors and exemplary programs*. Clemson, SC: Clemson University.

Significant <u>Individual</u> Risk Factors by School Level*

Risk Category and Risk Factor	Elementary School	Middle School	High School
Individual Background Characteristics			
• Has a learning disability or emotional disturbance		✔	✔
Early Adult Responsibilities			
• High number of work hours			✔ *
• Parenthood			✔ *
Social Attitudes, Values, & Behavior			
• High-risk peer group		✔ *	✔
• High-risk social behavior		✔ *	✔
• Highly socially active outside of school			✔
School Performance			
• Low Achievement	✔ *	✔ *	✔ *
• Retention/overage for grade	✔ *	✔ *	✔ *
School Engagement			
• Poor attendance	✔ *	✔ *	✔ *
• Low educational expectations		✔ *	✔ *
• Lack of effort			
• Low commitment to school			✔ *
• No extracurricular participation			✔ *
School Behavior			
• Misbehavior	✔	✔	✔ *
• Early aggression	✔	✔	

Key: ✔ indicates the risk factor was found to be significantly related to dropout at this school level in one study.

✔ * indicates that the risk factor was found to be significantly related to dropout at this school level in two or more studies.

Significant <u>Family</u> Risk Factors by School Level*

Risk Category and Risk Factor	Elementary School	Middle School	High School
Family Background Characteristics			
• Low socioeconomic status	✔ *	✔ *	✔ *
• High family mobility		✔ *	
• Low education of parents	✔	✔	✔ *
• Large number of siblings	✔		✔
• Not living with both natural parents	✔	✔	✔ *
• Family disruption	✔		
Family Engagement/Commitment to Education			
• Low educational expectations		✔ *	
• Sibling has dropped out		✔	✔
• Low contact with school		✔ *	
• Lack of conversations about school		✔ *	

Key: ✔ indicates the risk factor was found to be significantly related to dropout at this school level in one study.

✔ * indicates that the risk factor was found to be significantly related to dropout at this school level in two or more studies.

APPENDIX C: CALIFORNIA ONLINE CHARTER SCHOOLS AND

ENROLLMENTS IN GRADES 9-12, 2006-2009

School Name, Grades, District, County	2006-07 Enroll 9-12	2007-08 Enroll 9-12	2008-09 Enroll 9-12
California Virtual Academy @ Kings (K-12) - Armona Union Elementary School District, Kings County	31	69	101
California Virtual Academy @ San Mateo (K-12) - Jefferson Elementary School District, San Mateo County	35	40	166
California Virtual Academy @ Kern (K-12) - Maricopa Unified, Kern County	24	81	116
California Virtual Academy at Los Angeles (K-12) - West Covina Unified, Los Angeles County	204	458	719
California Virtual Academy @ San Diego (K-12) - Spencer Valley Elementary School District, San Diego County	82	184	369
California Virtual Academy @ Jamestown (K-12) – Jamestown Elementary School District, Tuolomne County	32	17	23
California Virtual Academy @ Sutter (K-12) – Nuestro Elementary School District, Sutter County	0	34	113
California Virtual Academy @ San Joaquin (K-12) – Stockton City Unified, San Joaquin County	0	25	80
California Virtual Academy @ Sonoma (K-12) - Liberty Elementary School District, Sonoma County	64	73	169
Capistrano Connections Academy Charter (K-12) - Capistrano Unified, Orange County	248	137	248
Central California Connections Academy (K-12) – Alpaugh Unified, Tulare County	13	25	42
eScholar Academy (9-12) – Mineral Elementary School District, Tehama County	107	102	107
Los Angeles County Online School (9-12) - Antelope Valley Unified	0	231	576
Choice 2000 (9-12) – Perris Union District, Riverside County	151	142	163

APPENDIX D: RANDOMLY SELECTED ONLINE CHARTER HIGH

SCHOOLS AND TRADITIONAL HIGH SCHOOLS WITH

ENROLLMENTS AND PERCENTAGE OF FREE AND

REDUCED PRICES LUNCH (FRL) STUDENTS

USED IN THIS STUDY

Online Charter High Schools	2008 Enroll 9-12	2009 Enroll 9-12	2008 FRL percent	2009 FRL percent
California Virtual Academy @ Kings (K-12) - Armona Unified	69	101	49.60%	54.50%
California Virtual Academy @ San Mateo (K-12) - Jefferson Unified	40	166	32.50%	40.20%
California Virtual Academy at Kern (K-12) - Maricopa Unified	81	116	43.20%	37.40%
California Virtual Academy at Los Angeles (K-12) - West Covina Unified	458	719	39.30%	58.90%
California Virtual Academy at San Diego (K-12) - Spencer Valley Unified	184	369	28.20%	40.70%
California Virtual Academy at Sonoma (K-12) - Liberty Unified	73	169	42.10%	30.30%
Capistrano Connections Academy Charter (K-12) - Capistrano Unified	137	248	41.50%	33.00%
eScholar Academy (9-12) - Tehama Unified	102	107	41.40%	37.20%
Los Angeles County Online School (9-12) - Antelope Valley Unified	231	576	4.20%*	8.60%*
Choice 2000 – Perris Union District	142	163	20.50%*	24.00%*

* LA County Online School and Choice 2000 report percentage of socioeconomic disadvantaged students, but not free and reduced lunch students.

Traditional High Schools	2008 Enroll 9-12	2009 Enroll 9-12	2008 FRL percent	2009 FRL percent
Lowell High - San Francisco Unified	2647	2638	30.40%	32.50%
LaQuinta High - Desert Sands Unified	2947	3087	35.90%	36.60%
Fallbrook High - Fallbrook Union High	2899	2941	36.30%	41.10%
Temple City High - Temple City Unified	2003	1979	30.90%	34.80%
Gabrielino High - San Gabriel Unified	1812	1794	54.70%	49.60%
Newport Harbor High - Newport-Mesa Unified	2417	2426	20.80%	33.80%
Burroughs High - Sierra Sands Unified	1695	1623	32.50%	34.30%
Hanford West High - Hanford Joint Union	1863	1813	43.00%	42.70%
Mira Loma High - San Juan Unified	1661	1624	35.00%	34.70%
Sonoma Valley High - Sonoma Valley Unified	1470	1382	20.50%	35.50%