What's Happening

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Online course use in Iowa and Wisconsin public high schools: The results of two statewide surveys

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Key findings

The primary uses of online courses by public high schools in Iowa and Wisconsin during the 2012/13 school year were to provide students with opportunities to recover credit for failed courses and to complete core requirements in primary academic subjects.

Despite widespread use of online courses, schools cited concerns about the lack of online teacher training in Iowa and online course quality in Wisconsin. Most schools provided some onsite student monitoring and some training for monitors.

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This report is available on the Regional Educational Laboratory website at http://ies.ed.gov/ncee/edlabs.

Summary

As the use of online courses in high schools increases rapidly across the United States, schools are using courses from a multitude of sources to achieve a variety of educational goals. Policies and practices for monitoring student progress and success in online courses are also diverse. Yet few states formally track or report student participation in online learning. Iowa and Wisconsin are among the states that do not track such information.

This study analyzed data from a survey developed to describe how and why brick-and-mortar public high schools in Iowa and Wisconsin use online learning for their students. The survey, developed by Regional Educational Laboratory Midwest in collaboration with members of its Virtual Education Research Alliance, reflects the need for better information about the basic characteristics of online course use across the country. To identify the types of programs and policies needed to support the effective use of online learning, state administrators and policymakers need accurate information about how and why schools are turning to online learning. Recognizing the potential value of this type of information, the Iowa Department of Education and the Wisconsin Department of Public Instruction administered the survey to a representative sample of public high schools in each state to gather information about online course use during the 2012/13 school year. This report presents the findings of school practices in the two states but does not directly compare them.

Key findings from the survey were:

- Recovering course credit for classes that students had failed and completing core requirements were among the top academic objectives of online course enrollment in both Iowa and Wisconsin. Most of the online courses were in the primary academic subjects: English language arts, social studies, math, and science.
- Three other commonly cited reasons why schools enrolled students in online courses were to offer courses that were not otherwise available, to provide an alternative learning environment, and to personalize learning.
- In Iowa the primary challenge schools faced in providing online learning was the lack of online teacher training. In Wisconsin it was the concern about course quality.
- Most schools in both states reported that some or all of the students enrolled in online courses had the opportunity to communicate directly with an online teacher.
- Most schools assigned an onsite monitor to supervise and support students in online courses. Among schools that assigned monitors, 34 percent of Iowa schools and 41 percent of Wisconsin schools reported that these staff always received training for this role.
- In both states, monitoring students' final grade reports was the most commonly used strategy to track student progress in online courses.

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Why this study?

Schools across the country are increasing their use of online courses (Picciano & Seaman, 2009; Watson, Murin, Vashaw, Gemin, & Rapp, 2013). At the same time, states, U.S. territories, and the District of Columbia are passing legislation related to online learning, with 157 such bills enacted between 2008 and 2012 (Molnar et al., 2014). Schools obtain online courses from a multitude of sources to achieve a variety of educational goals, and they use diverse policies and practices to monitor student progress and success in online courses (Queen & Lewis, 2011). However, few states formally track or report student participation in online learning. Iowa and Wisconsin are among the states that currently do not track this information.

This report describes the findings from a survey developed to describe how and why public high schools in Iowa and Wisconsin use online learning for their students. (See box 1 for key terms.) The survey, developed by Regional Educational Laboratory (REL) Midwest in collaboration with members of its Virtual Education Research Alliance,[1] reflects the

This report describes the findings from a survey developed to describe how and why public high schools in Iowa and Wisconsin use online learning for their students

Box 1. Key terms

Advanced Placement. Advanced Placement is a program of the College Board that offers college-level courses to high school students.

Core course. Core courses are those that are required for high school graduation. In Iowa the core courses include English language arts (four units), social studies (three units), math (three units), science (three units), and physical education (one unit; Iowa Administrative Code, 2013a). In Wisconsin the core courses include English language arts (four credits), social studies (three credits), math (three credits), science (three credits), and physical education (1.5 credits; Wisconsin Statutes and Annotations, 2014a).

Credit recovery. Credit recovery courses allow students to obtain course credits for classes they have failed.

Dual enrollment courses. Dual enrollment courses are college-level courses taken by students for which they receive both high school and college credits.

Elective. Elective courses include all courses other than core, Advanced Placement, credit recovery, and dual credit courses.

Online learning. Education in which instruction and content are delivered primarily on the Internet (that is, electronically). The term does not include print correspondence courses; courses delivered by broadcast television or radio, CDs, or videocassettes; or stand-alone educational software programs that do not have a significant Internet-based instructional component.

Online teacher. A staff member of the virtual program who teaches students in online courses.

Onsite monitor. A staff member at a brick-and-mortar school responsible for monitoring and supporting students in the school who are taking online courses. The staff member filling this role can range from a classroom teacher to a guidance counselor to an aide.

Primary academic subjects. The primary academic subjects are English language arts, history/social studies, math, and science.

Supplemental program. A program that provides online courses to students enrolled in a brick-and-mortar school separate from the online learning program.

need for better information about the basic characteristics of online course use across the country. To identify the types of programs and policies needed to support the effective use of online learning, state administrators and policymakers need accurate information about how and why schools are turning to online learning. Recognizing the potential value of this type of information, the Iowa Department of Education and the Wisconsin Department of Public Instruction administered the survey to a representative sample of public high schools in each state. This study does not directly compare the findings of school practices in the two states (see appendix A on data and methodology).

While this report focuses on two REL Midwest states, the results and the survey used to conduct the study will likely be of interest to states and districts across the country. REL Midwest and the Virtual Education Research Alliance designed the survey to collect information that multiple online learning stakeholders and researchers with expertise in online learning consider potentially valuable but that is not typically available. School or district personnel may want to consider how they implement online learning in light of the questions that guided this study. The research questions and survey items may also offer a valuable framework for schools or districts considering online learning options, as well as the kinds of monitoring and support they may want to provide for students. The survey used to conduct the study is available for other states or districts to use for their own data collection efforts (see appendix B).

Because the use of online learning has continued to grow in the past five years, state administrators and policymakers need current information that describes what is happening in their states

Trends in online course use in the United States

Although states may not have accurate information about how and why their schools are using online learning, a nationally representative survey of U.S. public school districts shows some national trends (Queen & Lewis, 2011). During the 2009/10 school year, 55 percent of the public school districts enrolled students in some form of technology-delivered distance education, which included online courses and other computer-based technologies.[2] Among districts that used technology-based distance learning:

- Online learning was the primary mode of delivery of distance education for 77 percent of the districts.
- The majority of districts used these courses to supplement students' face-to-face courses.
- Districts obtained these courses from a variety of sources.
- The most common academic objective of the 2009/10 courses was credit recovery (62 percent).
- More than one-half of districts reported that providing "courses not otherwise available at the school" and "opportunities for students to recover course credits" were very important reasons for using distance education.

Because the use of online learning has continued to grow in the past five years (Watson et al., 2013), state administrators and policymakers need current information that describes what is happening in their states. However, few have mechanisms to track online course use at the school level.

The online learning context in Iowa and Wisconsin

Iowa and Wisconsin are among states that have passed legislation in recent years to expand the online learning opportunities available to students. In Iowa this includes a 2012 law

that establishes an initiative to develop a statewide online learning program model. In Wisconsin it includes legislation that makes online courses available to districts throughout the state for a reasonable fee. See box 2 for additional state legislation.

Monitoring and student support in online courses

Researchers have reported low completion rates for online courses: previous research indicated that only 30–50 percent of students completed their online courses (Carr, 2000; Roblyer, 2006; Rovai & Wighting, 2005; Simpson, 2004). In light of these low completion rates, researchers and professional organizations have begun to explore whether increasing the level of student support provided by online teachers and onsite monitors might improve learning outcomes. The International Association for K–12 Online Learning, a widely cited source for policy recommendations on online learning, stresses the importance of student support for successful online programs in its *Promising practices in online learning* series (International Association for K–12 Online Learning, n.d.). It references several state policies that have mandated an onsite monitor to provide face-to-face support at the brick-and-mortar school for students in online courses (Watson & Gemin, 2009). Although few studies examine online learning among high-school students, research suggests that these students benefit from having a trained staff person at their school who monitors and supports their progress (Hannum, Irvin, Lei, & Farmer, 2008).

Iowa and Wisconsin are among states that have passed legislation in recent years to expand the online learning opportunities available to students

Box 2. Online learning legislation in Iowa and Wisconsin

Iowa

In 2012, Iowa enacted legislation directing the Iowa Department of Education to establish an online learning program model that provides districts and schools with access to high-quality content and instructional materials (Iowa Administrative Code, 2013b). The regulations include the following mandates:

- Coursework developed as part of the online learning program model is to be taught by a licensed teacher.
- Online teachers must complete in-service professional development, preservice training, or comparable coursework that prepares them to teach in an online environment.
- Online teachers should be prepared to meet the needs of students in an online learning environment, which may include developing strategies for working with and providing support for students in an online environment.

Wisconsin

Wisconsin has enacted numerous bills related to online learning during the past decade. One set of legislative changes focused on full-time online schools as well as on making online courses available for a reasonable fee to districts, local education agencies, and charter, private, and tribal schools in the state (2007 Wisconsin Act 222). In addition, it mandated that teachers had to complete 30 hours of professional development "designed to prepare a teacher for online teaching" before they could teach an online course in a public school. However, this requirement was repealed in 2013. In 2013 Wisconsin established WISELearn, an online resource to provide learning opportunities; educational resources for parents, teachers, and students; and professional development throughout the state (Wisconsin Statutes and Annotations, 2014b).

What the study examined

Given the lack of available data and even of state protocols for collecting data about online learning, the Iowa Department of Education and the Wisconsin Department of Public Instruction administered an online-course-use survey developed by REL Midwest in collaboration with members of its Virtual Education Research Alliance. The survey was developed to identify how and for what reasons high schools are using online courses and how students are being monitored and supported.

The following research questions guided this study:

- How did public high schools in Iowa and Wisconsin use online learning during the 2012/13 school year?
  - What were the academic purposes for which students took online courses?
  - What were the academic domains in which students took online courses?
  - What institutions provided the online courses?
- Why did schools use online course options for their students?
- What challenges did schools encounter in using online learning for their students?
- What policies and practices did these schools employ to monitor and support students enrolled in online courses?

A survey was developed to identify how and for what reasons high schools are using online courses and how students are being monitored and supported

A brief description of the data and methodology used to conduct the study is in box 3; appendix A provides additional details about the survey development process, data, and methodology. Appendix B contains the survey.

Box 3. Data and methods

The state education agencies of Iowa and Wisconsin administered an electronic survey of online course use (see appendix B) to a representative random sample of 168 brick-and-mortar public high schools in each state. The survey, administered at the start of the 2013/14 school year, was designed to gather information about online course use during the 2012/13 school year. The state education agencies asked principals in the target schools to forward the survey link to the staff member responsible for overseeing the virtual education program at their school. Respondents included superintendents, principals, assistant principals, guidance counselors, teachers, and paraprofessionals.

Researchers analyzed the survey data collected from 117 schools in Iowa (response rate of 70 percent) and 96 schools in Wisconsin (response rate of 57 percent) to produce statewide estimates of online course use. A school nonresponse bias analysis was conducted separately for each state, and the estimates were weighted based on significant predictors of nonresponse (school type for Iowa and school locale for Wisconsin) to ensure that the survey results were representative of each state as a whole. (See appendix A for a detailed description of the survey development process, data, and methodology.)

Schools that did not enroll students in online courses during the 2012/13 school year may have been less likely to complete the survey. Of the 117 high schools in Iowa that responded, only 5 reported that they did not use online learning (weighted percentage = 6 percent). In Wisconsin 10 of the 96 responding high schools indicated that they did not use online courses (weighted percentage = 10 percent). The low response rates from these schools prevent reliable estimates of the percentage of schools not using online courses and the reasons that schools chose not to use them. (See Limitations of the study section.) This limitation does not influence the estimates for the schools that did use online courses.

What the study found

This section discusses the findings for each research question.

High schools in Iowa and Wisconsin enrolled students in online courses in a range of academic subjects to accomplish multiple academic objectives

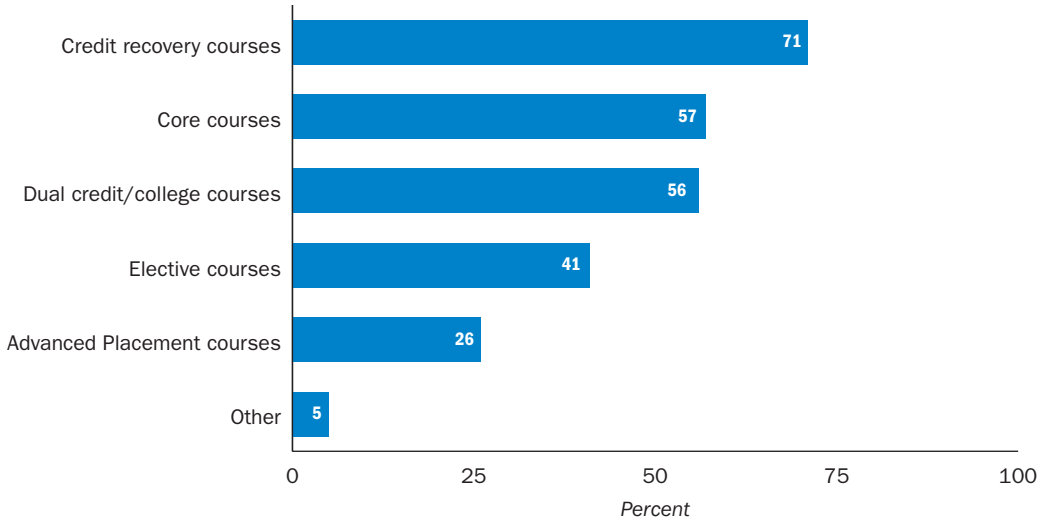
Each online course has two dimensions. One is the academic objective the online course is intended to fulfill, such as recovering course credit, completing a core requirement, or taking an Advanced Placement course. The second is the academic subject that the course covers, such as math, science, or history.

Among Iowa high schools that reported using online learning in 2012/13, the most common academic objective was to offer credit recovery courses

Recovering course credit and completing core requirements were among the top academic objectives of online course enrollment in both Iowa and Wisconsin. Among Iowa high schools that reported using online learning in 2012/13, the most common academic objective was to offer credit recovery courses: 71 percent enrolled students in an online credit recovery course during the 2012/13 school year. The next most common academic objectives were completing core requirements (57 percent) and obtaining dual credit for a course (56 percent; figure 1).

Among Wisconsin high schools that reported using online learning during the 2012/13 school year, the most common academic objective was completing core requirements (73 percent). The second and third most common academic objectives were credit recovery (66 percent) and elective courses (61 percent; figure 2).

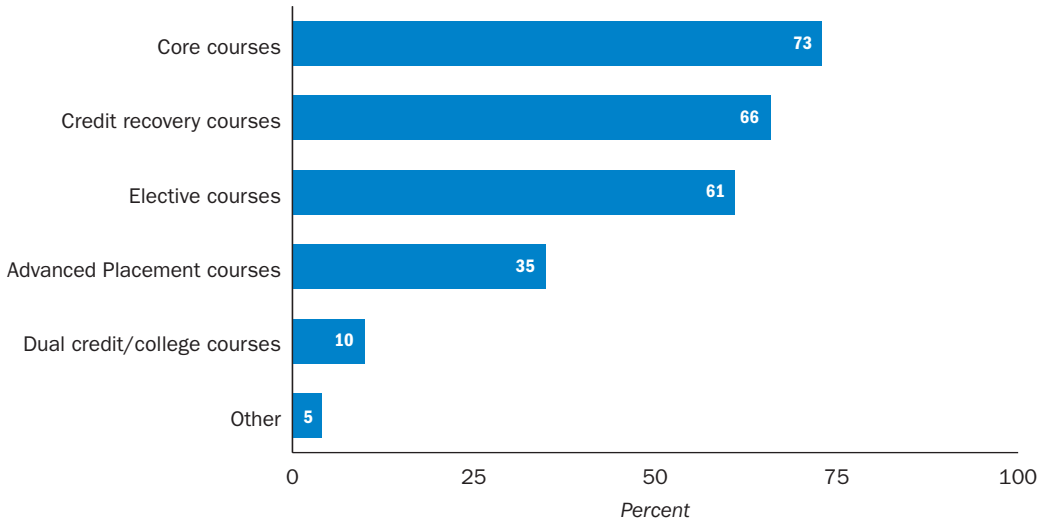
Figure 1. In Iowa 71 percent of public high schools enrolled students in online credit recovery courses in 2012/13



Note: The percentages are for the 87 Iowa public high schools that reported at least one online course enrollment for an academic objective in 2012/13. Percentages sum to more than 100 because schools could report enrolling students in online courses to meet more than one academic objective. See table C1 in appendix C for additional statistical information.

Source: Authors' analysis of Iowa Department of Education data (2013).

Figure 2. In Wisconsin 73 percent of public high schools enrolled students in online core courses and 66 percent in credit recovery courses in 2012/13



Note: The percentages are for the 74 Wisconsin public high schools that reported at least one online course enrollment for an academic objective in 2012/13. Percentages sum to more than 100 because schools could report enrolling students in online courses to meet more than one academic objective. See table D1 in appendix D for additional statistical information.

Source: Authors' analysis of Wisconsin Department of Public Instruction data (2013).

In addition to enrolling students in online courses for the primary academic subjects, 53 percent of Wisconsin schools enrolled students in a world language online course

High schools in Iowa and Wisconsin used online learning to offer courses in the primary academic subjects. Among Iowa schools that used online learning, more than 70 percent enrolled students in online courses for the four primary academic subjects: history/social studies (92 percent), English language arts (81 percent), science (78 percent), and math (73 percent). Fifty-five percent of the schools enrolled students in online health or physical education courses (figure 3).

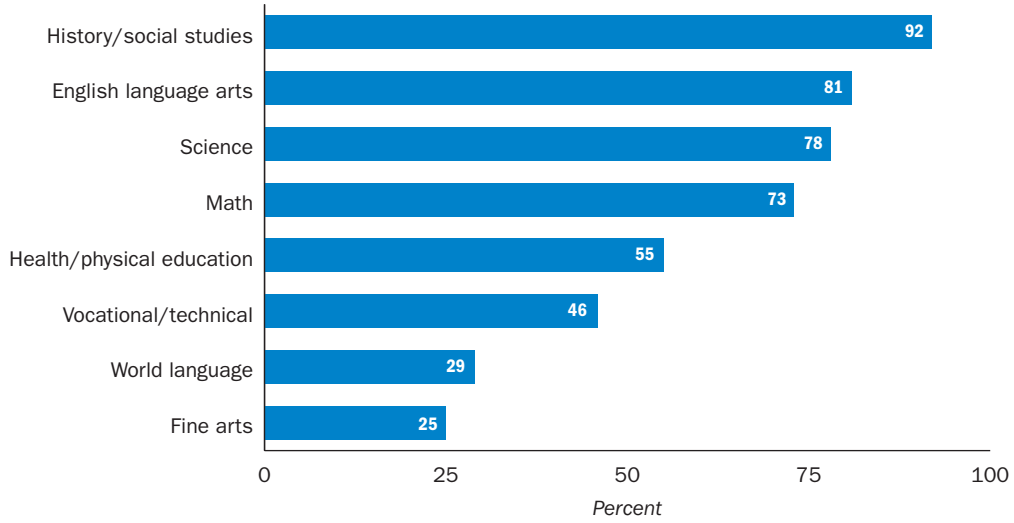
Schools in Wisconsin also enrolled students in online courses for the four primary academic subjects. Among schools that enrolled students in online courses, more than 60 percent enrolled students in courses for math (81 percent), English language arts (76 percent), history/social studies (73 percent), and science (64 percent). Fifty-three percent of the schools enrolled students in a world language course (figure 4).

Public high schools in Iowa and Wisconsin obtained online courses from multiple sources, including their local school districts. Among Iowa public high schools, the most common source of online courses was postsecondary institutions (61 percent), followed by local school districts (57 percent; figure 5). In Wisconsin, the two most common types of online course providers were local school districts (44 percent) and Wisconsin Virtual School (44 percent; figure 6), which is a state virtual education program.

Iowa and Wisconsin high schools used online courses for their students for multiple education-related reasons

Schools rated the importance of various reasons for having online courses. Four of the top five reasons were to provide students with different types of learning opportunities (figures 7 and 8). The most common reason was to provide opportunities for students to

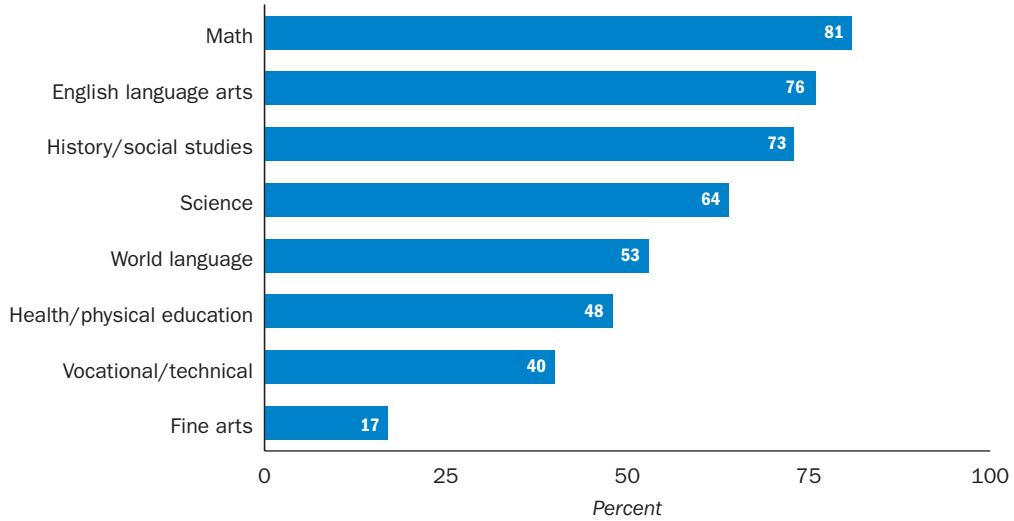
Figure 3. In Iowa more than 70 percent of public high schools used online courses for the primary academic subjects in 2012/13



Note: The percentages are for the 82 Iowa public high schools that reported at least one online course enrollment for an academic subject in the 2012/13 school year. Percentages sum to more than 100 because schools could report enrolling students in online courses to meet more than one academic subject. See table C2 in appendix C for additional statistical information.

Source: Authors' analysis of Iowa Department of Education data (2013).

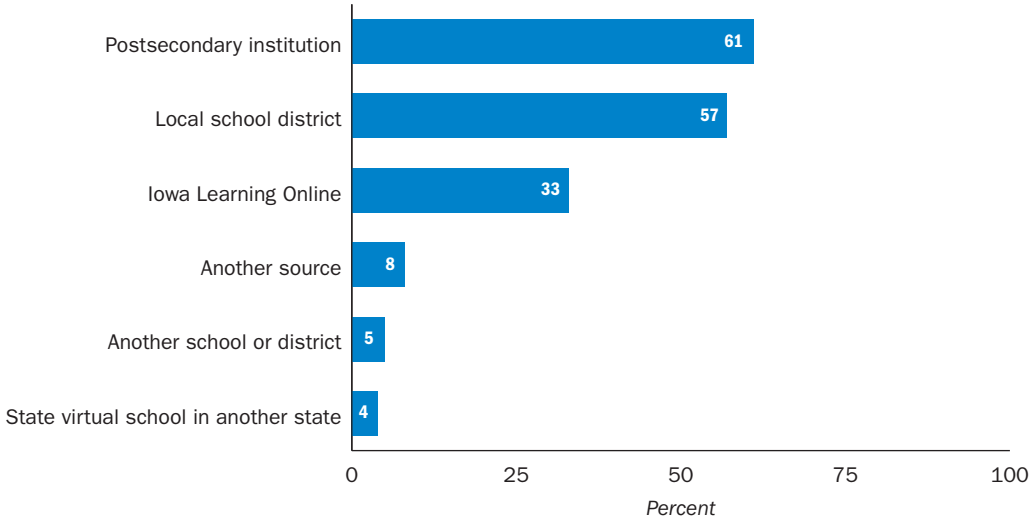
Figure 4. In Wisconsin more than 60 percent of public high schools used online courses for the primary academic subjects in 2012/13



Note: The percentages are for the 72 Wisconsin public high schools that reported at least one online course enrollment for an academic subject in the 2012/13 school year. Percentages sum to more than 100 because schools could report enrolling students in online courses to meet more than one academic subject. See table D2 in appendix D for additional statistical information.

Source: Authors' analysis of Wisconsin Department of Public Instruction data (2013).

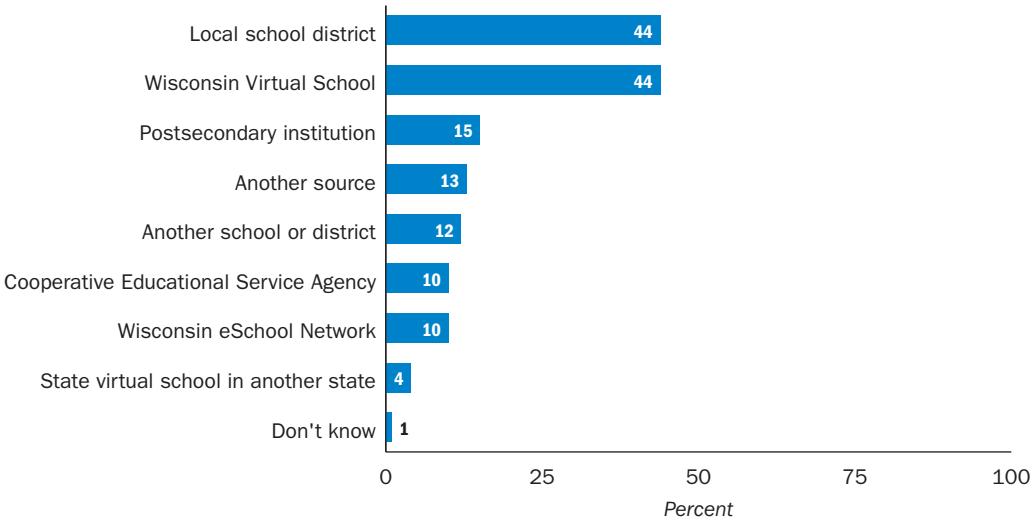
Figure 5. Iowa public high schools obtained online courses from postsecondary institutions and their local school districts in 2012/13



Note: The percentages are for the 92 Iowa public high schools that reported which educational institutions provided online courses in which students were enrolled in the 2012/13 school year. Percentages sum to more than 100 because schools could report enrolling students in online courses from more than one type of provider. See table C5 in appendix C for additional statistical information.

Source: Authors' analysis of Iowa Department of Education data (2013).

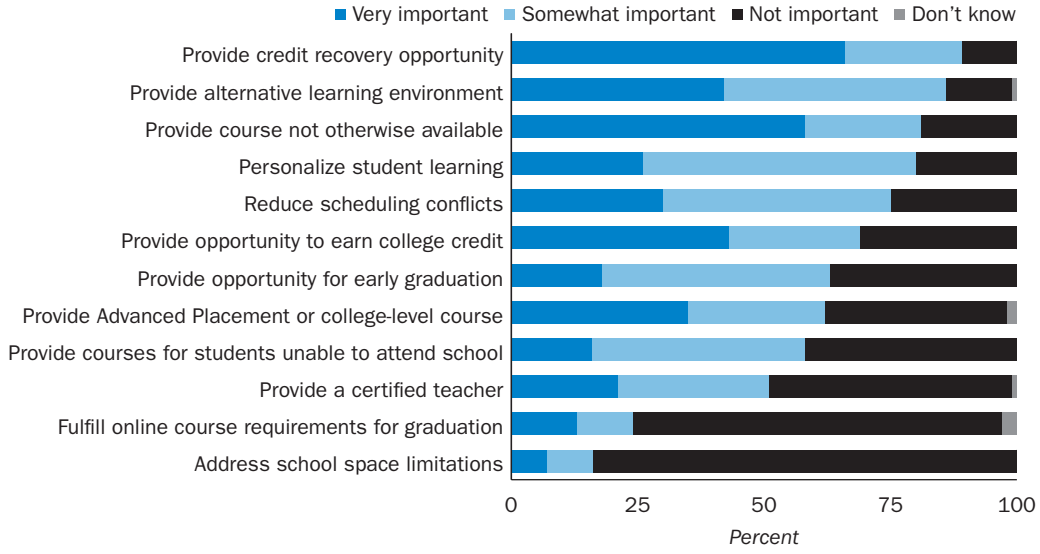
Figure 6. Wisconsin public high schools obtained online courses from Wisconsin Virtual School and their local school districts in 2012/13



Note: The percentages are for the 75 Wisconsin public high schools that reported which educational institutions provided online courses in which students were enrolled in the 2012/13 school year. Percentages sum to more than 100 because schools could report enrolling students in online courses from more than one type of provider. See table D5 in appendix D for additional statistical information.

Source: Authors' analysis of Wisconsin Department of Public Instruction data (2013).

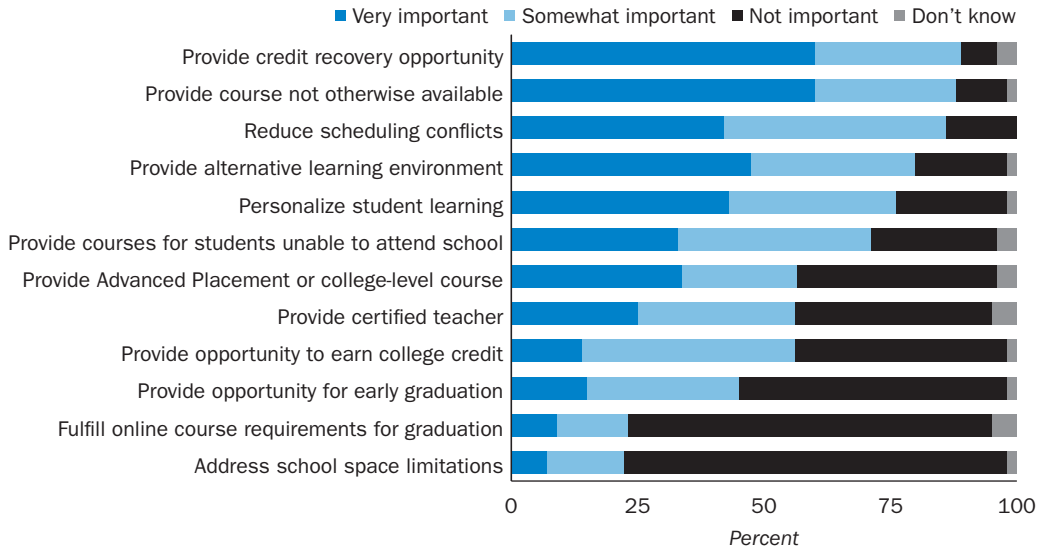
Figure 7. In Iowa the two most often-cited reasons for offering online learning in 2012/13 were to provide credit recovery opportunities and alternative learning environments



Note: The percentages are for the 92 Iowa public high schools that answered the following question: "How important were the following reasons for having online courses in your school in 2012/13?" See table C3 in appendix C for additional statistical information.

Source: Authors' analysis of Iowa Department of Education data (2013).

Figure 8. In Wisconsin the two most frequently cited reasons for offering online learning in 2012/13 were to provide credit recovery opportunities and courses not otherwise available



Note: The percentages are for the 75 Wisconsin public high schools that answered the following question: "How important were the following reasons for having online courses in your school in 2012/13?" See table D3 in appendix D for additional statistical information.

Source: Authors' analysis of Wisconsin Department of Public Instruction data (2013).

recover course credits from classes they failed; 89 percent of the schools in both states cited this as a somewhat or very important reason for having online courses. More than 75 percent of schools in Iowa and Wisconsin cited three additional education-related reasons for offering online courses: to provide courses that were not otherwise available, to provide an alternative learning environment, and to personalize learning. A fifth frequently cited reason in both states was to reduce scheduling conflicts for students; 75 percent of Iowa high schools and 86 percent of Wisconsin high schools identified this as a somewhat or very important reason for having online courses.

The majority of high schools in Iowa and Wisconsin reported facing challenges in implementing their online learning programs

The survey included a list of 12 possible challenges that schools might have faced as they implemented online learning during the 2012/13 school year. The list included issues related to school resources (for example, funding or access to technology), the availability of training, and academic concerns (for example, course quality and academic dishonesty). Respondents were allowed to select multiple challenges.

Among schools in Iowa that reported using online courses, the lack of teacher training was the most frequently cited challenge

Iowa schools cited a lack of teacher training as the most common challenge encountered. Among schools in Iowa that reported using online courses, the lack of teacher training was the most frequently cited challenge (61 percent). Concern about course quality was second (32 percent). Less than 25 percent of the schools reported that they had encountered the other issues listed in the survey, and 33 percent indicated that they did not face any challenges when implementing their online learning programs during the 2012/13 school year (figure 9).

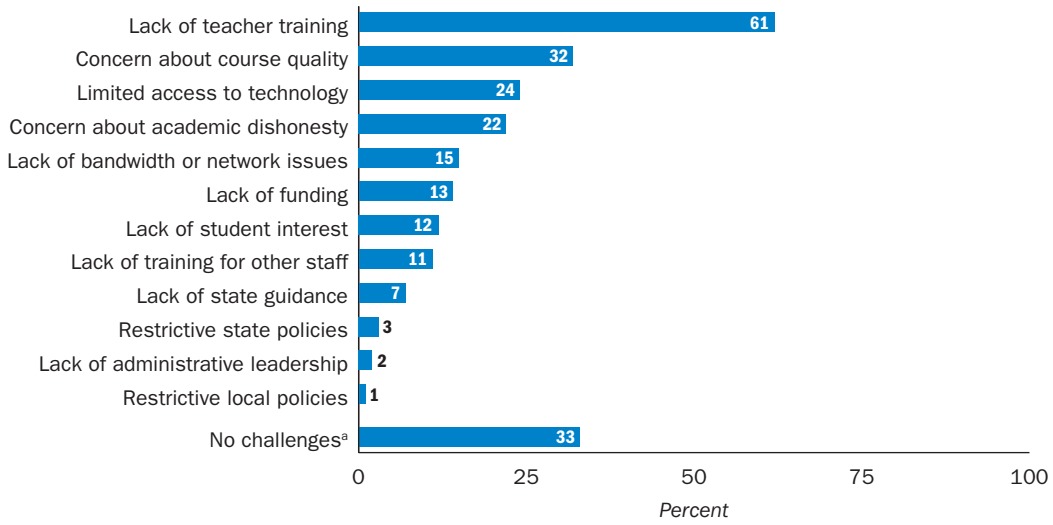
Concern about course quality was the challenge most often cited by Wisconsin schools. In Wisconsin 37 percent of schools that used online courses in 2012/13 identified concern about course quality as a challenge. In addition, 26 percent of the schools cited a lack of funding, and 23 percent cited a lack of student interest. Less than 22 percent of the schools indicated that they had faced any of the other challenges, and 16 percent reported that they had not encountered any challenges when implementing their online learning programs (figure 10).

Iowa and Wisconsin high schools employed various strategies for monitoring student progress and supporting students in online courses

Most schools in Iowa and Wisconsin reported that some or all of the students enrolled in online courses had the opportunity to communicate with an online teacher. In Iowa 26 percent of the schools that used online learning reported that students enrolled in all online courses had the opportunity to communicate with an online instructor, and 48 percent of the schools reported that students enrolled in some online courses could communicate with an online instructor. Twenty-six percent of the schools reported that none of the students enrolled in online courses had the opportunity to communicate with an online instructor (figure 11).

In Wisconsin 46 percent of schools that used online learning reported that students in all online courses had the opportunity to communicate with an online instructor, and 33 percent indicated that students had that opportunity in some courses. Twenty-one

Figure 9. In Iowa the most commonly cited challenge to implementing online learning in 2012/13 was the lack of teacher training

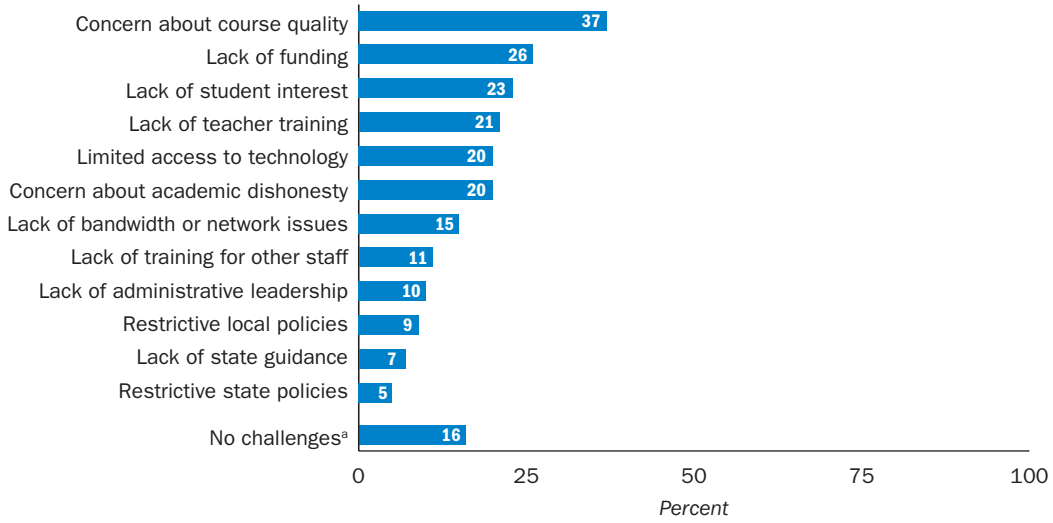


a. Includes only schools that selected "no response" as their sole answer.

Note: The percentages are for the 92 Iowa public high schools that indicated they faced each challenge when implementing their online learning programs in the 2012/13 school year. Percentages sum to more than 100 because schools could report more than one challenge. See table C4 in appendix C for additional statistical information.

Source: Authors' analysis of Iowa Department of Education data (2013).

Figure 10. In Wisconsin the most commonly cited challenge to implementing online learning in 2012/13 was concern about course quality

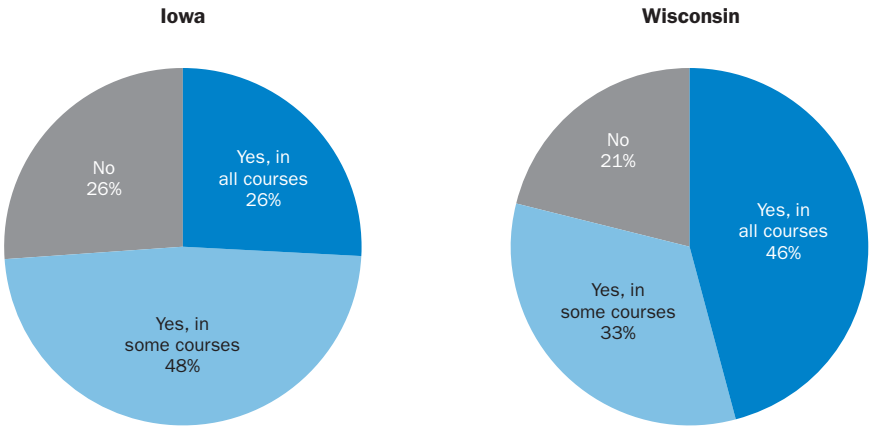


a. Includes only schools that selected "no response" as their sole answer.

Note: The percentages are for the 75 Wisconsin public high schools that indicated they faced each challenge when implementing their online learning programs in the 2012/13 school year. Percentages sum to more than 100 because schools could report more than one challenge. See table D4 for additional statistical information.

Source: Authors' analysis of Wisconsin Department of Public Instruction data (2013).

Figure 11. In both Iowa and Wisconsin the option for students to communicate directly with an online instructor varied across courses in 2012/13



Note: The percentages are for the 92 Iowa public high schools and the 77 Wisconsin public high schools that answered the following question: "In school year 2012/13, did students in your school who were enrolled in online courses have the opportunity to communicate with an online instructor?" See tables C8 in appendix C and D8 in appendix D for additional statistical information.

Source: Authors' analysis of Iowa Department of Education data (2013) and Wisconsin Department of Public Instruction data (2013).

percent of schools reported that none of the students enrolled in online courses had the opportunity to communicate with an online instructor (see figure 11).

Among high schools reporting online course use, 85 percent of Iowa schools and 90 percent of Wisconsin schools reported using a final grade report to monitor student progress for all students enrolled in online courses

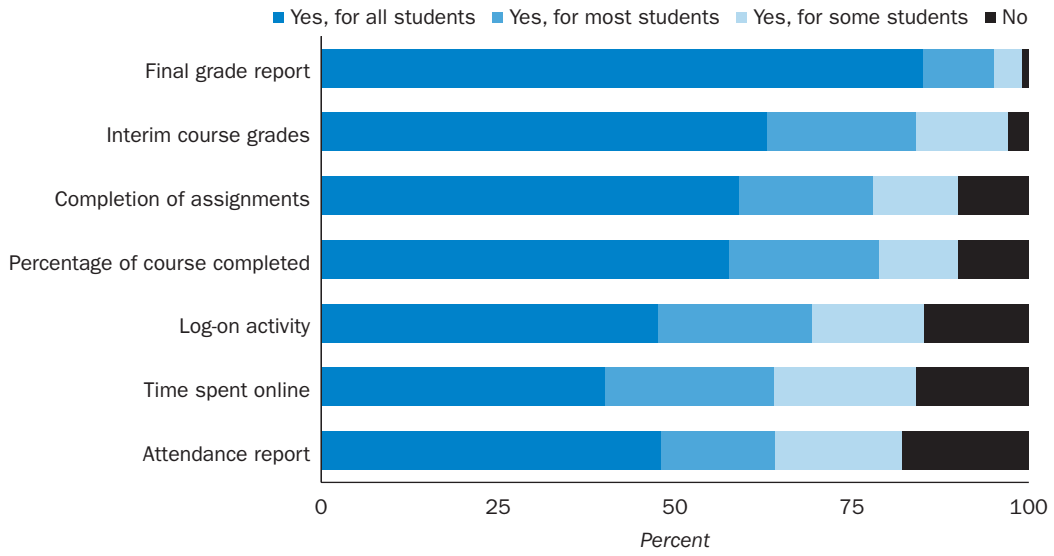
Monitoring final grade reports was the most commonly used strategy to track students' progress in online courses in Iowa and Wisconsin. Among high schools reporting online course use, 85 percent of Iowa schools and 90 percent of Wisconsin schools reported using a final grade report to monitor student progress for all students enrolled in online courses. The least commonly reported monitoring strategies in both states included tracking attendance reports and the time spent online (figures 12 and 13).

The majority of Iowa and Wisconsin schools assigned onsite monitors to students enrolled in online courses. The onsite monitor is a staff member at a brick-and-mortar school responsible for monitoring and supporting students enrolled in online courses. Although the specific responsibilities of the onsite monitors vary, they can include monitoring student activity in the online course, supporting students when they encounter nonacademic problems in the online course, helping students solve technology-related problems, serving as a liaison between the online teacher and the school, and serving as a liaison between the online teacher and parents. Not all schools assign a staff member to serve in this role.

Among Iowa schools that used online learning, 52 percent always assigned onsite monitors to students enrolled in online courses, and 35 percent did so sometimes. In Wisconsin 75 percent of the schools always assigned onsite monitors to students. Thirteen percent of Iowa schools and 4 percent of Wisconsin schools did not assign onsite monitors to support students in any online courses during the 2012/13 school year (figure 14).

The majority of schools assigned onsite monitors to students in online courses in both states, but onsite monitors did not always receive training to serve in this role. Among

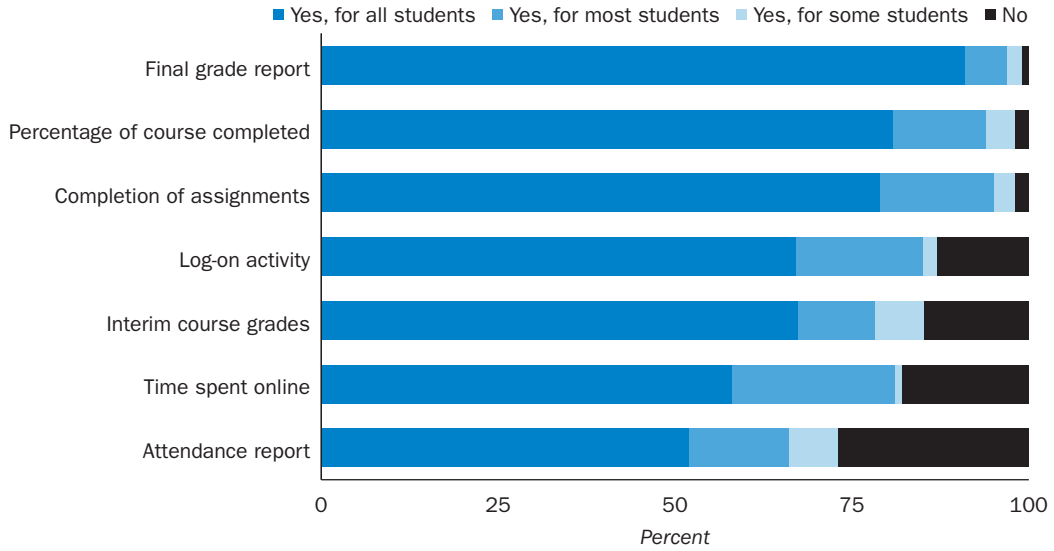
Figure 12. Iowa schools reported using several strategies for monitoring student progress in online courses in 2012/13



Note: The percentages are for the 90 Iowa public high schools that answered the following question: "In school year 2012/13, did your school monitor student progress in online courses in any of the following ways?" See table C12 in appendix C for additional statistical information.

Source: Authors' analysis of Iowa Department of Education data (2013).

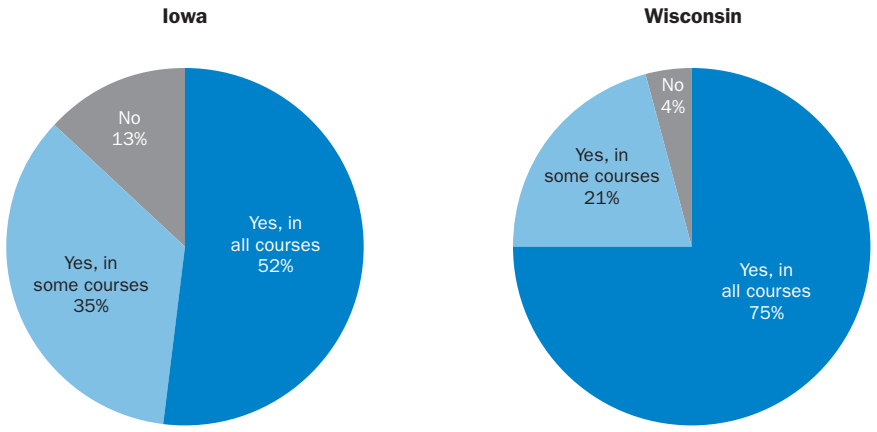
Figure 13. Wisconsin schools reported using several strategies for monitoring student progress in online courses in 2012/13



Note: The percentages are for the 76 Wisconsin public high schools that answered the following question: "In school year 2012/13, did your school monitor student progress in online courses in any of the following ways?" See table D12 in appendix D for additional statistical information.

Source: Authors' analysis of Wisconsin Department of Public Instruction data (2013).

Figure 14. In both Iowa and Wisconsin a majority of schools assigned onsite monitors to all students enrolled in online courses in 2012/13



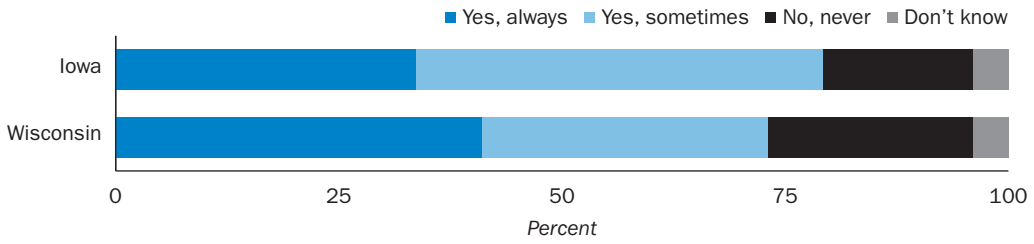
Note: The percentages are for the 92 Iowa public high schools and the 76 Wisconsin public high schools that answered the following question: "In the school year 2012/13, were students in your school who were enrolled in online courses assigned an onsite monitor?" See tables C13 in appendix C and D13 in appendix D for additional statistical information.

Source: Authors' analysis of Iowa Department of Education data (2013) and Wisconsin Department of Public Instruction data (2013).

Iowa high schools that used online courses in 2012/13, 34 percent reported that onsite monitors always received training, and 46 percent reported that onsite monitors sometimes received training for this role. In Wisconsin 41 percent of the schools reported that onsite monitors always received training, and 32 percent indicated that they sometimes received training. Onsite monitors in 17 percent of Iowa schools and 23 percent of Wisconsin schools received no training to serve in this role (figure 15).

In schools where onsite monitors received training, the majority of the schools reported that the onsite monitors received between one and four hours of training (56 percent in Iowa and 55 percent in Wisconsin). Sixteen percent of Iowa schools and 22 percent of Wisconsin schools reported that onsite monitors received four or more hours of training. Seventeen percent of Iowa schools and 12 percent of Wisconsin schools reported that onsite monitors received less than one hour of training (figure 16).

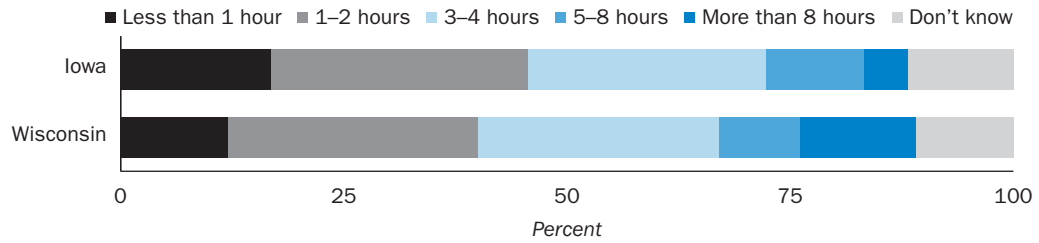
Figure 15. In both Iowa and Wisconsin a majority of onsite monitors reported receiving training for the role always or sometimes in 2012/13



Note: The percentages are for the 79 Iowa public high schools and the 73 Wisconsin public high schools that answered the following question: "Do onsite monitors in your school receive training for this role?" See tables C16 in appendix C and D16 in appendix D for additional statistical information.

Source: Authors' analysis of Iowa Department of Education data (2013) and Wisconsin Department of Public Instruction data (2013).

Figure 16. The majority of schools in Iowa and Wisconsin reported that onsite monitors received between one and four hours of training for this role in 2012/13



Note: The percentages are for the 62 Iowa public high schools and the 53 Wisconsin public high schools that answered the following question: "When onsite monitors in your school receive training, how many hours of training do they receive?" See tables C17 in appendix C and D17 in appendix D for additional statistical information.

Source: Authors' analysis of Iowa Department of Education data (2013) and Wisconsin Department of Public Instruction data (2013).

Summary of findings by state

This section briefly summarizes the findings for each state.

Iowa

Among high schools in Iowa that used online learning, 61 percent reported that the lack of online teacher training was a challenge

In Iowa, public high schools enrolled students in online courses to address multiple academic objectives across a range of academic subjects. The three most common academic objectives were recovering course credit, completing core requirements, and obtaining dual credit for a course. More than 70 percent of the schools that used online learning reported enrolling students in online courses for primary academic subjects (English language arts, history/social studies, math, and science), and 55 percent enrolled students in health or physical education online courses.

The primary sources of online courses were postsecondary institutions and local school districts.

The most common reason that Iowa public high schools used online courses was to provide students with the opportunity to recover course credit.

Among high schools that used online learning, 61 percent reported that the lack of online teacher training was a challenge.

In terms of providing support for and monitoring students enrolled in online courses, 26 percent of the schools reported that all online courses provided students with the opportunity to communicate with an online teacher, 52 percent always assigned an onsite monitor for students enrolled in an online course, and 35 percent sometimes assigned a monitor. These monitors always received training in 34 percent of the schools and sometimes received training in 46 percent of schools.

Wisconsin

In Wisconsin, public high schools enrolled students in online courses to address multiple academic objectives across a range of academic subjects. The three most common academic objectives of online courses were recovering course credit, completing core requirements, and completing elective courses. More than 60 percent of the schools that used online learning reported enrolling students in online courses for the primary academic subjects (English language arts, history/social studies, math, and science), and 53 percent enrolled students in world language online courses.

The two primary sources of online courses were local school districts and Wisconsin Virtual School.

The most common reason for offering online courses in Wisconsin was to provide students with the opportunity to recover course credit

The most common reason for offering online courses in Wisconsin was to provide students with the opportunity to recover course credit.

Among high schools that used online learning, 37 percent reported being concerned about the quality of online courses.

In terms of providing support for and monitoring students enrolled in online courses, 46 percent of the schools reported that all online courses provided students with the opportunity to communicate with an online teacher, 75 percent always assigned an onsite monitor for students in an online course, and 21 percent sometimes assigned a monitor. These monitors always received training in 41 percent of the schools and sometimes received training in 32 percent of schools.

Implications of the study and directions for future research

This project developed a survey that the state education agencies in Iowa and Wisconsin administered to schools to collect information to better understand how and why schools were using online courses for their students. The Iowa Department of Education and the Wisconsin Department of Public Instruction believe that this information will help them develop policies and programs to support schools' use of online learning to benefit student academic outcomes.

The predominant use of online learning in both states was for credit recovery courses. This finding, combined with other research showing that online courses may have low course completion rates, suggests a need for future research that examines the short- and long-term academic outcomes for these students. Because providing credit recovery opportunities is a top reason for using online courses, it would be valuable to know whether this use of online courses is having the intended outcome. For example, a descriptive study could investigate whether students are successfully completing online credit recovery courses, mastering the material, and being prepared to successfully complete the next course in the relevant course sequence. In addition, research on the cost effectiveness of online credit recovery courses could prove valuable. *Understanding the Implications of Online Learning for Educational Productivity,* a 2012 report of the U.S. Department of Education, provides guidance on conducting cost-effectiveness studies.

Sixty-one percent of Iowa schools that used online courses reported concern about a lack of online teacher training, and 37 percent of Wisconsin schools reported concern about course quality. Concerns about aspects of the educational quality of online courses suggest a need for additional research. As states and districts implement policies and programs to expand student access to online courses to improve student learning, rigorous research is needed to inform decisions. Tracking the education outcomes of students enrolled in online courses is an initial step to determine the value of these policy and program changes. Furthermore, states and districts could undertake research to answer the following questions about their use of online courses:

- What are the short- and longer-term academic outcomes of students who enroll in online courses?
- How are brick-and-mortar schools implementing online learning?
- Are particular methods of implementation associated with better student outcomes?
- Are particular instructional elements of online courses or instructional activities implemented by online teachers associated with student outcomes?
- How are virtual education programs training online teachers and brick-and-mortar school staff to support students enrolled in online courses? What additional training is needed?
- What are students' academic and personal objectives for taking online courses? Do they perceive that this experience helped them achieve these objectives?

The REL Midwest Virtual Education Research Alliance is currently investigating a number of these questions.

Given that 48 percent of Iowa high schools and 25 percent of Wisconsin high schools that used online learning did not always assign an onsite monitor for students in online courses, some schools may be unaware of the potential value of this role

One of the few rigorous studies of online learning examined the impact of onsite monitor training on student persistence in an online Advanced Placement English course (Hannum et al., 2008; Irvin, Hannum, Farmer, de la Varre, & Keane, 2009). Students in schools where onsite monitors received training were more likely to complete the online course than students in schools where monitors had not received training. This finding suggests that even high-achieving students may benefit from the support of a trained onsite monitor. Given that 48 percent of Iowa high schools and 25 percent of Wisconsin high schools that used online learning did not always assign an onsite monitor for students in online courses, some schools may be unaware of the potential value of this role. The widespread use of online courses in both Iowa and Wisconsin, combined with the range of practices regarding the use of onsite monitors, provides an ideal setting for a correlational study investigating the possible associations between onsite activities to monitor or support students in online courses and student outcomes in online courses.

Limitations of the study

Many schools that did not respond to the survey may have been nonusers of online courses, but that cannot be determined from the information available. Thus the percentage of state schools that use online courses could not be estimated, nor could it be determined why some schools chose not to use them. Also, while the study results may not be applicable beyond Iowa and Wisconsin, other states can use the survey developed for this study to collect their own data.

Percentage of schools using online courses could not be determined

Schools that did not enroll students in online courses during the 2012/13 school year may have been less likely to complete the survey, which prevents reliable estimates of the percentage of schools not using online courses and the reasons that schools chose not to use online courses. Of the 117 high schools in Iowa that responded to the survey (overall response rate = 70 percent), only 5 reported that they did not use online learning (weighted percentage = 6 percent). Of the 96 responding high schools in Wisconsin (overall response rate = 57 percent), 10 indicated that they did not use online courses (weighted percentage = 10 percent). Communications from the Iowa Department of Education and the Wisconsin Department of Public Instruction to the sampled schools may have inadvertently influenced nonresponse from schools that did not use online courses. Although the percentage of schools in Iowa and Wisconsin that did not use online courses is unknown, the estimates here can be compared with the 45 percent of districts across that United States that reported not using online courses in the 2009/10 school year (Queen & Lewis, 2011). Therefore, this report does not include an estimate of the percentage of schools in each state that used online courses, and no attempt was made to examine the data to address why schools chose not to use online courses.

Despite efforts to collect data from a representative sample of schools and employ appropriate data analysis methods, it is possible that the responding schools differed from the nonresponding schools in ways that the data analyses did not account for

Responding and nonresponding schools may differ

Despite efforts to collect data from a representative sample of schools and employ appropriate data analysis methods, it is possible that the responding schools differed from the nonresponding schools in ways that the data analyses did not account for. This would threaten the representativeness of the results presented in this report. However, nonresponse bias analyses of the data from each state suggest that the responding schools were similar to the nonresponding schools in terms of almost all the school-level variables included in the analysis, and analyses adjusted for the significant differences between responding and nonresponding schools.

The findings may not extend to other states

The findings in this report are about online course use by brick-and-mortar public high schools in Iowa and Wisconsin; therefore, they may not represent online course use in other states. Other states or districts can use the survey developed for this study to collect this information. Additional research describing how and why schools are using online learning, as well as the academic outcomes for students enrolled in different types of online courses, would provide valuable information to educators, policymakers, parents, and students.

Appendix A. Data and methodology

The study's sampling strategy, the data collection procedure, and data processing and analysis are described here.

Sampling strategy

The state education agencies of Iowa and Wisconsin administered the online-course-use survey to a stratified random sample of public high schools in each state. For both states, the target population consisted of schools with students in grades 9, 10, 11, and 12 regardless of school structure (for example, 9–12 or 7–12). The target population included regular, vocational, alternative, charter, and special education schools but excluded correctional facilities and full-time virtual schools.[3] Full-time virtual schools were excluded from the sample because the topics covered by a survey aimed at virtual schools would be different from those designed for brick-and-mortar schools that use online courses to supplement face-to-face courses.

Neither the Iowa Department of Education nor the Wisconsin Department of Public Instruction could produce a comprehensive list of schools in their states that use online courses, which was a primary motivation for collecting the online-course-use survey data. Because schools that did not use online courses in 2012/13 responded only to the first survey item, the sampling plan had to account for the fact that the number of responding schools for the remaining items would be less than the overall number of responding schools. The following sections describe the rationale for the initial sampling plan for the survey in each state, as well as how and why the sampling frames were later adjusted.

Original Iowa and Wisconsin sampling frames. The Iowa sampling frame was based on the population of eligible schools provided by the Iowa Department of Education. The Wisconsin sampling frame was based on the population of eligible schools in the 2010/11 National Center for Education Statistics Common Core of Data file, the most recent file available. Because the results of several studies have indicated that online learning programs differ across urban, town, and rural districts (Picciano & Seaman, 2009; Queen & Lewis, 2011), the study team stratified the sampling frames by school locale[4] (city or suburban, town, or rural; table A1) and selected a random sample of schools from each stratum with proportional allocation of schools to the strata (that is, stratified random sampling without replacement and with proportional allocation). This sampling approach ensured that the Iowa and Wisconsin samples were strictly representative of their sampling frames with respect to school locale. This approach improved the precision of sample-based estimates (relative to simple random sampling) to the extent that school locale was related to the measured outcomes.

Sixty percent of the schools in the Iowa population are in rural areas, 25 percent are in town areas, and 15 percent are in cities or suburban areas (see table A1). Thirty-four percent of the Iowa schools are eligible for Title I subsidies. Forty-seven percent of the schools in the Wisconsin population are in rural areas, 18 percent are in town areas, and 34 percent are in cities or suburban areas. Fifty-five percent of the Wisconsin schools are eligible for Title I subsidies. In both states, most of the schools in the population are classified as regular, and about two-thirds include grades 9–12.

Table A1. Iowa and Wisconsin public high school characteristics, 2012/13

Characteristics	Iowa		Wisconsin	
	Number of schools	Percent	Number of schools	Percent
Locale				
City or suburban[a]	56	15	206	34
Town[b]	98	25	111	18
Rural[c]	231	60	284	47
Title I eligibility[d]				
Eligible	131	34	331	55
Not eligible	252	66	270	45
School type				
Regular[e]	351	91	511	85
Alternative/vocational[f]	30	8	88	15
Special education[g]	3	1	2	<1
Grade span				
7–12	65	17	60	10
9–12	252	65	403	67
Other	68	18	138	23

Note: Percentages may not sum to 100 percent because of rounding. Categories that do not equal the population total reflect missing data in the National Center for Education Statistics Common Core of Data file.

a. Schools classified as city-large, city-midsize, city-small, suburb-large, suburb-midsize, or suburb-small.

b. Schools classified as town-fringe, town-distant, or town-remote.

c. Schools classified as rural-fringe, rural-distant, or rural-remote.

d. Eligibility requires that at least 30 percent of students be from low-income families.

e. A public school providing instruction and education services that does not focus primarily on special education, vocational or technical education, alternative education, or any of the particular themes associated with magnet and special program emphasis schools.

f. A public school that focuses primarily on providing formal preparation for semiskilled, skilled, technical, or professional occupations for high school–age students who have opted to develop or expand their employment opportunities, often in lieu of preparing for college entry.

g. A public school that focuses primarily on special education.

Source: Authors' calculations based on data from U.S. Department of Education (2011) and Iowa Department of Education data (2013).

Sample size determination. This report uses sample data to estimate several population parameters, including proportions and means. For all survey items, the study team calculated sample-based estimates of population proportions. Because the goal of the survey was to provide stakeholders with accurate information about online course use in their states, the study team sought to identify a sample size for each state that would limit the standard errors for estimates of proportions to .05. For a stratified random sample from a finite population with proportional allocation, the sample size needed to obtain a given degree of precision for a sample proportion was calculated as follows (Cochran, 1977):

$$n = \frac{\sum W_h P_h (1 - P_h)}{V} \quad \text{(A1)}$$

where W_h is the proportion of schools in the population that are in stratum h; P_h is the population proportion for stratum h; and V is the desired variance of the sample proportion,

which was set equal to $.05^2 = .0025$. The following formula was used to apply the finite population correction to the sample size estimate derived from equation A1:

$$n_{fpc} = \frac{n}{1 + \frac{n}{N}} \quad \text{(A2)}$$

where n is the sample size estimate derived from equation A1, and N is the population size.

By applying equations A1 and A2 and rounding up to the nearest whole number, the study team determined that the study would require a sample of 80 schools from Iowa and 86 schools from Wisconsin to achieve a standard error of .05 under the conservative assumption that $P = .50$ for all strata.[5] Assuming a response rate of 85 percent,[6] 94 Iowa schools and 101 Wisconsin schools would need to be sampled.

An additional complication for sample size determination stemmed from the assumption that not all of the sampled schools would have students enrolled in online courses during the 2012/13 school year, and, therefore, that some schools would respond only to the first survey item. This would decrease the number of participating schools that responded to the remaining items, which would result in a decrease in the precision of estimates made from response data for those items. To achieve the desired standard error of .05 for estimates based on response data for these items, the study team estimated that $n^* = n/r$ schools needed to be sampled, where n is the required sample size estimated using equations A1 and A2 and modified according to the anticipated school response rate of 85 percent and r is the proportion of schools in the state (Iowa or Wisconsin) that enrolled students in online courses in the 2012/13 school year. Although the exact value of r was unknown for both states, a previous survey found that 55 percent of school districts enrolled students in some form of technology-based distance education in 2009/10 (Queen & Lewis, 2011). Assuming that 55 percent of Iowa and Wisconsin schools had students taking online courses in 2012/13 would mean that 170 Iowa schools and 184 Wisconsin schools would need to be sampled.

Revised Iowa and Wisconsin sampling frames. After sampling 170 and 184 schools from Iowa and Wisconsin, respectively, the study team excluded several of these schools because they were not eligible to participate. For Iowa, two middle schools without students in grades 9–12 were excluded. For Wisconsin, eight correctional institutions and three mental health institutions not under the purview of the Wisconsin Department of Public Instruction were excluded, as were five schools that had closed since the 2010/11 information in the Common Core of Data was collected (U.S. Department of Education, 2011). The revised sampling frames are reflected in table A2, along with the number of schools that were randomly sampled from each stratum. The resulting base sampling weights for the schools in each stratum are also presented. The base sampling weights are the population of schools in the strata divided by the number of schools that were sampled. Because the observed values of r for each state (the percentage of responding schools that used online learning) were much higher than the estimate of .55 reported in Queen and Lewis (2011) and used in the calculations of required sample sizes for this study, the sample sizes were sufficient to achieve the desired standard errors, even after excluding the ineligible schools.

Table A2. Sample sizes and base sampling weights for Iowa and Wisconsin by school locale, 2012/13

Locale	Iowa			Wisconsin		
	Revised sampling frame[a]	Sample size	Base sampling weight	Revised sampling frame[b]	Sample size	Base sampling weight
City or suburban[c]	56	25	2.24	202	53	3.81
Town[d]	97	42	2.31	109	33	3.30
Rural[e]	230	101	2.28	274	82	3.34
Total	383	168	na	585	168	na

na is not applicable.

a. Revised sampling frame after excluding two middle schools without students in grades 9, 10, 11, or 12.

b. Revised sampling frame after excluding eight correctional institutions, three mental health institutions, and five closed schools.

c. Schools classified as city-large, city-midsize, city-small, suburb-large, suburb-midsize, or suburb-small.

d. Schools classified as town-fringe, town-distant, or town-remote.

e. Schools classified as rural-fringe, rural-distant, or rural-remote.

Source: Authors' calculations based on data from U.S. Department of Education (2011) and Iowa Department of Education data (2013).

Analytic sample. To be included in the analysis, schools had to complete the consent form and at least the first question on the survey. The percentages of responding schools in each locale were similar to the population percentages for Iowa (table A3), but Wisconsin had a smaller percentage of city or suburban schools in the sample (28 percent) compared with the population (35 percent; table A4). The presence of locale nonresponse bias in Wisconsin was confirmed with the unit nonresponse bias analysis described in the data processing and analysis section.

Table A3. Iowa population and respondent characteristics, 2012/13

Locale	Respondent		Population	
	Number of schools	Percentage	Number of schools	Percentage
City or suburban[a]	15	13	56	15
Town[b]	29	25	97	25
Rural[c]	73	62	230	60
Total	117	100	383	100

a. Schools classified as city-large, city-midsize, city-small, suburb-large, suburb-midsize, or suburb-small.

b. Schools classified as town-fringe, town-distant, or town-remote.

c. Schools classified, as rural-fringe, rural-distant, or rural-remote.

Source: Authors' calculations based on data from U.S. Department of Education (2011) and Iowa Department of Education data (2013).

Table A4. Wisconsin population and respondent characteristics, 2012/13

Locale	Respondent		Population	
	Number of schools	Percentage	Number of schools	Percentage
City or suburban[a]	27	28	202	35
Town[b]	21	22	109	19
Rural[c]	48	50	274	47
Total	96	100	585	100

a. Schools classified as city-large, city-midsize, city-small, suburb-large, suburb-midsize, or suburb-small.

b. Schools classified as town-fringe, town-distant, or town-remote.

c. Schools classified as rural-fringe, rural-distant, or rural-remote.

Source: Authors' calculations based on data from U.S. Department of Education (2011) and Iowa Department of Education data (2013).

Data sources, instruments, and collection methods

The state education agencies of Iowa and Wisconsin administered state-specific versions of an online-course-use survey to their schools to gather information from the 2012/13 school year about how schools were using online courses for their students, the reasons they were using online courses, the challenges they faced, and the types of support mechanisms they offered students enrolled in online courses. (See appendix B for the survey administered in Wisconsin.)

Data collection instruments. The survey development process consisted of developing an initial draft by adapting items from existing surveys where possible and writing new items when needed; receiving feedback from content experts, researchers with survey development expertise, and representatives from Iowa and Wisconsin with expertise in online learning; making an initial set of revisions; and conducting a series of cognitive interviews with staff members from a sample of nine high schools in Iowa and nine high schools in Wisconsin to gather feedback on the draft.

The study team drew on three existing surveys (California Learning Resource Network, 2012; Picciano & Seaman, 2009; Queen & Lewis, 2011) and modified these items as needed to reflect the context of Iowa and Wisconsin and the target respondents (that is, school personnel rather than district personnel). The three surveys could not be used directly because they did not address all of the research questions of interest, were designed to collect district rather than school data, and did not reflect the current state of virtual education because they were administered between four and six years ago. New items were developed based on the academic literature (de la Varre, Keane, & Irvin, 2010; Hannum et al., 2008; Irvin et al., 2009), Iowa Learning Online and Wisconsin Virtual School policies, and the International Association for K–12 Online Learning's online teaching standards, 2011). These items collect information on the frequency and the ways that schools monitor student progress, the presence of an onsite monitor, the personnel who serve as onsite monitors, and the amount of training that onsite monitors receive.

After developing the initial draft of the survey, the study team established the content validity of the survey items by reviewing the literature, engaging in expert review and feedback, and performing cognitive interviews with educators in each state. The cognitive interviewing methodology used standardized probes to elicit feedback from participants

about the survey's language, comprehensibility, ambiguity, relevance, and comprehensiveness (Beatty & Willis, 2007). The goal of the cognitive interviews was to reduce potential sources of response error by identifying and correcting potential problems in the survey questions prior to conducting a large-scale survey. Cognitive interviews were conducted with school staff members in Iowa and Wisconsin (nine in each state). The study team used this information to further refine the survey items. After obtaining additional feedback from content experts and representatives from the state departments of education, the study team finalized the survey for each state.

Data collection methods. The Iowa Department of Education and the Wisconsin Department of Public Instruction administered the state-specific surveys electronically through secure online survey systems over a period of eight weeks. To provide accurate information for the prior year (that is, the 2012/13 school year), the survey was administered at the beginning of the 2013/14 school year. The intended respondent at each school was the staff person most familiar with the school's online learning program. The Iowa Department of Education and the Wisconsin Department of Public Instruction sent principals in the target schools an email that described the purpose of the study and asked them to forward the email to the staff member responsible for overseeing the virtual education program at their school. If multiple staff members at the same school were responsible for different types of online learning (for example, one person may be responsible for credit recovery courses while another is responsible for Advanced Placement courses), the state agencies encouraged the person completing the survey to gather information from all other staff members responsible for online learning to provide a comprehensive summary of online learning in each school.

In alignment with statistical standards from the National Center for Education Statistics (2002), the target response rate for this survey was 85 percent. To attain this response rate, the state agencies and the study team designed comprehensive support and follow-up systems. Reminder emails were sent approximately every two weeks of the eight-week period to schools that had not completed the survey, and each nonresponding school received up to two reminder phone calls during the final three weeks.

Data processing and analysis

After the state departments of education collected the survey data, the study team cleaned the data to ensure that the analytic sample included only schools that had provided consent and responded to at least the first item on the survey. The study team then calculated the weighted unit nonresponse rate for each state separately. Because the unit nonresponse rate for each state was greater than 15 percent, the study team conducted a unit nonresponse bias analysis based on statistical standards from the National Center for Education Statistics (2002). The unit nonresponse bias analysis was conducted separately for each state by creating a dichotomous variable that indicated response status (1 = response, 0 = nonresponse) and regressing it on the school characteristics available in the Common Core of Data file: school locale (city or suburban, town, or rural), school type (regular or other), total enrollment, and the percentage of students eligible for free- or reduced-price lunch. The base sampling weights were used in the nonresponse bias analysis.

The significant predictors of unit nonresponse for each state (school type for Iowa and school locale for Wisconsin) were then included in final nonresponse propensity models

from which the nonresponse weights were determined. Specifically, the nonresponse weight for each school is equal to the inverse of the estimated probability of response. The study team then adjusted the base sampling weights for nonresponse by multiplying each school's base sampling weight by its nonresponse weight. The nonresponse-adjusted base sampling weights were used to calculate the descriptive statistics for each state.

The study team then summarized the data by calculating totals, means, minimums, maximums, frequencies, and standard errors, as appropriate. Descriptive statistics were calculated using the R survey package, which allowed for the incorporation of the nonresponse-adjusted base weights, the locale stratification variable, and a finite population correction. The Iowa and Wisconsin data were analyzed separately, with the appropriate weights applied to produce statewide estimates.

Schools that did not enroll students in online courses during the 2012/13 school year may not have responded to the survey. Of the 117 high schools in Iowa that responded to the survey (overall response rate = 70 percent), only 5 reported that they did not use online learning (weighted percentage = 6 percent). Of the 96 responding high schools in Wisconsin (overall response rate = 57 percent), 10 indicated that they did not use online courses (weighted percentage = 10 percent).

Two factors led the report authors and their collaborators (Iowa Department of Education and Wisconsin Department of Public Instruction) to determine that the true percentages of schools in Iowa and Wisconsin that did not use online courses were unlikely to be as low as reported. First, communications from the Iowa Department of Education and the Wisconsin Department of Public Instruction to the sampled schools, developed in collaboration with the study team, stated that the survey was about online course use in schools, and that the schools' participation would help the state education agencies understand how online courses are being used in the state. This language may have influenced nonresponse from schools that did not use online courses. Second, the percentages of schools in Iowa and Wisconsin that reported not using online courses were markedly lower than reported in a nationally representative survey of U.S. school districts conducted by the National Center for Education Statistics during the 2009/10 school year (Queen & Lewis, 2011). At that time, 47 percent of school districts reported enrolling students in online courses. In light of these issues, the authors and their collaborators concluded that it was not possible to calculate reliable estimates of the percentage of schools not using online courses and the reasons they chose not to use online courses.

Appendix B. Example survey instrument

This appendix contains the consent form, instructions, and survey items from the Wisconsin online course use survey. The Iowa version of the survey has only minor differences in language needed to reflect proper names and other terminology specific to the state.

Consent form

The Wisconsin Department of Public Instruction (DPI) is conducting a survey to gather information about how online courses are being used in Wisconsin public schools. This survey is critical to State Superintendent's Digital Learning Plan, which is a collaborative effort of the statewide Digital Learning Advisory Council (DLAC). Your participation in the study will provide Wisconsin DPI with important information that they can use to better understand how schools are using online courses as part of their educational program across the state. DPI is conducting this study in collaboration with the U.S. Department of Education. The results of this study will also be published by the U.S. Department of Education (US DoE). Neither Wisconsin DPI nor the US DoE will penalize or reward you or your school based on your responses to the survey.

- The survey asks about how online courses were used in your school in the 2012–13 school year and will take approximately 15 minutes to complete.
- Any information you provide will be maintained in a secure manner. Your responses will be collected through a secure survey delivery system and only authorized project staff will have access to the study data.
- Reports about the survey will not include any information about individuals or individual schools; the data will be combined with data from other schools in Wisconsin to describe the overall profile of how Wisconsin public schools are using online courses.
- As with any online activity, there is a slight risk that your answers could be accessed by someone. To minimize this possibility, data will be stored on encrypted and password-protected drives that are kept in a locked cabinet when not in use.
- Completing the survey is voluntary. You may skip any questions you do not want to answer or stop at any time.

Please enter your full name below:

By clicking "I agree" below, you are indicating that you have read and understood this consent form and agree to participate in this research study. You may print a copy of this page for your records.

- I Agree.
- I Do Not Agree.

If I Do Not Agree is selected, then skip to end of survey.

The purpose of this survey is to gather information about online course use in Wisconsin public high schools. While participation in this survey is voluntary, your cooperation is critical to making the results of this survey comprehensive, accurate and timely. Your answers will be used only for statistical purposes and will not be disclosed or used in identifiable

form for any other purpose. This electronic survey will be administered to personnel in Wisconsin public high schools. It will take approximately 15 minutes to complete.

Please complete the following information:

- School Name.
- School District.
- Your Title/Position at the School.

Instructions

1. Please report information for your school only.

2. Report information only for students enrolled in your school, regardless of where the courses they take originated.

3. You will be asked about numbers of student enrollments and numbers of online courses. You may have to work with other staff members at your school to ensure a complete report of online learning in your school.

4. The time frame for this survey is the 12-month 2012–13 school year. This includes online learning courses taken during the summer of 2012 or the summer of 2013, depending on how records are kept at your school. References to "2012–13" in the survey questions refer to this 12-month school year.

5. The following definition of online learning applies to all questions on the survey.

Definition of online learning

Education in which instruction and content are delivered primarily over the Internet. The term does not include print-based correspondence education, broadcast television or radio, CDs or videocassettes, or stand-alone educational software programs that do not have a significant Internet-based instructional component.

For the purposes of this survey, exclude:

- Supplemental course materials, virtual field trips, online homework, classes taught exclusively via videoconferencing technology.
- Technology-assisted courses that are primarily taught by a classroom-based instructor (i.e., blended learning or hybrid learning).
- Test preparation courses that are not credit-granting.
- Courses conducted mainly via written correspondence.

For the purposes of this survey, include any of the following if they meet the online learning definition and are credit-granting courses that:

- Have a teacher/assistant in the room who monitors but gives little or no instruction to the students (e.g., course taken entirely on a computer in a lab supervised by a teacher who does not provide instruction).
- Include occasional face-to-face interactions between the course instructor and the students (e.g., a teacher teaching a course at several schools via computer

technology may rotate between schools, or the instructor and students may be in the same location for orientation or occasional lab work or tests).
- Originate from your district or from other entities (e.g., a state virtual school or a postsecondary institution).
- Are taken by students in school, at home, or in some other location.
- Are taken by students to continue coursework while temporarily unable to attend school (e.g., while on home or hospital instruction, or on extended travel for personal or family reasons).
- Are taken for credit or grade recovery.
- Are taken for Advanced Placement credit or for college-level or dual credit. Dual credit college-level courses are courses for which students receive both high school and college credits.

Online-course-use survey items

1a. In school year 2012–13, were any students in your school enrolled in online courses?
- Yes.
- No.

If Yes is selected, then skip to Q2.

If No is selected, then skip to Q1b.

1b. In school year 2012–13, what influenced your school's decision not to offer online courses to students? (Check all that apply)
- Lack of funding.
- Concern over course quality.
- Concern over alignment with Common Core State Standards.
- Concern over academic dishonesty.
- Lack of teacher training.
- Lack of training for staff other than teachers.
- Limited access to technology.
- Lack of state guidance.
- Lack of bandwidth or network issues.
- Lack of administrative leadership.
- Lack of student interest.
- Restrictive state policies.
- Restrictive local policies.
- Do not see a need to offer online courses.
- Not aware of any available online courses.
- Don't know.
- Other, please specify: _____

Then skip to end of survey

2. For school year 2012–13, report the number of online courses taken by students in your school. (e.g., English 9, Biology II, Advanced Placement Statistics)
   - Only include credit-granting courses.
   - Do not include information for supplemental course materials, virtual field trips, online homework, technology-assisted or blended courses, or courses conducted mainly via written correspondence.

3. For school year 2012–13, report the number of students in your school who were enrolled in online courses.
   - An unduplicated count in which each student is counted only once, regardless of the number of courses in which he/she was enrolled.
   - Include all students who enrolled whether or not the student completed the course.

4. For school year 2012–13, report the number of enrollments in online courses for your school.
   - The number of enrollments may include duplicated counts of students. A student should be counted for each course in which he/she was enrolled.
   - Include all enrollments whether or not the student completed the course.

5. For each box, report the number of enrollments in each of the following course categories.
   - Core courses (not taken for credit recovery).
   - Advanced Placement (AP) courses.
   - Credit recovery courses.
   - Dual credit/College courses.
   - Elective courses (not core, AP, credit recovery, or dual credit/college courses).
   - Other types of courses.

6. For each box, report the number of enrollments in each of the following academic areas.
   - Math.
   - Science.
   - English/Language Arts.
   - History/Social Studies.
   - Vocational/Technical.
   - World Language.
   - Health/Physical Education.
   - Fine Arts.
   - Other academic areas.

7. How important were the following reasons for having online courses in your school in 2012–13? (Check one on each line.)

	Not Important	Somewhat Important	Very Important	Don't Know
To provide courses not otherwise available at the school				
To offer Advanced Placement (AP) or college-level courses				
To reduce scheduling conflicts for students				
To provide opportunities for students to recover course credits from classes they missed or failed				
To provide opportunities for students to accelerate credit accumulation for early graduation				
To address school space limitations				
To provide courses to students who are unable to attend due to medical or correctional reasons				
To provide students with access to an alternative learning environment				
To provide course options where certified teachers are not available for face-to-face instruction				
To provide students the opportunity to earn college credits while in high school				
To personalize student learning				
To fulfill online course requirements for graduation				
Other, please specify:				

8. In school year 2012–13, what challenges did your school face in implementing its online learning program? (Check all that apply.)
   - Lack of funding.
   - Concern over course quality.
   - Concern over academic dishonesty.
   - Lack of teacher training.
   - Lack of training for staff other than teachers.
   - Limited access to technology.
   - Lack of state guidance.
   - Lack of bandwidth or network issues.
   - Lack of administrative leadership.
   - Lack of student interest.
   - Restrictive state policies.
   - Restrictive local policies.
   - No challenges.
   - Don't know.
   - Other, please specify: _____

9. In school year 2012–13, which of the following education institutions provided online courses to students in your school? (Check all that apply)
   - Your district (i.e., provided centrally from your district).
   - Another school or school district.
   - Cooperative Educational Service Agency (i.e., CESA), not including CESA 9.
   - Wisconsin Virtual School/CESA 9.
   - Wisconsin eSchool Network.
   - State virtual school in another state.
   - Postsecondary institution in the United States (e.g., community college).
   - Don't know.
   - None of the above.

10. In school year 2012–13, did your school work directly with an independent vendor to provide online courses to students (e.g., K12 Inc., Connections, etc.)?
   - Yes.
   - No.
   - Don't know.

   If Yes is selected, then skip to Q11.

   If No is selected, then skip to Q12.

   If Don't know is selected, then skip to Q12.

11. In school year 2012–13, with which of the following companies did your school work? (Check all that apply.)
   - Accelerate Education.
   - Acellus.
   - Advanced Academics.
   - ALEKS.
   - American School.
   - Apex Learning.
   - Aventa (now K12 Inc.).
   - Calvert School.
   - Class.com.
   - Connections Academy (Pearson).
   - Cyber High.
   - Education 2020.
   - Florida Virtual School.
   - K12 Inc.
   - NovaNET.
   - Odysseyware.
   - Rosetta Stone.
   - Penn Foster.
   - Plato Learning.
   - Other, please specify: _____
   - Don't know.

12. In school year 2012–13, did students in your school who were enrolled in online courses have the opportunity to communicate with an online instructor?
    - Yes, in all courses.
    - Yes, in some courses.
    - No.

    If Yes, all students is selected, then skip to Q13.

    If Yes, some students is selected, then skip to Q13.

    If No is selected, then skip to Q14.

    [Note that answers refer to courses whereas directions refer to students.]

13. In what ways could students communicate with the online instructor?

	No courses	Some courses	Most courses	All courses	Don't know
Email					
Instant messaging/Chat					
Video					
Phone					
Discussion board					
Other, please specify:					

14. In school year 2012–13, did students in your school who were enrolled in online courses have the opportunity to communicate with other students in their courses?
    - Yes, in all courses.
    - Yes, in some courses.
    - No.

    If Yes, all students is selected, then skip to Q15.

    If Yes, some students is selected, then skip to Q15.

    If No is selected, then skip to Q16.

15. In what ways did students communicate with other students in their online courses?

	No courses	Some courses	Most courses	All courses	Don't know
Email					
Instant messaging/Chat					
Video					
Phone					
Discussion board					
Other, please specify:					

16. In school year 2012–13, did your school monitor student progress in online courses in any of the following ways? (Check one on each line.)

	Yes, for all students	Yes, for most students	Yes, for some students	No
Attendance report				
Log-on activity				
Time spent online				
Completion and submission of assignments				
Interim course grades				
Final grade report				
Percentage of course completed				
Other, please specify:				

An on-site monitor (i.e., "local education guide" [LEG], facilitator or mentor) is a school staff member who has been designated to work face-to-face with an online student to monitor student progress and provide the student with guidance and supervision.

17. In school year 2012–13, were students in your school who were enrolled in online courses assigned on-site monitors?
    - Yes, always.
    - Yes, sometimes.
    - No, never.

    If Yes, always is selected, then skip to Q19.

    If Yes, sometimes is selected, then skip to Q18.

    If No, never is selected, then skip to end of Survey.

18. Which of the following factors determined whether an on-site monitor was assigned? (Check all that apply.)
    - Requirement of the course provider.
    - Requirement of the school or school district.
    - Characteristics of the student.
    - Course subject (e.g., English, science, math, etc.).
    - Type of course (e.g., Advanced Placement [AP], credit recovery, etc.).
    - Staff availability.
    - Other, please specify: _____

19. Which of the following school personnel serve as on-site monitors in your school? (Check all that apply.)
    - Classroom teachers.
    - Principal.
    - Assistant principals.
    - Counselors.
    - Librarians.
    - Paraprofessionals/Aides.
    - Curriculum director.
    - At-risk coordinator.
    - School psychologist/Social worker.
    - Other, please specify: _____

20. Do on-site monitors in your school receive training for this role?
    - Yes, always.
    - Yes, sometimes.
    - No, never.
    - Don't know.

    If Yes, always is selected, then skip to Q21.

    If Yes, sometimes is selected, then skip to Q21.

    If No, never is selected, then skip to Q23.

    If Don't know is selected, then skip to Q23.

21. When on-site monitors in your school receive training, how many hours of training do they receive?
    - Less than 1 hour.
    - 1–2 hours.
    - 3–4 hours.
    - 5–8 hours.
    - More than 8 hours.
    - Don't know.

22. When on-site monitors in your school receive training, how much training do they receive in each of the following areas?

	None	Less than 1 hour	1–2 hours	3–4 hours	5–8 hours	More than 8 hours	Don't know
Training specific to learning online							
Training in specific course content							
Training in student enrollment/registration							
Training in who to contact with concerns or questions							
Training in using an online learning management system							

23. Do you serve as an on-site monitor for students in your school?
    - Yes.
    - No.

    If No is selected, then skip to end of survey

24. In your role as an on-site monitor, approximately how often do you perform each of the following activities? (Please complete each item.)

	Never	Once per course	Twice per course	Once per month	Once per 2 weeks	Once per week	2–3 times per week	4–5 times per week
Review student log-in activity								
Review student completion and submission of assignments								
Review student grades								
Review student pacing of coursework								
Provide a progress report to parents								
Discuss progress and performance with the student								
Discuss student progress and performance with the online instructor								

Appendix C. Iowa supplemental statistical tables

This appendix details the results of the online-course-use survey administered by the Iowa Department of Education (2013). For each survey item, the statistical tables include the total number of respondents who responded to each item along with the weighted estimates of state-level statistics, including the percentage of respondents who endorsed each response option, and the associated standard errors.[7] For items that asked respondents to report the number of student enrollments in online courses by academic purpose or academic domain, the weighted percentages of schools that reported at least one enrollment in each category are reported along with the associated standard errors.

Table C1. Percentage of responding Iowa high schools that used online courses in 2012/13 to address each academic objective

Academic objective	Percent	Standard error	Total number of respondents
Credit recovery courses	71	4.2	87
Core courses (not taken for credit recovery)	57	4.6	87
Dual credit/college courses	56	4.5	87
Elective courses (not core, credit, Advanced Placement, credit recovery or dual credit/college courses)	41	4.6	87
Advanced Placement courses	26	3.9	88
Other types of courses	5	2.0	87

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C2. Percentage of responding Iowa high schools that used online courses in 2012/13 in each academic domain

Academic domain	Percent	Standard error	Total number of respondents
History/social studies	92	2.4	82
English language arts	81	3.9	82
Science	78	4.1	82
Math	73	4.3	82
Health/physical education	55	4.7	82
Vocational/technical	46	4.7	82
World language	29	4.2	82
Fine arts	25	3.9	82
Other academic areas	18	3.5	82

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C3. Reasons for using online courses in 2012/13 in responding Iowa high schools

Reason	Not important		Somewhat important		Very important		Don't know		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	
To provide opportunities for students to recover course credits from classes they missed or failed	11	2.7	23	3.9	66	4.3	na	na	92
To provide students with access to an alternative learning environment	13	2.9	44	4.4	42	4.4	1	0.8	92
To provide courses not otherwise available at the school	19	3.5	23	3.9	58	4.4	na	na	91
To personalize student learning	20	3.4	54	4.4	26	4.0	na	na	92
To reduce scheduling conflicts for students	25	3.9	45	4.4	30	4.2	na	na	92
To provide students the opportunity to earn college credits while in high school	31	4.3	26	3.8	43	3.9	na	na	92
To provide opportunities for students to accelerate credit accumulation for early graduation	37	4.3	45	4.5	18	3.3	na	na	92
To offer Advanced Placement or college-level courses	36	4.4	27	4.0	35	4.1	2	1.2	92
To provide courses to students who are unable to attend due to medical or correctional reasons	42	4.2	42	4.4	16	3.2	na	na	92
To provide course options where certified teachers are not available for face-to-face instruction	48	4.4	30	4.1	21	3.6	1	0.8	92
To fulfill online course requirements for graduation	73	4.0	11	2.8	13	3.1	3	1.5	91
To address school space limitations	83	3.4	9	2.5	7	2.6	na	na	92

na is not applicable because no respondents selected the option.

Note: Percentages may not sum to 100 because of rounding.

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C4. Percentage of responding Iowa high schools that reported challenges related to online course use in 2012/13

Challenge	Percent	Standard error	Total number of respondents
Lack of teacher training	61	2.0	92
No challenges	33	4.1	92
Concern about course quality	32	4.3	92
Limited access to technology	24	4.0	92
Concern about academic dishonesty	22	3.9	92
Lack of bandwidth or network issues	15	3.1	92
Lack of funding	13	3.1	92
Lack of student interest	12	3.1	92
Lack of training for other staff	11	3.0	92
Lack of state guidance	7	2.2	92
Don't know	5	1.9	92
Restrictive state policies	3	1.5	92
Lack of administrative leadership	2	1.2	92
Restrictive local policies	1	0.8	92

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C5. Percentage of responding Iowa high schools that used education institutions to provide online courses in 2012/13

Education institution source	Percent	Standard error	Total number of respondents
Postsecondary institution	61	4.4	92
Your district	57	4.3	92
State virtual school in your state	33	4.2	92
None of the above	8	2.7	92
Another school or district	5	1.9	92
State virtual school in another state	4	1.7	92

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C6. Percentage of responding Iowa high schools that used independent vendors to provide online courses in 2012/13

	Yes		No		Don't know		Total number of respondents
Item	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Used independent vendor	74	3.8	23	3.6	3	1.5	92

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C7. Percentage of responding Iowa high schools using independent vendors to provide online courses in 2012/13, by vendor

Independent vendor	Percent	Standard error	Total number of respondents
Education 2020	50	5.2	67
Odysseyware	22	4.6	67
Apex Learning	17	4.0	67
Plato Learning	15	3.5	67
Rosetta Stone	6	2.3	67
Other	6	2.3	67
ALEKS	1	1.2	67
Don't know	1	1.2	67

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C8. Percentage of responding Iowa high schools reporting that students had the opportunity to communicate with an online instructor in 2012/13

	Yes, in all courses		Yes, in some courses		No		Total number of respondents
Item	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Opportunity to communicate with online instructor	26	3.8	48	4.4	26	4.1	92

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C9. Percentage of responding Iowa high schools reporting various types of student–online teacher communication opportunities in 2012/13

	No courses		Some courses		Most courses		All courses		Don't know		Total number of respondents
Type of communication	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Email	na	na	28	4.4	33	4.6	35	4.6	4	2.0	72
Instant messaging/chat	14	3.7	40	5.1	6	2.6	6	2.6	33	5.0	63
Video	33	4.9	31	4.8	5	2.2	2	1.3	30	4.8	64
Phone	16	3.7	40	5.0	13	3.4	19	4.0	12	3.3	68
Discussion board	6	2.4	37	4.9	25	4.5	18	3.9	13	3.5	67

na is not applicable because no respondents selected the option.

Note: Percentages may not sum to 100 because of rounding.

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C10. Percentage of responding Iowa high schools reporting that students in online courses in 2012/13 had the opportunity to communicate with other students

Item	Yes, in all courses		Yes, in some courses		No		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Opportunity to communicate with other students	15	3.0	62	4.5	24	4.2	90

Note: Percentages may not sum to 100 because of rounding.

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C11. Percentage of responding Iowa high schools reporting various types of student–student communication opportunities in online courses in 2012/13

Type of communication	No courses		Some courses		Most courses		All courses		Don't know		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Email	11	3.1	41	4.9	18	3.8	17	3.6	13	3.3	71
Instant messaging/chat	21	4.2	30	4.7	11	3.2	6	2.5	32	4.8	66
Video	41	5.0	20	4.0	3	1.8	2	1.3	35	4.9	66
Phone	36	5.0	18	3.9	6	2.4	2	1.3	38	5.0	66
Discussion board	14	3.5	37	4.8	29	4.5	14	3.5	6	2.3	70

Note: Percentages may not sum to 100 because of rounding.

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C12. Percentage of responding Iowa high schools that monitored student progress in online courses in 2012/13

Monitoring activity	Yes, for all students		Yes, for most students		Yes, for some students		No		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Attendance report	48	4.5	16	3.2	18	3.4	18	3.3	89
Log-on activity	48	4.5	22	3.6	16	3.1	15	3.3	90
Time spent online	40	4.4	24	3.9	20	3.6	16	3.1	90
Completion and submission of assignments	59	4.3	19	3.3	12	2.8	10	2.6	90
Interim course grades	63	4.5	21	3.6	13	3.3	3	1.6	86
Final grade report	85	3.1	10	2.5	4	1.8	1	0.9	88
Percentage of course completed	57	4.4	21	3.6	11	2.8	10	2.6	90

Note: Percentages may not sum to 100 because of rounding.

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C13. Percentage of responding Iowa high schools that assigned onsite monitors for students in online courses in 2012/13

Item	Yes, always		Yes, sometimes		No		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Onsite monitor assigned	52	4.4	35	4.1	13	3.2	92

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C14. Percentage of responding Iowa high schools reporting various factors that determined whether schools assigned onsite monitors in 2012/13

Factor	Percent	Standard error	Total number of respondents
Characteristics of the student	52	7.2	33
Type of course	49	7.3	33
Staff availability	48	7.2	33
Course subject	21	5.9	33
Requirement of the course provider	21	5.9	33
Requirement of the school or district	18	5.6	33
Other	3	2.5	33

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C15. Percentage of responding Iowa high schools reporting various types of school personnel serving as onsite monitors in 2012/13

Personnel	Percent	Standard error	Total number of respondents
Classroom teachers	62	4.6	80
Counselors	58	4.8	80
At-risk coordinator	43	4.8	80
Paraprofessionals/aides	27	4.4	80
Principal	26	4.2	80
Librarians	12	3.0	80
Assistant principals	10	2.9	80
Other	10	3.0	80
Curriculum director	1	1.0	80
School psychologist/social worker	na	na	80

na is not applicable because no respondents selected the option.

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C16. Percentage of responding Iowa high schools in which onsite monitors received training in 2012/13

Item	Yes, always		Yes, sometimes		No, never		Don't know		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Onsite monitors received training	34	4.5	46	4.8	17	3.3	4	1.7	79

Note: Percentages may not sum to 100 because of rounding.

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C17. Hours of training received by on-site monitors in responding Iowa high schools in 2012/13

Item	Less than 1 hour		1–2 hours		3–4 hours		5–8 hours		More than 8 hours		Don't know		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Hours of onsite monitor training	17	3.9	29	4.9	27	4.9	11	3.7	5	2.2	12	3.8	62

Note: Percentages may not sum to 100 because of rounding.

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C18. Hours of training received by onsite monitors in responding Iowa high schools by training area in 2012/13

Training area	None		Less than 1 hour		1–2 hours		3–4 hours		5–8 hours		More than 8 hours		Don't know		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Training specific to learning online	9	3.6	38	5.1	28	5.0	17	4.6	2	1.3	na	na	6	2.5	61
Training in specific course content	38	5.5	31	5.2	16	3.9	6	3.2	na	na	2	1.3	8	2.8	60
Training in student enrollment/ registration	9	3.0	40	5.5	42	5.6	5	3.0	na	na	na	na	3	1.8	61
Training in who to contact with concerns or questions	8	2.9	66	5.4	19	4.6	5	3.0	na	na	na	na	2	1.3	60
Training in using an online learning management system	3	1.8	50	5.7	34	5.3	11	3.8	na	na	2	1.3	na	na	60

na is not applicable because no respondents selected the option.

Note: Percentages may not sum to 100 because of rounding.

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C19. Percentage of Iowa respondents who served as onsite monitors in 2012/13

Item	Percent	Standard error	Total number of respondents
Served as an onsite monitor	51	4.9	80

Source: Authors' analysis based on Iowa Department of Education data (2013).

Table C20. Frequency with which responding Iowa onsite monitors completed monitoring activities in 2012/13

Training area	Never		Once per course		Twice per course		Once per month		Once per 2 weeks		Once per week		2–3 times per week		4–5 times per week		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Review student log-in activity	15	5.4	5	2.8	2	2.0	19	5.2	12	5.2	19	5.1	12	4.2	15	5.4	38
Review student completion and submission of assignments	5	2.8	5	2.8	2	2.0	27	5.9	12	5.2	10	3.9	14	4.5	25	6.6	38
Review student grades	na	na	5	2.8	10	3.8	24	5.7	5	2.8	27	6.4	7	3.3	22	6.5	38
Review student pacing of coursework	7	3.3	2	2.0	2	2.0	27	6.0	2	2.0	27	6.4	10	3.8	22	6.5	38
Provide a progress report to parents	24	6.2	12	5.2	22	5.5	25	6.2	7	3.3	5	2.8	na	na	5	2.8	38
Discuss progress with the student	na	na	5	2.8	12	4.3	22	5.5	22	6.0	20	5.8	7	3.3	12	5.2	38
Discuss student progress with the online instructor	48	7.2	17	5.0	10	4.0	12	4.4	2	2.0	5	2.9	na	na	5	2.9	37

na is not applicable because no respondents selected the option.

Note: Percentages may not sum to 100 because of rounding.

Source: Authors' analysis based on Iowa Department of Education data (2013).

Appendix D. Wisconsin supplemental statistical tables

The results of the online course use survey administered by the Wisconsin Department of Public Instruction (2013) are shown here. For each survey item, the statistical tables include the total number of respondents who responded to each item along with the weighted estimates of state-level statistics, including the percentage of respondents who endorsed each response option, and the associated standard errors.[8] For questions that asked respondents to report the number of student enrollments in online courses by academic purpose or academic domain, the weighted percentages of schools that reported at least one enrollment in each category are reported along with the associated standard errors.

Table D1. Percentage of responding Wisconsin high schools that used online courses in 2012/13 to address each academic objective

Academic objective	Percent	Standard error	Total number of respondents
Core courses (not taken for credit recovery)	73	4.8	74
Credit recovery courses	66	5.2	74
Elective courses (not core, credit, Advanced Placement, credit recovery or dual credit/college courses)	61	5.3	74
Advanced Placement courses	35	5.2	74
Dual credit/college courses	10	3.1	74
Other types of courses	4	2.2	74

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D2. Percentage of responding Wisconsin high schools that used online courses in 2012/13 in each academic domain

Academic domain	Percent	Standard error	Total number of respondents
Math	81	4.4	72
English language arts	76	4.7	72
History/social studies	73	4.9	72
Science	64	5.3	72
World language	53	5.5	72
Health/physical education	48	5.5	72
Vocational/technical	40	5.3	72
Other academic areas	21	4.5	72
Fine arts	17	3.8	72

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D3. Reasons for using online courses in 2012/13 in responding Wisconsin high schools

Reason	Not important		Somewhat important		Very important		Don't know		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	
To provide opportunities for students to recover course credits from classes they missed or failed	7	3.0	29	4.9	60	5.3	4	1.9	75
To provide courses not otherwise available at the school	10	3.3	28	4.8	60	5.3	2	1.6	75
To reduce scheduling conflicts for students	14	3.6	44	5.2	42	5.1	na	na	75
To provide students with access to an alternative learning environment	18	4.2	32	4.9	47	5.4	2	1.6	75
To personalize student learning	22	4.5	33	5.0	43	5.4	2	1.6	75
To provide courses to students who are unable to attend due to medical or correctional reasons	25	4.7	38	5.2	33	4.9	4	1.9	75
To offer Advanced Placement or college-level courses	40	5.1	23	4.4	34	5.0	4	2.2	75
To provide course options where certified teachers are not available for face-to-face instruction	39	5.3	31	5.0	25	4.7	5	2.2	75
To provide students the opportunity to earn college credits while in high school	42	5.2	42	5.0	14	3.7	2	1.6	75
To provide opportunities for students to accelerate credit accumulation for early graduation	53	5.3	30	4.8	15	3.9	2	1.6	75
To fulfill online course requirements for graduation	72	4.9	14	3.9	9	3.1	5	2.2	74
To address school space limitations	75	4.7	15	4.0	7	2.9	2	1.6	75

na is not applicable because no respondents selected the option.

Note: Percentages may not sum to 100 because of rounding.

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D4. Percentage of responding Wisconsin high schools that reported challenges related to online course use in 2012/13

Challenge	Percent	Standard error	Total number of respondents
Concern about course quality	37	5.1	75
Lack of funding	26	4.8	75
Lack of student interest	23	4.6	75
Lack of teacher training	21	4.4	75
Concern about academic dishonesty	20	4.1	75
Limited access to technology	20	4.3	75
No challenges	14	3.6	75
Lack of bandwidth or network issues	15	3.7	75
Lack of training for other staff	11	3.2	75
Lack of administrative leadership	10	3.2	75
Restrictive local policies	9	3.2	75
Lack of state guidance	7	2.7	75
Restrictive state policies	5	2.4	75
Don't know	3	1.9	75

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D5. Percentage of responding Wisconsin high schools that used education institutions to provide online courses in 2012/13

Education institution source	Percent	Standard error	Total number of respondents
Your district	44	5.3	75
Wisconsin Virtual School/CESA 9	44	5.3	75
Postsecondary institution	15	3.6	75
None of the above	13	3.7	75
Another school or district	12	3.5	75
Cooperative Educational Service Agency (CESA)	10	3.0	75
Wisconsin eSchool Network	10	3.3	75
State virtual school in another state	4	1.9	75
Don't know	1	1.2	75

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D6. Percentage of responding Wisconsin high schools that used independent vendors to provide online courses in 2012/13

	Yes		No		Don't know		Total number of respondents
Item	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Used independent vendor	54	5.3	42	5.2	4	2.0	75

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D7. Percentage of responding Wisconsin high schools using independent vendors to provide online courses in 2012/13, by vendor

Independent vendor	Percent	Standard error	Total number of respondents
Odysseyware	45	7.1	43
ALEKS	22	6.0	43
Plato Learning	22	6.0	43
Aventa (now K12 Inc.)	19	5.4	43
Other	17	5.4	43
Apex Learning	16	5.0	43
Rosetta Stone	12	4.8	43
Education 2020	10	4.4	43
Calvert School	7	3.5	43
K12 Inc.	4	2.8	43
Florida Virtual School	2	2.1	43
NovaNET	2	2.1	43
Acellus	2	2.1	43
Don't know	2	2.1	43

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D8. Percentage of responding Wisconsin high schools reporting that students had the opportunity to communicate with an online instructor in 2012/13

	Yes, in all courses		Yes, in some courses		No		Total number of respondents
Item	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Opportunity to communicate with online instructor	46	5.3	33	5.0	21	4.3	77

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D9. Percentage of responding Wisconsin high schools reporting various types of student–online teacher communication opportunities in 2012/13

	No courses		Some courses		Most courses		All courses		Don't know		Total number of respondents
Type of communication	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Email	2	1.5	13	3.8	21	4.9	64	5.6	na	na	59
Instant messaging/chat	18	4.7	20	4.9	8	3.3	18	4.8	36	5.9	56
Video	34	5.8	16	4.2	7	3.1	7	3.3	36	5.8	59
Phone	17	4.6	24	5.2	13	4.3	18	4.9	28	5.5	56
Discussion board	7	3.2	28	5.5	17	4.5	28	5.6	21	5.0	57

na is not applicable because no respondents selected the option.

Note: Percentages may not sum to 100 because of rounding.

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D10. Percentage of responding Wisconsin high schools reporting that students in online courses in 2012/13 had the opportunity to communicate with other students

Item	Yes, in all courses		Yes, in some courses		No		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Opportunity to communicate with other students	20	4.3	47	5.3	33	5.0	76

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D11. Percentage of responding Wisconsin high schools reporting various types of student–student communication opportunities in online courses in 2012/13

Type of communication	No courses		Some courses		Most courses		All courses		Don't know		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Email	14	4.7	32	6.0	13	4.4	19	5.3	21	5.6	49
Instant messaging/chat	22	5.6	24	5.6	9	3.5	9	4.0	35	6.4	49
Video	43	6.8	10	3.8	7	3.5	na	na	41	6.7	47
Phone	36	6.6	14	4.7	5	2.9	5	3.0	40	6.7	47
Discussion board	13	4.6	34	6.3	12	4.3	25	5.9	16	4.6	48

na is not applicable because no respondents selected the option.

Note: Percentages may not sum to 100 because of rounding.

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D12. Percentage of responding Wisconsin high schools that monitored student progress in online courses in 2012/13

Monitoring activity	Yes, for all students		Yes, for most students		Yes, for some students		No		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Attendance report	52	5.4	14	3.7	7	2.4	27	4.8	74
Log-on activity	67	5.1	18	4.1	2	1.6	13	3.7	74
Time spent online	58	5.3	23	4.6	1	1.2	18	4.2	75
Completion and submission of assignments	79	4.4	16	4.0	3	1.8	2	1.6	76
Interim course grades	68	4.9	11	3.4	7	2.7	15	3.5	75
Final grade report	90	3.0	6	2.4	2	1.5	1	1.1	76
Percentage of course completed	80	4.2	13	3.6	4	2.1	2	1.5	76

Note: Percentages may not sum to 100 because of rounding.

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D13. Percentage of responding Wisconsin high schools that assigned onsite monitors for students in online courses in 2012/13

Item	Yes, always		Yes, sometimes		No		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Onsite monitor assigned	75	4.7	21	4.4	4	2.2	76

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D14. Percentage of responding Wisconsin high schools reporting various factors that determined whether schools assigned onsite monitors in 2012/13

Factor	Percent	Standard error	Total number of respondents
Staff availability	60	11.9	15
Characteristics of the student	40	11.9	15
Requirement of the course provider	32	11.1	15
Requirement of the school or district	32	11.1	15
Course subject	18	8.5	15
Type of course	18	8.7	15
Other	16	9.4	15

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D15. Percentage of responding Wisconsin high schools reporting various types of school personnel serving as onsite monitors in 2012/13

Personnel	Percent	Standard error	Total number of respondents
Classroom teachers	61	5.4	73
Counselors	59	5.2	73
Principal	23	4.4	73
Other	22	4.4	73
Paraprofessionals/aides	21	4.3	73
At-risk coordinator	19	4.3	73
Librarians	8	2.7	73
Assistant principals	6	2.7	73
School psychologist/social worker	4	2.2	73
Curriculum director	3	1.9	73

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D16. Percentage of responding Wisconsin high schools in which onsite monitors received training in 2012/13

Item	Yes, always		Yes, sometimes		No, never		Don't know		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Onsite monitors received training	41	5.2	32	5.0	23	4.6	4	2.0	73

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D17. Hours of training received by onsite monitors in responding Wisconsin high schools in 2012/13

Item	Less than 1 hour		1–2 hours		3–4 hours		5–8 hours		More than 8 hours		Don't know		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Hours of onsite monitor training	12	4.1	28	5.7	27	5.7	9	3.7	13	4.5	11	4.0	53

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D18. Hours of training received by onsite monitors in responding Wisconsin high schools by training area in 2012/13

Training area	None		Less than 1 hour		1–2 hours		3–4 hours		5–8 hours		More than 8 hours		Don't know		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Training specific to learning online	9	3.7	40	6.1	27	5.8	2	1.6	na	na	9	3.8	13	4.4	53
Training in specific course content	30	5.7	30	5.9	15	4.6	na	na	2	2.2	2	2.2	20	5.2	53
Training in student enrollment/ registration	11	3.9	43	6.4	26	5.5	2	1.6	na	na	5	3.0	13	4.4	53
Training in who to contact with concerns or questions	6	3.0	49	6.4	25	5.5	na	na	2	2.2	5	3.0	13	4.4	53
Training in using an online learning management system	7	3.4	33	5.9	28	5.7	11	4.0	2	2.2	7	3.5	12	4.2	53

na is not applicable because no respondents selected the option.

Note: Percentages may not sum to 100 because of rounding.

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D19. Percentage of Wisconsin respondents who served as onsite monitors in 2012/13

Item	Percent	Standard error	Total number of respondents
Served as an onsite monitor	50	5.5	73

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Table D20. Frequency with which responding Wisconsin onsite monitors completed monitoring activities in 2012/13

Training area	Never		Once per course		Twice per course		Once per month		Once per 2 weeks		Once per week		2–3 times per week		4–5 times per week		Total number of respondents
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	
Review student log-in activity	8	3.9	na	na	na	na	10	4.4	21	6.2	23	6.3	13	4.9	25	6.6	37
Review student completion and submission of assignments	na	na	na	na	na	na	5	3.2	24	6.4	35	7.3	10	4.4	26	6.8	37
Review student grades	na	na	na	na	na	na	10	4.3	23	6.1	27	6.7	20	6.2	20	6.3	37
Review student pacing of coursework	na	na	na	na	na	na	8	3.9	27	6.6	26	6.4	16	5.7	24	6.6	37
Provide a progress report to parents	22	6.4	13	4.8	26	6.8	15	5.1	13	5.2	11	4.7	na	na	na	na	37
Discuss progress with the student	na	na	na	na	3	3.1	22	6.2	36	7.2	22	6.3	5	3.2	12	5.2	37
Discuss student progress with the online instructor	43	7.5	13	5.1	10	4.5	17	5.8	10	4.4	na	na	3	3.1	3	3.1	37

na is not applicable because no respondents selected the option.

Note: Percentages may not sum to 100 because of rounding.

Source: Authors' analysis based on Wisconsin Department of Public Instruction data (2013).

Notes

1. The goals of the Virtual Education Research Alliance are to develop the capacity for Wisconsin and Iowa to collect and use data to implement effective high school virtual-learning programs with improved student outcomes, and to develop and carry out a research agenda on specific questions about student achievement and virtual-learning conditions. Alliance members represent the University of Northern Iowa, Kirkwood Community College, Iowa Learning Online, and Wisconsin Virtual School.
2. The Queen and Lewis (2011) report is based on the Distance Education Courses for Public Elementary and Secondary School Students: 2009/10 fast response survey system administered by the U.S. Department of Education's National Center for Education Statistics. The survey's definition of distance education was courses offered to elementary and secondary school students regularly enrolled in the district that meet all of the following criteria: be technology delivered; be credit granting; and have either the instructor in a different location than the students and/or the course content delivered in or delivered from a different location than that of the students.
3. A regular school is a public elementary or secondary school providing instruction and education services that does not focus primarily on special education, vocational/technical education, alternative education, or any of the particular themes associated with magnet and special program emphasis schools. A vocational school is a public elementary or secondary school that focuses primarily on providing formal preparation for semiskilled, skilled, technical, or professional occupations for high school–age students who have opted to develop or expand their employment opportunities, often in lieu of preparing for college entry. An alternative school is a public elementary or secondary school that addresses the needs of students that typically cannot be met in a regular school; provides nontraditional education; serves as an adjunct to a regular school; or falls outside the categories of regular, special education, or vocational education. A charter school is a publicly funded school that operates under a contract, or charter, that releases the school from some state and local regulations in exchange for being accountable for student academic outcomes. A special education school is a public elementary or secondary school that focuses primarily on special education—including instruction for students exhibiting the following: autism, deaf-blindness, developmental delay, hearing impairment, intellectual disability, multiple disabilities, orthopedic impairment, serious emotional disturbance, specific learning disability, speech or language impairment, traumatic brain injury, visual impairment, and other health impairments—and that adapts curricula, materials, or instruction for the students being served.
4. The locale for each school was determined using the urban-centric school locale variable in the National Center for Education Statistics Common Core of Data file. City or suburban schools are those classified as city-large, city-midsize, city-small, suburb-large, suburb-midsize, or suburb-small; town schools are those classified as town-fringe, town-distant, or town-remote; and rural schools are those classified as rural-fringe, rural-distant, or rural-remote.
5. To use equation A1, the researcher must specify a value of P for each stratum (P_h). The assumption that $P = .5$ for all strata is conservative for two reasons. First, holding the sample size constant, the standard error of a sample proportion is largest when $P = .5$. Second, assuming that P is constant across strata meant that school locale was assumed to be unrelated to the outcome; thus, stratification did not increase the precision of sample-based estimates relative to simple random sampling.

6. The study team set the target response rate for the survey at 85 percent based on statistical standards from the National Center for Education Statistics (2002), which require that a nonresponse bias analysis be conducted when the response rate for a sample is less than 85 percent. The Data processing and analysis section in this appendix describes the nonresponse bias analysis that was conducted because the observed response rate was less than 85 percent.
7. Schools that did not use online courses may have been less likely to respond to the survey, which prevents reliable estimates of the percentages of schools that did not use online courses as well as the reasons why these schools chose not to do so. Consequently these results are not included in this appendix. See the Limitations of the study section and appendix A for details.
8. Schools that did not use online courses may have been less likely to respond to the survey, which prevents reliable estimates of the percentages of schools that did not use online courses as well as the reasons why these schools chose not to do so. Consequently these results are not included in this appendix. See the Limitations of the study section and appendix A for details.

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