

## Examining the extent and nature of online learning in American K-12 Education: The research initiatives of the Alfred P. Sloan Foundation

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### ABSTRACT

In 1992, the Alfred P. Sloan Foundation began its *Anytime, Anyplace Learning Program*, the purpose of which was to explore educational alternatives for people who wanted to pursue an education via Internet technology. Part of this grant activity was a research award to the Babson College Survey Research Group to examine online learning in American K-12 education. Three studies were conducted based on national surveys of school district and/or high school administrators. The focus of these studies was twofold: one, to examine the extent and nature of online learning in K-12 school districts; second, to examine the role of online learning in high school reform initiatives. The purpose of this article is to share the findings from these studies and to look critically at what they mean for the future of online learning in American K-12 schools.

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### 1. Introduction

In 1992, the Alfred P. Sloan Foundation began its *Anytime, Anyplace Learning Program*, the purpose of which was to explore educational alternatives for people who wanted to pursue an education via Internet technology. This exploration resulted in a promulgation of a major development in pedagogical practice commonly referred to as the asynchronous learning network or ALN. To date, more than 350 grants totaling \$70 million dollars have been awarded by the Foundation mostly to American colleges and universities. Part of this grant activity was a research award to the Babson College Survey Research Group to examine online learning in American K-12 education. Three studies were conducted based on national surveys of school district and/or high school administrators (Picciano & Seaman, 2007, 2009, 2010). The focus of these studies was twofold: one, to examine the extent and nature of online learning in K-12 school districts (Picciano & Seaman, 2007, 2009); second, to examine the role of online learning in high school reform initiatives (Picciano & Seaman, 2010). These studies have been widely cited and are evolving into a well-respected body of research on this topic. The purpose of this symposium is to share the findings from these studies and to look critically at what they mean for the future of online learning in American K-12 schools. The purpose of this article is to

share the findings from these studies and to look critically at what they mean for the future of online learning in American K-12 schools. The research issues discussed in this article relate to K-12 online learning including student access to educational opportunities, faculty attitudes, high school graduation rates, credit-recovery programs, financial considerations and state and local policies,

### 2. The studies

In March 2007, the Alfred P. Sloan Foundation issued its first report on the extent and nature of online learning in K-12 schools (Picciano & Seaman, 2007). Entitled, *K-12 Online Learning: A Survey of U.S. School District Administrators*, this report was welcomed by professional organizations and the popular media interested in the use of online technology for instruction in the public schools. The report was based on a national survey of American public school district chief administrators (N = 366) conducted for the 2005–2006 academic year. It was one of the first studies to collect data on and compare fully online and blended learning (part online and part traditional face-to-face instruction) in K-12 schools. Since its publication in 2007, several hundred articles, news reports, and other media have cited the report's findings (e.g., Christensen, Horn, & Johnson, 2008; Davis, 2009; Means, Toyama, Murphy, Baka, & Jones, 2009; U.S. Department of Education, 2007). In this study, the number of students enrolled in at least one online or blended course in American K-12 schools was estimated at 700,000. In a 2009 follow-up study, *K-12 Online Learning: A 2008 Follow Up of the Survey of U.S. School District Administrators*, based on data collected for

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the 2007–2008 academic year (N=867), the number of students enrolled in at least one online or blended course was estimated at 1,030,000, which represented 2% of the total K-12 population. (Picciano & Seaman, 2009). Of these estimates, 70% of the students were enrolled at the secondary level. In examining and sharing the results of the findings from these studies, an issue or need arose regarding the role of online learning related to reform efforts seeking to improve the quality and experiences of students in American high schools. The need centered on informing education policymakers at federal, state, and local governing agencies who were considering how to expand the use of this technology to improve instruction at the secondary level. In 2010, a third study, *Class Connections: High School Reform and the role of Online Learning*, based on a national survey of American high school principals for the 2008–2009 academic year (N=441), was published that looked at issues related to online learning and high school reform initiatives. For the purposes of these studies the following definitions were used:

Fully online course — a course where most or all of the content is delivered online, and typically has no face-to-face meetings.  
Blended/hybrid course — a course that blends online and face-to-face delivery, and where a substantial proportion of the content is delivered online, sometimes uses online discussions and typically has few face-to-face meetings.

### 3. The extent and nature of online learning in American K-12 schools

Earlier in this article, it was mentioned that in a 2007 national study of school district administrators, the number of students enrolled in at least one online or blended courses in American K-12 schools was estimated at 700,000. In a 2009 follow-up study, the estimate was 1,030,000. These enrollments are the result of students taking either online or blended courses in three quarters of all the school districts (74.8%) in the United States. Approximately another 15% of the districts were planning to introduce them over the next 3 years. Respondents in this study anticipated that the number of students taking online courses will grow by 22.8% and that those taking blended courses will grow even more over the next 2 years. It also appeared that the number of school districts offering online courses is accelerating.

One of the questions asked in the 2009 follow-up study of respondents who were offering online or blended learning courses,

was: In what year did any student in your district *first* take a fully online or blended/hybrid course? Figs. 1 and 2 provide bar graphs illustrating the responses to this question. They show that online and blended learning were on an upward trend for the previous 8 years. The data in these charts supported the upward growth estimates discussed above. In the 2007 study, it was predicted that over the subsequent 5 or 6 years, the K-12 enrollment in online courses would easily approach several million students.

#### 3.1. Why online and blended learning in K-12 schools?

Fig. 3 illustrates that school district administrators saw a real value in online and blended learning in their schools. The basic reason K-12 school districts were offering online and blended learning was to meet the special needs of a variety of students and to allow them to take courses that otherwise would not have been available. Large percentages of respondents, in excess of 60 to 70%, perceived the importance of online learning as related to:

1. Offering courses not otherwise available at the school.
2. Meeting the needs of specific groups of students.
3. Offering Advanced Placement or college-level courses.
4. Permitting students who failed a course to take it again (e.g., credit recovery).
5. Reducing scheduling conflicts for students.

The data presented in Fig. 3 were collected from school district administrators reporting on their K-12 system in 2005–2006 and again in 2007–2008.

#### 3.2. Barriers

Fig. 4 provides data on barriers school district administrators faced in developing and offering online and blended learning in their schools. The most significant barrier was concern about course quality. In addition, concerns about funding, state attendance policies, and the need for teacher training were prominent.

#### 3.3. The future of online learning in K-12 schools

In 2008, Clayton Christensen, Michael Horn, and Curtis Johnson published a book entitled *Disrupting Class: How Innovation Will Change the Way the World Learns* (2008). Christensen is a professor at the Harvard Business School and the best-selling author of *The Innovator's*

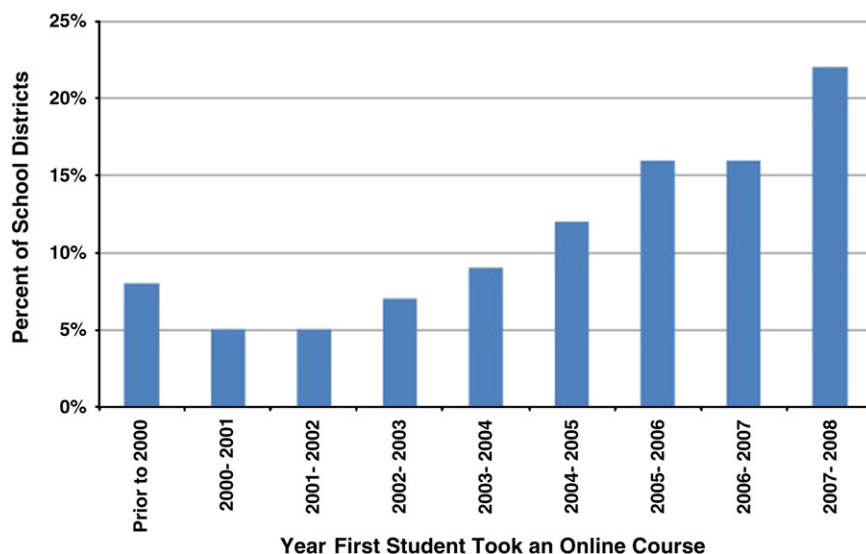


Fig. 1. School districts reporting year in which the first student took a fully online course.

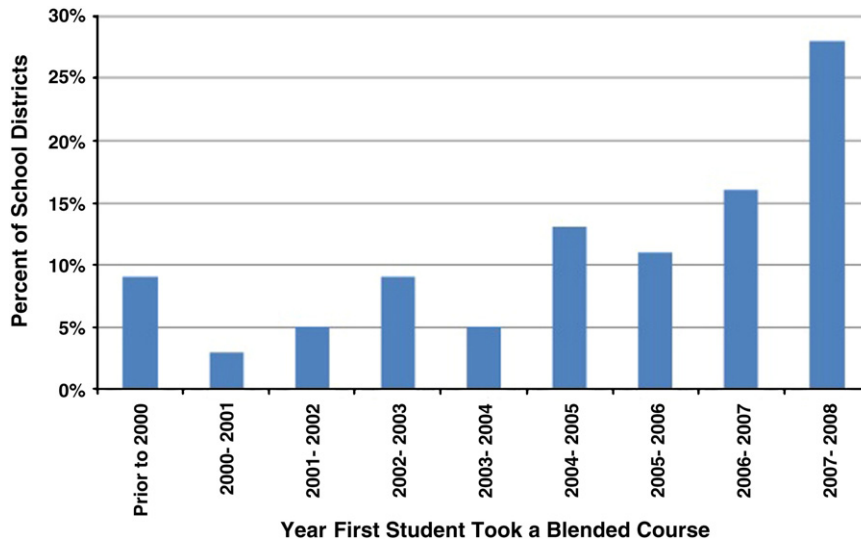


Fig. 2. School districts reporting year in which the first student took a blended course.

*Dilemma.* In *Disrupting Class...*, Christensen et al. present a compelling rationale for changing education in a way that makes far greater use of online technology to provide more student-centered and individualized instruction. The book's call for change was cited as something policymakers needed to consider in looking at the future of American education. Among the most provocative aspects of this book were predictions that by the year 2016 about one-quarter of all high school courses will be online and that by the year 2019 about one-half of all high school courses will be online. In Chapter 4, Christensen et al. provided the bases for their prediction and among other citations, referred twice to our original study published in 2007. While we are not making the same predictions as Christensen et al., the data collected in our 2007 and 2009 studies indicate that online learning is spreading throughout K-12 education and specifically in secondary education.

As indicated earlier, in the 2007 study, the number of students enrolled in online courses was estimated at 700,000. In the 2009 follow-up study, it was estimated at 1,030,000, a 47% increase in 2 years. This is quite a substantial increase. Furthermore, these figures do not derive from a few highly-successful large virtual schools or the distance learning needs of rural school districts. They are the result of students taking either online or blended courses in three quarters of all districts (74.8%) with approximately another 15.0% of the districts planning to introduce them over the next 3 years. Furthermore, online learning in K-12 education is in its nascent stages and significant growth is yet to come. A majority of the respondents in the 2009 study anticipated that the number of students taking online courses will grow by more than 20% and that those taking blended courses will grow even faster over the next 2 years. It also appeared that the number of school districts offering online courses was accelerating. In the 2007

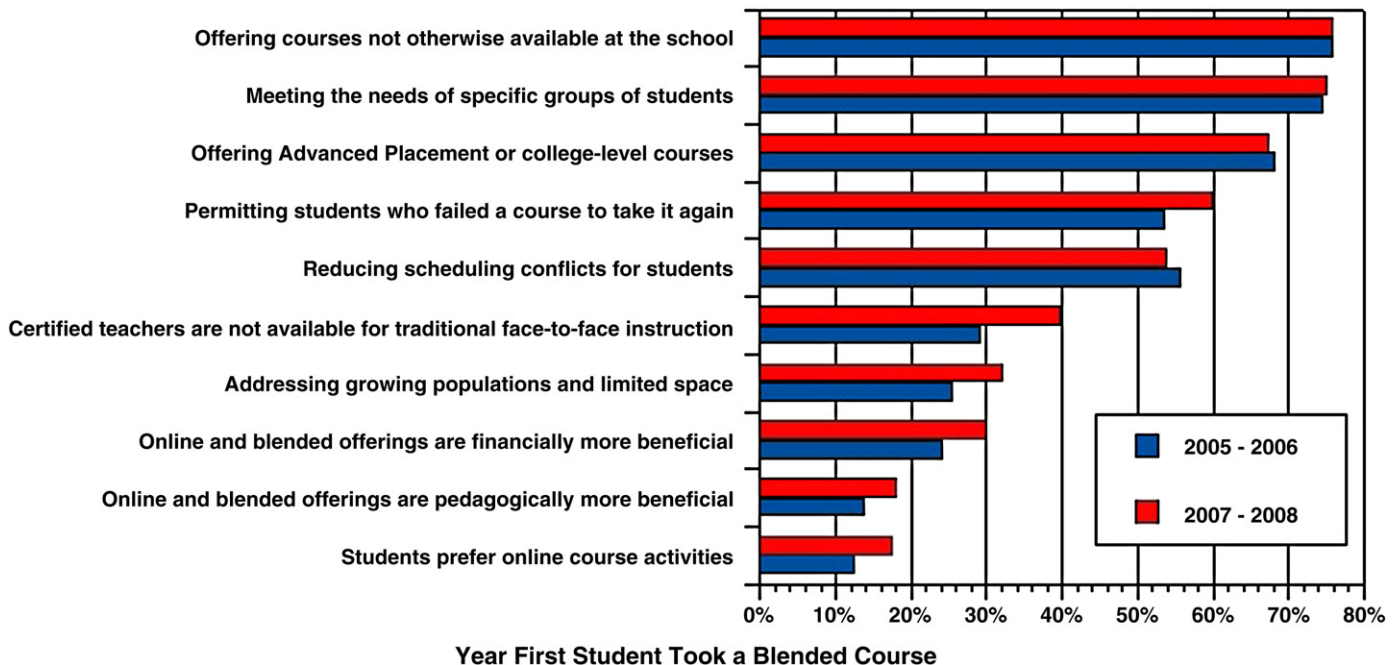


Fig. 3. Summary of school district responses to: How important do you believe the following reasons are for a school district to offer fully online or blended learning?

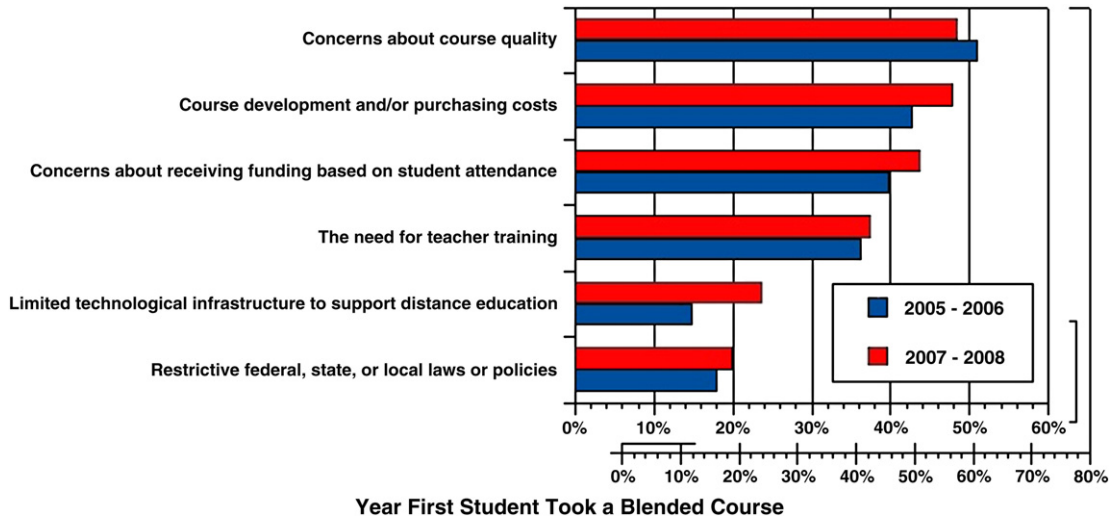


Fig. 4. Percentage summary of responses to: How much of a barrier the following areas would be (or are) in offering fully online or blended learning courses?

study, a prediction was made that over the subsequent 5 or 6 years, the K-12 enrollment in online courses would approach 3–4 million students. The data collected in 2009 study suggested that this prediction be revised upwards. It is conceivable that by 2016, online enrollments could reach approximately 5 million K-12 (mostly high school) students.

#### 4. The role of online learning in American high school reform

Increasingly, the American high school is becoming a major concern for policymakers across the spectrum of education in the United States. Research points to a number of issues, with the most serious being

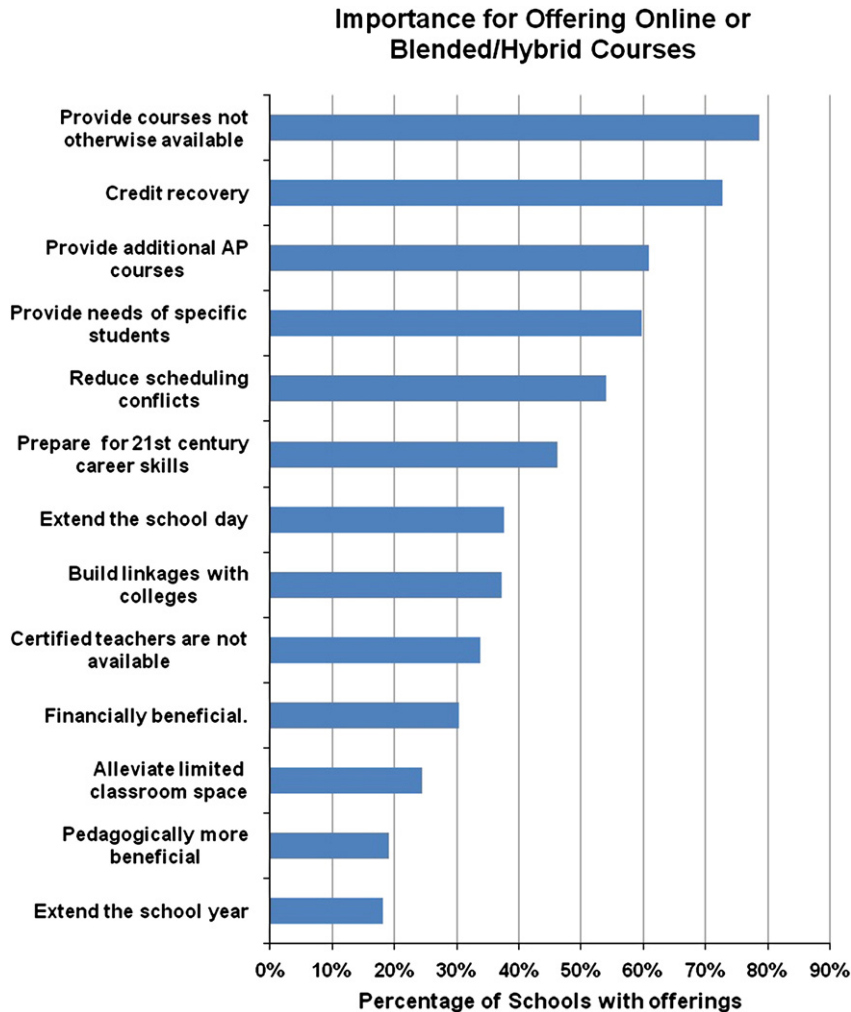


Fig. 5. Summary of responses to: How important do you believe each of the following items would be in offering or potentially offering online and blended/hybrid courses?

persistently low graduation rates from American high schools. A report published by the [Center for Labor Market Studies \(2009\)](#) characterizes the high school dropout problem as a crisis that has life-long economic impacts on individuals as well as the American society at large. Barack Obama, in his first major address on American education after assuming the presidency, pleaded with American youth that:

“dropping out of high school is no longer an option. It’s not just quitting on yourself, it’s quitting on your country; and this country needs and values the talents of every American.” (Obama, 2009)

There is also interest in the role that online learning can play in high school reform especially with regard to improving graduation rates, building connections for high school students to college careers, differentiating instruction, and supporting cost-efficiency for instruction. The data collected from the third (Picciano & Seaman, 2010) of the three studies discussed in this paper will be presented specifically looking at the role of online learning in high school reform initiatives.

#### 4.1. Why online and blended learning in the high schools?

Perhaps one of the most important questions posed in the study of online learning in American high schools was “why are high schools offering online and blended learning courses to their students?” Based

on data collected from a survey of high school principals in 2008–2009, Fig. 5 provides a bar chart showing the percentage of responses given by those respondents offering online or blended learning courses for each of the thirteen options provided in the survey for the question: Regardless of whether your school is currently offering online or blended/hybrid courses, how important do you believe each of the following items would be in offering or potentially offering online and blended/hybrid courses? The options receiving the greatest responses were:

1. Provide courses that otherwise were not available (79%).
2. Permit students who failed a course to take it again – credit recovery (73%).
3. Provide additional Advanced Placement Courses (61%).
4. Provide for the needs of specific students (60%).

These responses represented the significance of online learning in meeting a variety of student needs whether taking advanced placement or making up courses (e.g., credit recovery). Meeting needs related to basic school issues such as finances, classroom space, and extending the school year were perceived as of less importance.

Figs. 6 and 7 present the perceived importance of data shown in Fig. 5 cross tabulated by size of school and locale. In Fig. 6, a clear pattern presents itself showing that the smaller the school, the greater the importance of “providing courses not otherwise available”. Fig. 7

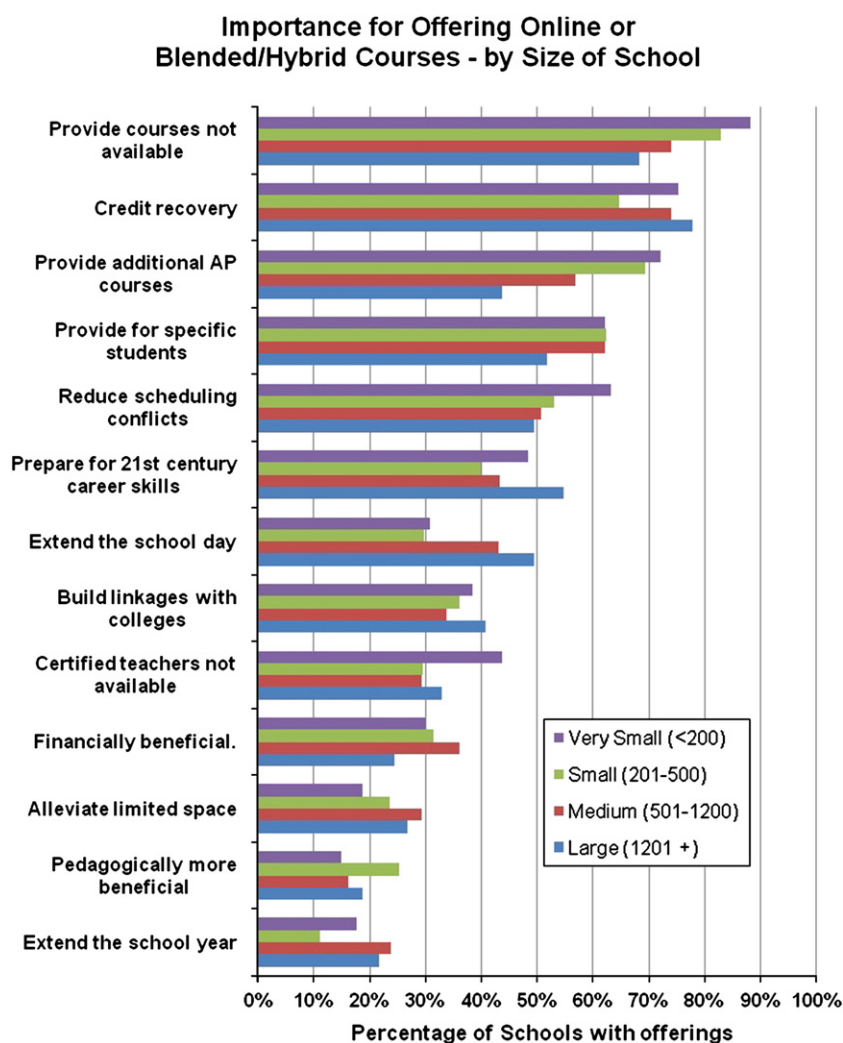


Fig. 6. Summary of responses to: How important do you believe each of the following items would be in offering or potentially offering online and blended/hybrid courses? cross tabulated by size of the school.

shows that rural schools perceive online and blended courses as more important in the five leading categories than do schools in other locations and especially those in urban settings.

A specific question was included in the survey to detail the types of courses being offered online or in blended modes (see Figs. 8 and 9). These data show a somewhat different pattern between online and blended courses. Credit recovery is the most popular type of course offered in online mode whereas elective courses are the most popular type in blended courses. While it is difficult to determine exactly why this is so, speculation is that there are several successful, for-profit entities that provide fully online credit recovery courses to the schools. These courses are generally self-contained, programmed-instruction courses. The importance of online credit recovery courses is a relatively recent phenomenon but one that has gained considerable popularity among high school administrators. This appears to be particularly true in urban high schools (see Fig. 10).

The major purpose of the 2010 study was to examine the role that online learning was playing in addressing concerns and issues facing the American high school. In examining the findings, it was determined that there are certain initiatives involving online learning that directly address large school reform issues such as improving graduation rates, credit recovery, building connections for students to their future college careers, and differentiating instruction.

#### 4.2. Improving graduation rates and credit recovery

Improving the graduation rate is perhaps the most important aspect of many high school reform initiatives. While this study did not collect data on the graduation rates per se, it did specifically collect data on how online and blended learning were being used in providing options to students in enrolling in and completing coursework. The term “credit recovery” refers to courses that students take to make up for courses that they need to graduate. The need for these courses varies but relates to students having not completed required coursework earlier in their high school careers due to illness, scheduling conflicts, academic failure, etc. Students needing such courses make up a significant portion of the high school student population that subsequently drops out or is late in graduating. The findings indicate that credit recovery has evolved into the most popular type of online course being offered at the secondary level. A relatively new phenomenon, online credit recovery courses were practically non-existent a few years ago and have now become a dominant form of online course offerings in many high schools. What is particularly interesting is that urban high schools, which historically have the lowest graduation rates of any schools in the country, appear to be embracing online credit recovery as a basic part of their academic offerings (Balfanz & Legters, 2004). This finding is

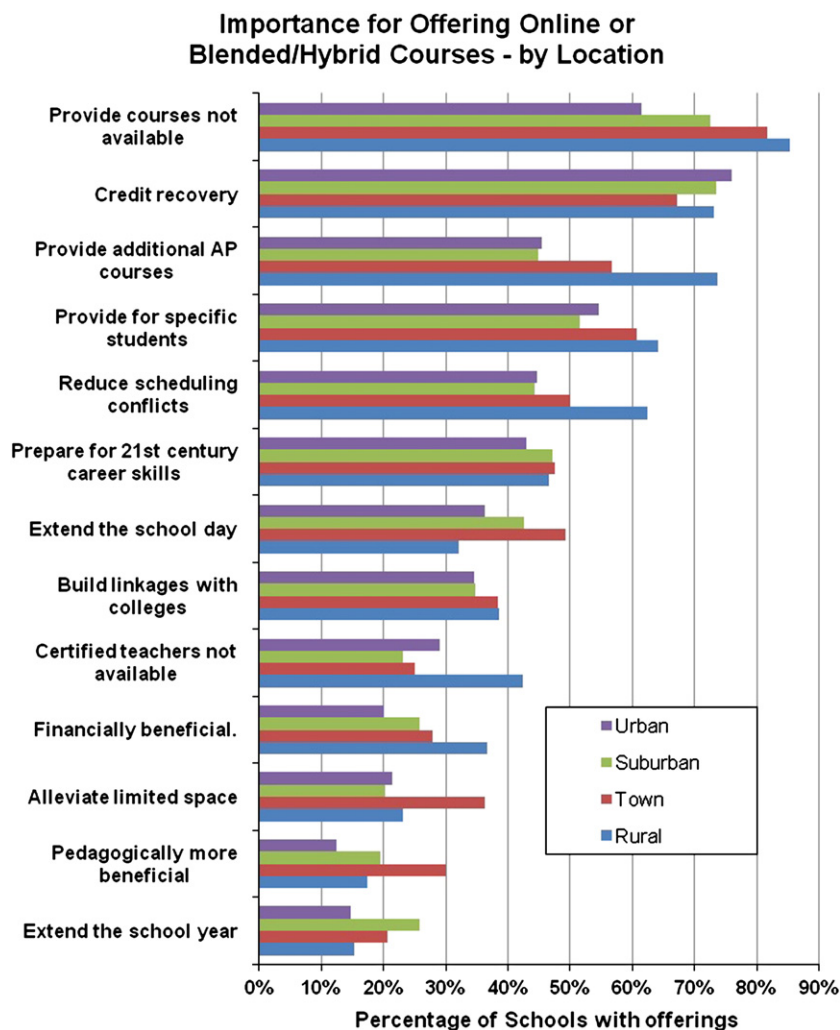


Fig. 7. Summary of responses to: How important do you believe each of the following items would be in offering or potentially offering online and blended/hybrid courses? cross tabulated by the location of the school.

### Types of Online Courses Offered

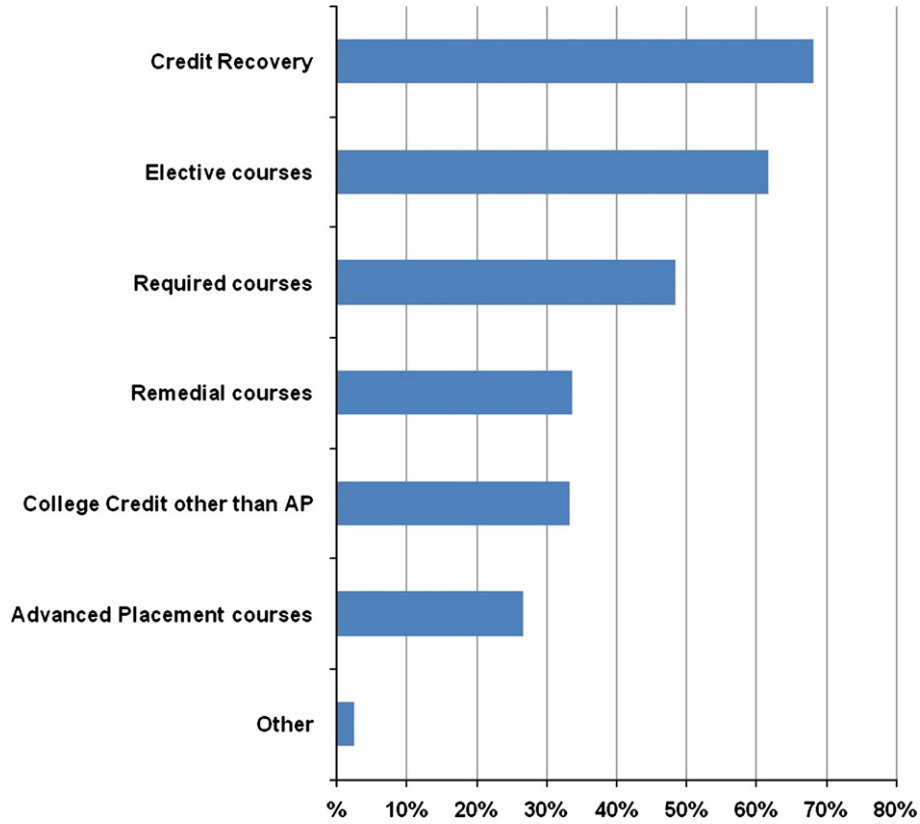


Fig. 8. Types of online courses offered by percentage of the schools with the offerings.

### Types of Blended Courses Offered

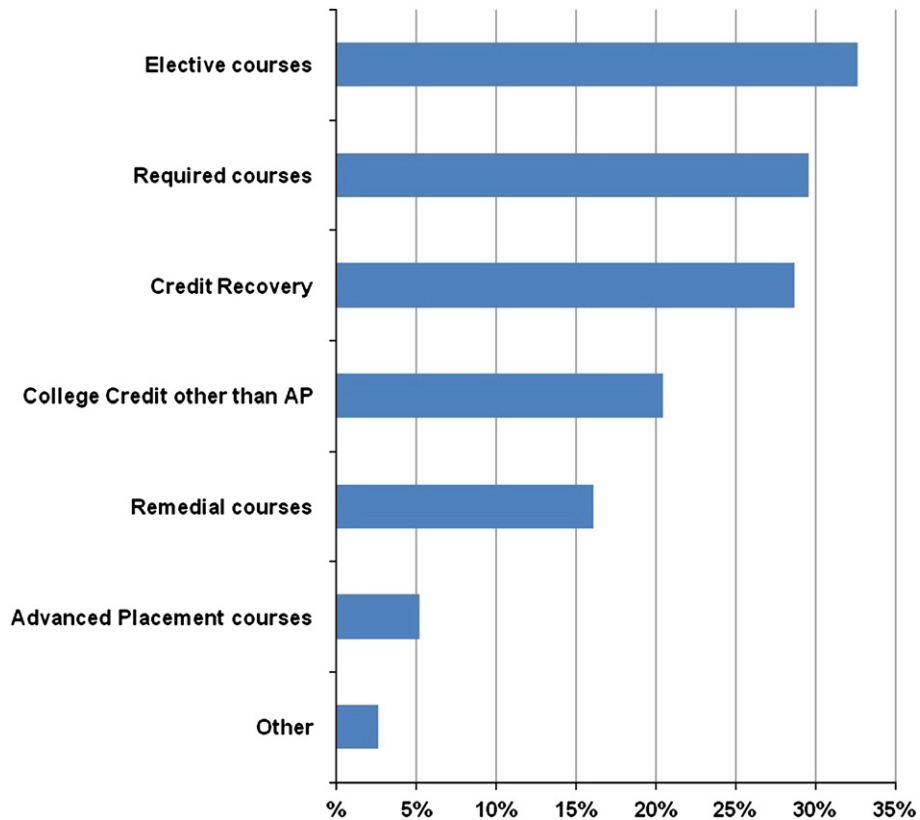


Fig. 9. Types of blended courses offered by percentage of the schools with the offerings.

### Types of Online Courses Offered - by Location

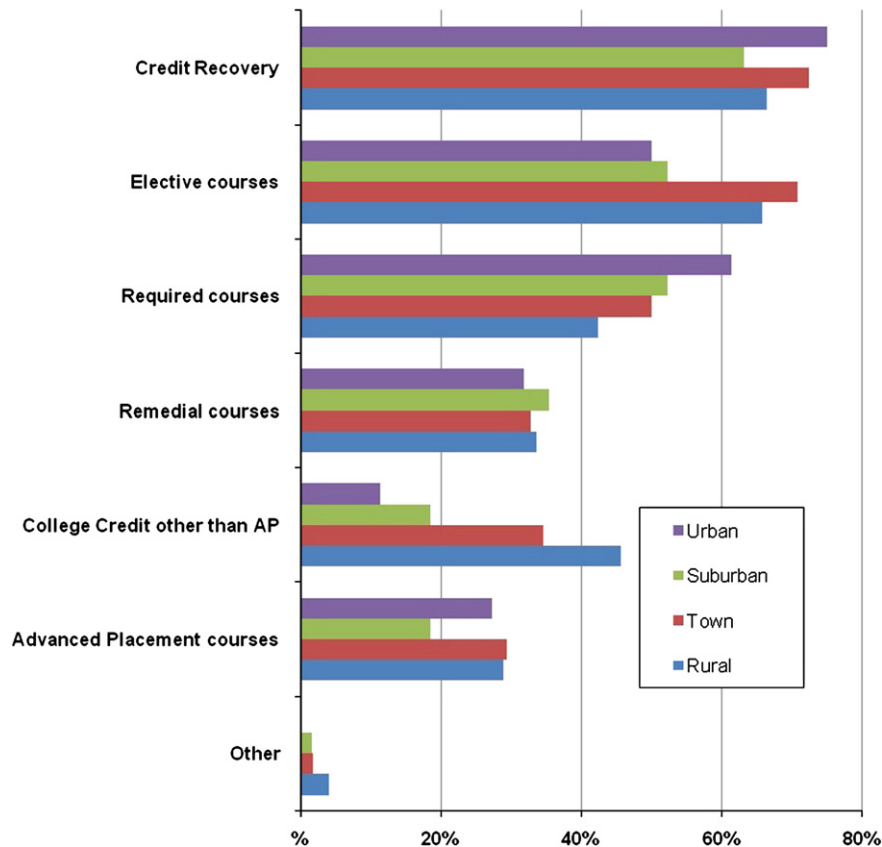


Fig. 10. Types of online courses offered by percentage of the schools with the offerings cross tabulated by location.

collaborated by reports from several providers of online courses that are seeing significant increases in demand for credit recovery courses. Gregg Levin, vice president for sales for Aventa Learning, a for-profit provider of online services to K-12 schools, in a recent article said that demand for online credit recovery courses had increased “eight-fold between 2005 and 2008” (Zehr, 2010). Many high schools have been forced to find solutions to their high school drop-out problems due to pressure from state education departments and the federal *No Child Left Behind* mandates to improve student outcomes. Online credit recovery appears to be an integral part of the solutions for many of these schools.

While it would be easy to state that the advance of online credit recovery is a positive finding in the 2010 study, it should be taken with some caution. The data in this study suggested that while high school administrators were providing more opportunities for students to enroll in online courses, they also had concerns about the quality of online courses and indicated that students need maturity, self-discipline, and a certain command of basic skills (reading and mathematics) in order to succeed in these courses. Many of the students who need to recover credits are those who may not have these characteristics. There have also been concerns that some school districts might be using credit-recovery, whether online or face-to-face, as a quick, convenient way to move students through to graduation. As an example, a *New York Times* article raised concerns by teachers and others that some New York City public schools were “taking shortcuts” and “gaming the system” to move students through to graduation with questionable practices related to weak credit recovery programs (Gootman and Coutts, 2008). Nevertheless, credit recovery has become a major aspect of many high school academic programs and the online versions of these are proving

to be especially popular. A prime area for future research would be the study of the quality and effectiveness of these programs.

#### 4.3. Building bridges to college careers

An important aspect of the high school reform dialog has centered on the importance of advising students to stay in school and move onto a college career upon graduation. Students who have set the goals of attending college for themselves are more likely to do well in school and graduate. Rather than waiting for graduation, educators have been developing programs to bridge the high school and college experiences at an earlier time. Whether through advanced placement or registration in college courses as electives, there has been a growing population of high school educators seeking to expand the opportunities for their students to start their college careers while still in high school. While many models for this exist, there have always been logistical issues with regards to transporting students to colleges, training high school teachers to teach college-level courses, articulating courses taken in high school for college credit, etc. It appears from this study that online and blended learning courses are increasingly being used to overcome these logistical issues. By enrolling in online and blended learning courses, high school students no longer need to be transported to a college campus, can enroll in college courses taught by college professors, and can be given college credit immediately upon completing and passing their coursework. Data from this study indicate that high school administrators see online elective college-level courses as an effective way for some of the more able students to begin their college careers.



#### 4.4. Differentiating instruction

Christensen et al. (2008) referenced earlier, see online learning as an integral part of high school reform specifically by allowing high schools to customize instruction and to differentiate course offerings to meet a wide variety of student needs. However, while offering a wide breadth of courses is most desirable, doing so in face-to-face mode can be quite expensive. Offering online courses to students allow for greater breadth of course offerings without necessarily incurring the costs for offering entire courses face-to-face. For example, to offer a face-to-face elective course generally requires that there be a certain amount of student interest and enrollment for the course in order to make it cost effective. A student interested in taking elective coursework in chemistry might not be interested in taking an advanced foreign language course and vice versa. To meet the needs of both students, high school schedulers would have to offer both an advanced chemistry and a foreign language course and then hope that there are enough students registered to make them cost-effective. Online and blended courses, on the other hand, can be made available for just a single student and only incur the cost for that one student. The data consistently indicate that high school administrators see online learning as meeting the diverse needs of their students whether through advanced placement, elective college courses, or credit recovery. Indeed, the data indicate that the major reason for offering online and blended courses is to offer courses that otherwise would not be available. This supports strongly the concept promulgated by Christensen, Horn, and Johnson of the role that online technology can play in differentiating instruction and providing more choices for high school administrators in developing their academic programs.

#### 5. Conclusion

The purpose of the above research was to examine the role that online learning was playing in American K-12 education. It is our conclusion that online and blended learning are making inroads into K-12 academic programs and most significantly at the secondary level. Furthermore, and perhaps more importantly, online and blended learning grew by 47% between 2005–2006 and 2007–2008. Every indication is that this growth will continue in the foreseeable future. If K-12 follows the pattern of enrollment growth in higher education, it is quite possible that online learning will emerge as a substantial component of all learning at the secondary level.

The American high school has been characterized as an institution in crisis and the call for reform has been loud and strong. The results of the

2010 study indicated that online and blended learning are becoming integral to a number of high school reform efforts, especially with regard to improving graduation rates, credit recovery, building connections for students to their future college careers, differentiating instruction, and supporting cost-efficiency for instruction. However, while high schools are depending upon online and blended learning for many of their programs, concerns remain among educators. The issue of the quality of online instruction persists. There is a continuing need to establish and update state and local policies for funding, attendance requirements, and other issues related to online instruction. Careful evaluation needs to be undertaken for relatively new online programs such as credit recovery. The benefits, concerns, and costs related to online and blended learning are prime areas for future research as they increasingly become a topic of focus in the national dialog on improving American education.

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