Forum Guide to Virtual Education Data: A Resource for Education Agencies

National Forum on Education Statistics

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National Cooperative Education Statistics System

The National Center for Education Statistics (NCES) established the National Cooperative Education Statistics System (Cooperative System) to assist in producing and maintaining comparable and uniform information and data on early childhood, elementary, and secondary education. These data are intended to be useful for policymaking at the federal, state, and local levels.

The National Forum on Education Statistics (Forum) is an entity of the Cooperative System and, among its other activities, proposes principles of good practice to assist state and local education agencies in meeting this purpose. The Cooperative System and the Forum are supported in these endeavors by resources from NCES.

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Foreword

The National Forum on Education Statistics (Forum) is pleased to present the *Forum Guide to Virtual Education Data: A Resource for Education Agencies*. The purpose of this document is to help agencies collect data in virtual education settings, incorporate the data into governance processes and policies, and use the data to improve virtual education offerings. This resource reflects lessons learned by the education data community during the coronavirus disease (COVID-19) pandemic and provides recommendations that will help agencies collect and use virtual education data.

In 2006, the National Forum on Education Statistics (Forum) published the *Forum Guide to Elementary/Secondary Virtual Education* (https://nces.ed.gov/pubs2006/2006803.pdf) to address the need among state and local education agencies (SEAs and LEAs) for information on virtual education, including considerations for modifying traditional data elements and systems to better capture virtual education data. The 2006 resource was updated in 2016 by a working group of SEAs and LEAs. The 2016 *Forum Guide to Elementary/Secondary Virtual Education* (https://nces.ed.gov/pubs2016/NFES2016095.pdf) was intended to assist SEAs and LEAs as they consider the impact of virtual education on established data elements and methods of data collection, and address the scope of changes, the rapid pace in which new technology has developed, and the proliferation of resources in virtual education.

Text Box Key

Text boxes are used throughout the document:
WHITE boxes provide an overview of key content.
BLUE boxes indicate vignettes and real-world examples.
GREEN boxes feature related resources.

In spring 2020, nearly all school districts across the nation transitioned to virtual education during extended school closures caused by the COVID-19 pandemic. K-12 education agencies pivoted to virtual education in a short amount of time with limited options available for developing a virtual education program. The swift and widespread adoption of virtual education underscored the need for agencies to address persistent complications, such as the impact of different education delivery models on data collections, as well as emerging challenges, such as equitable access to virtual education technology. This resource builds upon and supplements the Forum's 2016 virtual education resource, reflects lessons learned by SEAs and LEAs during the COVID-19 pandemic, and incorporates new content in this rapidly emerging area. The information is intended to help education agencies review current virtual education offerings and incorporate virtual education data into data governance processes and policies.

This document focuses on virtual education, with a specific emphasis on data, from the perspective of the education data community. This resource is not intended as a comprehensive guide to virtual education, and not all aspects of virtual education are addressed. Rather, this document focuses on the collection of virtual education data and the ways these data can be used to improve the quality of virtual education.

Publication Objectives

This resource provides best-practice information to help SEAs and LEAs collect and use virtual education data by

- providing an overview of virtual education;
- describing best practices used by education agencies to collect virtual education data and use those data to improve virtual education;
- focusing on the data needed for different virtual education organizational and programmatic structures; and
- considering policy questions as a tool to inform the collection of virtual education data elements.

Intended Audience

The primary audience for this publication includes federal, state, and local education agencies, as well as various education stakeholders including, but not limited to, policymakers, researchers, data management and technology professionals, program coordinators, district and school staff, and the parents of school-age children interested or involved in virtual education.

Organization of This Resource

This resource includes the following chapters and appendices:

- **Chapter 1** provides an overview of virtual education by examining common terminology and organizational structures, discussing the importance of high-quality data collection, and highlighting potential policy implications.
- **Chapter 2** identifies opportunities available through virtual education data; delineates challenges to collecting virtual education data; and supplies best practices for collecting, managing, and using virtual education data.
- **Chapter 3** identifies data elements commonly used in virtual education data systems.
- **Chapter 4** introduces key topic areas and examples, policy questions, and common practices designed to aid SEAs and LEAs as they collect data elements and deploy systems to deliver virtual education.
- **Appendix A** includes examples of SEA and LEA policies.
- **Appendix B** provides a list of SEA virtual and distance learning websites.

National Forum on Education Statistics

The work of the National Forum on Education Statistics (Forum) is a key aspect of the National Cooperative Education Statistics System (Cooperative System). The Cooperative System was established to produce and maintain, with the cooperation of the states, comparable and uniform education information and data that are useful for policymaking at the federal, state, and local levels. To assist in meeting this goal, the National Center for Education Statistics (NCES) within the Institute of Education Sciences (IES)—a part of the U.S. Department of Education (ED)—established the Forum to improve the collection, reporting, and use of elementary and secondary education statistics. The Forum includes approximately 120 representatives from state and local education agencies, the federal government, and other organizations with an interest in education data. The Forum deals with issues in education data policy, sponsors innovations in data collection and reporting, and provides technical assistance to improve state and local data systems.

Development of Forum Products

Members of the Forum establish working groups to develop guides in data-related areas of interest to federal, state, and local education agencies. They are assisted in this work by NCES, but the content comes from the collective experience of working group members who review all products iteratively throughout the development process. After the working group completes the content and reviews a document a final time, publications are subject to examination by members of the Forum standing committee that sponsors the project. Finally, Forum members review and formally vote to approve all documents prior to publication. NCES provides final review and approval prior to online publication. The information and opinions published in Forum products do not necessarily represent the policies or views of ED, IES, or NCES. Readers may modify, customize, or reproduce any or all parts of this document.

Working Group Members

This online publication was developed through the National Cooperative Education Statistics System and funded by the National Center for Education Statistics (NCES) within the Institute of Education Sciences (IES)—a part of the U.S. Department of Education (ED). The Virtual Education Working Group of the National Forum on Education Statistics is responsible for the content.

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Chapter One:
Virtual Education

This chapter examines the role of virtual education in the changing world of elementary and secondary education, reviews commonly used virtual education terminology, and discusses the importance of high-quality data for informing policy.

In recent years, virtual education has become an integral part of K-12 education. Nearly every student is exposed to virtual learning in some context, whether as a single aspect of a traditional course or program, in an entirely virtual program, or any combination of traditional and virtual learning. Virtual education is often a core aspect of curricula and class instruction, and students and teachers are increasingly adept at integrating lectures, lessons, and group work delivered via computers, tablets, and other devices into day-to-day teaching and learning.

In spring 2020, most districts and schools across the country shifted to virtual education during extended school closures caused by the coronavirus disease (COVID-19) pandemic. This public health crisis forced many education agencies to rapidly and broadly adopt virtual education tools and technologies to ensure learning continuity for students. Most U.S. school children under the age of 18 were affected by school closures when the COVID-19 pandemic hit its first peak in spring 2020, resulting in many students using online resources to receive an education (figure 1). The interest in and need for high-quality virtual education is anticipated to continue following the COVID-19 pandemic. Therefore, state and local education agencies (SEAs and LEAs) are expected to need improved learning and monitoring systems and data to support the continued provision of virtual education.

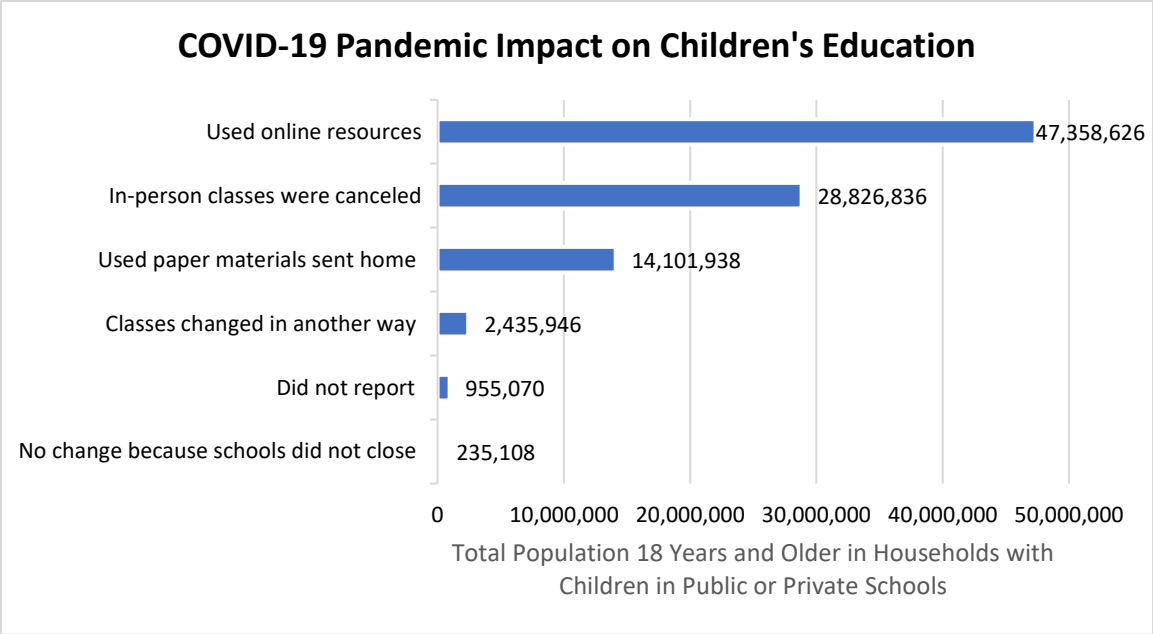

Figure 1. Impact of the COVID-19 pandemic on how children in public or private schools received education

NOTE: Totals may not sum to 100% as the question allowed for multiple categories to be marked.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, Household Pulse Survey, Week 1

Introduction to Virtual Education

For this document, "virtual education" is defined as instruction during which students and teachers are separated by time or location, or both, and interact via internet-connected computers, tablets, or other electronic devices. This broad definition includes numerous methods of delivering and accessing virtual education. Virtual education may include the following: real-time instruction between teachers and students through an electronic medium unconstrained by geographic or temporal boundaries; coursework presented online for students to view at their own pace; collaborative online work that students access from their classrooms; and new variations that are evolving with the expansion of technology.

> Virtual education is defined as instruction during which students and teachers are separated by time or location, or both, and interact via internet-connected computers, tablets, or other electronic devices.

The concept of "virtual education" may encompass all of the following terms, as well as others: digital learning; distributed learning; open learning; networked learning; web-based education; online learning; cyber education; net education; computer-based learning; distance learning (using both digital and printed materials); blended learning; and hybrid learning.

Some of these terms focus on the concept of overcoming the physical boundaries of traditional face-to-face, teacher-student learning environments. Others emphasize the use of technology as a tool for accessing information that is unavailable locally. The bottom line, however, is that virtual education uses information and communications technologies to offer educational opportunities in a manner that transcends traditional in-person face-to-face instruction, which can be constrained by the limitations of time and space concerning students' relationships with teachers, peers, and instructional materials.

In March 2020, states, districts, and schools had to implement and scale virtual learning solutions quickly and responsibly due to the COVID-19 pandemic. March 5 saw the first temporary school closure of a school district in the United States, and by the end of the month, most public school buildings had closed. This unprecedented shift in learning required education agencies to develop strategies that supported educators and students as they adapted to new modes of working and learning. SEAs and LEAs faced several challenges during the first month of what would become an extended period of school closures across the country.

Closing Schools to Avoid COVID-19 Exposure in Washington

In late February 2020, Bothell High School in Northshore School District (WA) (NSD) became the first school in the United States to shut down after a reported instance of potential exposure to COVID-19. In response, district leaders convened over the weekend to determine how to move instruction online. The district faced several obstacles in coming to this decision, given that the schools had no learning management system (LMS) and few virtual education offerings, and had no large-scale plan to make sure all students had home access to internet-connected devices. As more schools closed following additional reports of potential exposure, district staff sent laptops and hotspots home with students. NSD trained educators to use virtual education tools, allowed children to return to school to collect their belongings, and then began teaching entire courses remotely.

In mid-March 2020, the Governor of Washington shut down all public schools in the state. NSD took this opportunity to continue training teachers, this time focusing less on the technology and more on best practices for virtual teaching and learning. During this time, the schools also provided food services to students qualifying for free and reduced-price lunch and daycare for first responders, emergency personnel, and essential workers. Part of the district's success in moving to virtual learning can be attributed to the fact that many students already had support structures in place at home, including access to the Internet and electronic devices. In spring 2020, approximately 550 hotspots and 5,000 devices needed to be distributed to the 23,500 students throughout the district. Approximately 1,300 additional hotspots and 7,000 additional devices were distributed in fall 2020.

Remote Learning Planning Considerations in Delaware

The Governor of Delaware ordered schools closed for two weeks in March 2020 to allow LEAs to prepare for the potential impact of extended school closures and undertake deep cleaning of school facilities. During these 2 weeks, the state decided that remote learning would continue for at least 7 weeks. Initially, some LEAs prepared paper review packets for students to take home and complete, but formal remote learning plans were needed to guide remote instruction for the coming weeks. Key decision points affecting each LEA's plan included

- the availability of mobile, internet-connected devices for each student;
- students' and teachers' access to the Internet, especially in rural areas;
- balancing the provision of synchronous and asynchronous instruction;[1] and
- balancing the provision of synchronous and asynchronous office hours and help.

Like other states, Delaware faces equity and accessibility issues. As districts were planning for remote learning, school staff returned to district facilities to provide meals to students and families.

1 Synchronous pacing consists of group-oriented teaching and learning organized around participants interacting at the same time and in the same virtual space, while asynchronous pacing consists of student-oriented teaching and learning which is not organized around participants interacting at the same time and in the same virtual space. More information is included in the Pace and User Experience section of this chapter.

Developments in Educational Technology and Virtual Education

New technologies have enabled the expansion of virtual education and have brought about changes in teaching and learning. The U.S. Department of Education's (ED's) Office of Educational Technology (OET) reports that "technology can be a powerful tool for transforming learning. It can help affirm and advance relationships between educators and students, reinvent our approaches to learning and collaboration, shrink long-standing equity and accessibility gaps, and adapt learning experiences to meet the needs of all learners."[2] Developments and expansion in mobile devices and apps, social media, and online credential and certification systems illustrate the technological advancements that are available to students and teachers as they seek new educational opportunities and resources. Further, the expansion of broadband availability and remote connectivity has increased the ability to deliver virtual education to students on a greater scale than ever before. While connectivity and technology equity barriers still exist, significant progress has been made to make virtual education available to all students.

For students to access and benefit from this vast array of new opportunities and technologies, educators must be able to identify high-quality resources, determine their effectiveness, and use them to engage students. SEAs, LEAs, and individual schools have developed different methods for providing students with access to virtual education resources.

Online supplemental resources

Education agencies and organizations have curated collections of high-quality, effective virtual education resources that can supplement classroom learning. ED and other federal agencies, offices, and programs compiled virtual education resources to assist SEAs and LEAs during the COVID-19 pandemic. The Comprehensive Centers Program, for example, organized resources for continuity of learning,[3] the What Works Clearinghouse provided a list of research studies on distance learning programs and practices,[4] and the Regional Educational Laboratories collaborated to produce a series of evidence-based resources and guidance about teaching and learning in a remote environment.[5] Some SEAs have developed repositories and tools to help educators identify quality resources that can supplement classroom materials and enhance student learning, such as the Georgia Teacher Resource Link (http://www.gadoe.org/Technology-Services/SLDS/Pages/Teacher-Resource-Link.aspx).

Often, virtual education resources must be purchased by the SEA, LEA, or school, which can delay the implementation of resources by teachers. However, the expansion of openly licensed educational resources provides educators with access to free virtual education resources. These openly licensed teaching, learning, and research resources reside in the public domain or have been released under a license that permits their use, modification, and sharing with others.[6]

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2 U.S. Department of Education, Office of Educational Technology. (2017). *Reimagining the Role of Technology in Education: 2017 National Education Technology Plan Update*. Retrieved October 16, 2020, from https://tech.ed.gov/files/2017/01/NETP17.pdf.

3 U.S. Department of Education, Office of Elementary and Secondary Education, Comprehensive Centers Program. (n.d.). *Resources for Continuity of Learning*. Retrieved October 19, 2020, from https://www.compcenternetwork.org/resources-for-continuity-of-learning.

4 U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, What Works Clearinghouse. (n.d.). *Studies of Distance Learning*. Retrieved November 11, 2020, from https://ies.ed.gov/ncee/wwc/DistanceLearningStudy.

5 U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Program. (n.d.). *COVID-19: Evidence-Based Resources*. Retrieved November 11, 2020, from https://ies.ed.gov/ncee/edlabs/projects/covid-19/.

6 U.S. Department of Education, Office of Educational Technology. (2017). *Reimagining the Role of Technology in Education: 2017 National Education Technology Plan Update*. Retrieved October 16, 2020, from https://tech.ed.gov/files/2017/01/NETP17.pdf.

This includes completely online courses, digital textbooks, and smaller-scale resources such as images, videos, and assessment items. Some states have developed platforms for teachers to locate and adapt open content for their students, such as the Illinois Shared Learning Environment. While open educational resources are free and open to the public, they may be subject to SEA and LEA review and approval processes before they can be used in classrooms. Free resources should also be vetted to ensure student privacy is protected in accordance with federal, state, and local policy. Resources on student privacy and education technology are available through the ED Student Privacy Policy Office (SPPO) website: https://studentprivacy.ed.gov/Apps.

Integrated devices and resources

SEAs, LEAs, and schools are increasingly integrating the use of devices, such as computers and tablets, into traditional classroom settings. One-to-one programs ensure that each student has access to a device, and bring your own device (BYOD) policies permit students to use their own mobile devices (for example, laptops, tablets, and cellphones) at school. Both one-to-one and BYOD policies can provide increased opportunities for the classroom to become less teacher-centric and allow students more control over their learning when they access resources and tools beyond the classroom. The integration of devices into classroom learning makes distinguishing between traditional and virtual learning difficult. For example, a group of students in a traditional classroom may use their devices to collaborate on an online project with multiple schools, while still interacting with the teacher and their fellow students in the classroom.

State-Provided Online Supplemental Resources

The Georgia Department of Education developed the Teacher Resource Link to provide teachers with vetted digital resources that are aligned to Georgia standards. Resources are accessible through the state's statewide longitudinal data system (SLDS) application and can be searched by grade, subject, and standard. The Teacher Resource Link allows teachers to search for resources aligned to a standard for student consumption or for teacher-directed usage, and allows teachers to save, assign, and store resources. Additional information is available at http://www.gadoe.org/Technology-Services/SLDS/Pages/Teacher-Resource-Link.aspx.

The Illinois State Board of Education and Illinois Department of Commerce and Economic Opportunity partnered to develop the Illinois Shared Learning Environment (ISLE) Open Educational Resources (OER). ISLE drives academic achievement and career success for Illinois learners by enabling personalized learning through open and accessible technologies. ISLE OER provides open access to career and education resources aligned to state standards. Tools allow users to organize, share, and rate ISLE resources. Additional information is available at http://ioer.ilsharedlearning.org/.

Technology Equity

Access to devices and resources outside of the classroom is essential for virtual learning. In 2015, 94 percent of children ages 3 to 18 had a computer or smartphone at home. However, 85 percent of children ages 3 to 18 had access to a desktop, laptop, netbook, or notebook computer and only 61 percent had internet access at home.[7] The widespread adoption of virtual education during the COVID-19 pandemic exposed a wide gap between those who have adequate access to computing devices and the Internet, and those who do not. Commonly called the digital divide, a lack of internet access and devices can hinder students' ability to participate in virtual education.

7 KewalRamani, A., Zhang, J., Wang, X., Rathbun, A., Corcoran, L., Diliberti, M., and Zhang, J. (2018). *Student Access to Digital Learning Resources Outside of the Classroom* (NCES 2017-098). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved October 23, 2020, from https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2017098.

- **Factors that impact access to computing devices:** Households with more than one child enrolled in virtual education often require multiple computing devices to accommodate student learning and participation in virtual classrooms. Student access to devices can also be impacted when parents require the use of a common household device to work from home. Additionally, households that have multiple internet-connected smartphones may lack a computing device (such as a desktop computer, laptop, or tablet) that can adequately support student access to virtual education.
- **Factors that impact access to the Internet:** Households face different barriers to internet access. Some households do not have the financial resources to obtain access, while others do not reside in areas with the infrastructure to enable access. Households that have multiple internet-connected devices, or neighborhoods where internet use exceeds that which can be adequately supported by providers, may lack the necessary saturation/bandwidth to maintain consistent high-speed access. Households that use hotspots, dial-up, or mobile connections to the Internet may not have the adequate speed to access virtual education tools and platforms, such as videoconferencing software that requires high-speed internet to use. Relatedly, some home networks are configured to efficiently download data but are not configured to upload data at similar speeds, which is necessary for participating in video calls and conferences.

Technology Equity

The National Center for Education Statistics (NCES) launched the NCES Ed Tech Equity Initiative to better inform the condition of American education by giving greater attention to education technology and equity (ed tech equity) as it relates to K-12 education. More specifically, ed tech equity refers to the difference between students' educational experience and outcomes when technology is a factor, with a particular focus on key subgroups (for example, by English learner status, disability status, geographic location, race/ethnicity, sex, or socioeconomic status). Additional information is available at https://nces.ed.gov/resources/edtechequity/.

SEAs and LEAs have taken steps to bridge the digital divide, such as distributing devices to students, working with policymakers and service providers to expand internet access, and setting up learning hubs to provide access in the community. These types of actions can help expand the reach of virtual education to students who may have otherwise been unable to connect to virtual education.

The vignettes presented in chapter 2 detail how state and local education agencies have worked to ensure technology equity during the coronavirus disease (COVID-19) pandemic, including

- collecting digital learning data;
- closing the digital divide;
- distributing technology devices;
- one-to-one computing; and
- transitioning to virtual learning.

Technology Accessibility

Accessibility ensures that students with disabilities have an equal opportunity to receive the educational benefits and possibilities afforded by the virtual education technology, as well as equal treatment in the use of such technology. Many modern school buildings include accessibility features such as ramps, automatic doors, signs with braille, and bathrooms with grab bars and large handle faucets. Similarly, accessibility features such as text-to-speech, speech-to-text, enlarged font sizes, color contrast, audio description, and closed captioning help make virtual education accessible to everyone. Common barriers to accessibility in virtual education include the following:

- Live chat and discussion board functions without accessibility features can present a barrier for students with disabilities to participate in class.
- Scanned images of documents that are missing accessibility tags leave students who use screen readers unable to read the content.

> **Forum Guide to Ensuring Equal Access to Education Websites**
> https://nces.ed.gov/forum/pub_2011807.asp
> This resource is intended to raise awareness in nontechnical audiences and suggest best practices for complying with Section 508 goals at an operational level in state education agencies, school districts, and schools. It is not intended to recreate technical resources that already exist to facilitate Section 508 compliance.

- Online images with missing text descriptions of the images, called "alt tags," render the images inaccessible to blind and low-vision students who use special software.
- Important content that can only be accessed via the use of a computer mouse makes the content unavailable to blind and low-vision students and students with disabilities that affect fine motor control.
- Webpages with certain font/background color combinations can make text difficult, if not impossible, for students with low vision to see.
- Videos that are not accurately or adequately captioned are inaccessible to hearing-impaired students.
- Videos that lack audio description are inaccessible to blind and low-vision students.

Other Factors That Impact Equity and Access

Various other barriers exist that impact students' ability to engage with education. These include, but are not limited to, housing insecurity, inadequate prerequisite skills, or lack of interaction or social cohesion in the classroom. Some barriers are specific to virtual education, such as the need for individualized education program (IEP) services that cannot be delivered virtually, interruptions (such as noise or lack of a private study area) that interfere with student learning, individual preference for in-person learning, or limited technology resources and training for teachers. During the COVID-19 pandemic, students eligible for special education or IEPs were sometimes prioritized to receive in-person instruction and support (regardless of local COVID-19 infection rate) to fulfill IEP requirements. The ED Office of Special Education Programs developed several resources to help SEAs and LEAs provide virtual education to students with disabilities, including a resource database,[8] resource list,[9] webinars, and information briefs.[10]

Completely virtual accredited education

Some SEAs and LEAs offer accredited virtual education programs to ensure that students and educators have access to quality virtual resources, including access to appropriately certified teachers and curricula fully aligned with SEA standards. The implementation of completely virtual accredited education varies in each state. Some SEAs have chosen to partner with private virtual schools or programs, while others have developed their own schools and programs. For example, the Washington State Office of Superintendent of Public Instruction maintains a list of

8 U.S. Department of Education, Office of Special Education Programs. (n.d.). *Continuity of Learning During COVID-19 Resource Database*. Retrieved April 5, 2021, from https://osepideasthatwork.org/continuity-learning-during-covid-19-resource-database.

9 U.S. Department of Education, Office of Special Education Programs, Early Childhood Technical Assistance Center, Office of Head Start, and Office of Head Start Technical Assistance National Centers. (n.d.). *Resources and Strategies to Support Children with Disabilities and Their Families During COVID-19*. Retrieved April 5, 2021, from https://osepideasthatwork.org/sites/default/files/Inclusion-Institute-Resources-Strategies-Children-Disabilities-Covid-1%20%28ED%20and%20HHS%29.pdf.

10 U.S. Department of Education, Office of Special Education Programs. (n.d.). *Continuity of Learning During COVID-19*. Retrieved April 5, 2021, from https://osepideasthatwork.org/continuity-learning-during-covid-19.

approved online course providers and online school programs. Online course providers must be accredited before seeking approval by the state; online school programs need not be accredited for state approval (https://www.k12.wa.us/student-success/learning-alternatives/online-learning/online-learning-assurances).

Organizational Structure of Virtual Education

Virtual education may be delivered by virtual schools or by traditional in-person schools. Virtual schools are defined as public or private schools that offer only virtual courses and generally do not have a physical facility that allows students to attend classes on site on a regularly scheduled or required basis. Alternatively, school buildings may provide both conventional and virtual education programs. One difference between the two types of schools is that many virtual schools register students regardless of traditional administrative boundaries—in other words, students need not reside in a particular geographic area to take a class. Physical schools with virtual programs have the same capacity but are sometimes limited by policy to established attendance areas and geographic boundaries.

Because the technology driving virtual education permits participation regardless of administrative boundaries—attendance areas, county lines, and state borders—restrictions on participation have largely become administrative and policy issues. Relatedly, instructional staff may perform their teaching assignments remotely or from a physical school facility. Participation in virtual education is often determined by overarching rules and regulations, such as state or local laws limiting the transfer of funds across administrative boundaries or regulations requiring specific academic credentials to teach within a particular state or school district.

SEAs and LEAs that work with virtual providers often must develop or clarify policies that specify which institution is responsible for a student's data, how the teacher of record (the educator accountable for a student's or group of students' learning outcomes) is determined and assigned, what credentials these teachers must possess, and how virtual education funds are managed. The education agency providing the student's transcript is ultimately responsible for evaluating the student's course credit, ensuring that the instructor is properly credentialed, managing course funding, and collecting all required data. This can be challenging when the content for a virtual education course is developed and administered outside the SEA or LEA—for example, by a company that provides virtual course content to multiple SEAs and LEAs. Common policy solutions include

- maintaining responsibility for the student's data until the student is no longer a resident of the area served by the SEA or LEA;
- ensuring that each virtual course has an established teacher of record who holds the appropriate credentials required by the SEA or LEA and who is responsible for evaluating student performance and awarding course credit; and
- channeling course funding through the SEA, LEA, or school that is responsible for the student's transcript.

These policies can assist SEAs and LEAs with data collection even in complex organizational scenarios. SEAs and LEAs have a myriad number of approaches to deliver virtual education either as a standalone instructional method or as part of an in-person learning opportunity. The following list provides a few scenarios along this continuum.

Single LEA Scenario: A student enrolls in a virtual education program or course through their LEA. The virtual teachers and instructional staff are credentialed in the state. The LEA maintains administrative responsibility for providing educational resources, tracking the student, and managing funding. This scenario describes when students take part in a virtual

course not offered through their local school, or when state law requires that students complete virtual coursework from their local school's computer lab.

Blended, or Hybrid, Learning Scenario: A student enrolls in a virtual education program or course through their LEA. Instruction occurs through a combination of in-person and virtual learning, wherein students learn at least in part through virtual education, with some element of student control over time, place, path, and/or pace; at least in part in a supervised location away from home; and the modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience. The virtual teachers and instructional staff are credentialed in the state. The LEA maintains administrative responsibility for providing educational resources, tracking the student, and managing funding.

Virtual Education Scenarios in Florida

The Florida Legislature established the Florida Virtual School (FLVS) in 1997 as Florida's first Internet-based, public high school. 24 years later, FLVS is the largest fully accredited statewide virtual public school district in the nation. Additionally, all Florida school districts offer virtual education schools, programs, or courses to students (http://www.fldoe.org/schools/school-choice/virtual-edu/). Florida's virtual schools and programs provide high-quality online instruction and curriculum and are held accountable for student and school performance. Teachers are required to hold Florida teaching certificates and the curriculum must align with state standards. Full-time public virtual school students participate in state assessments, and full-time virtual schools and programs receive school grades through Florida's accountability system.

Temporary Remote Teaching–Learning Scenario: Students, teacher(s), or instructional staff participate in virtual education temporarily or for a limited time. This scenario includes situations where a teacher provides instruction virtually and students are in-person at a local school, a teacher is in-person at a local school but students are participating in instruction virtually, and a teacher and students are both virtual in different locations. The virtual teacher(s) and instructional staff are credentialed in the state. The LEA maintains administrative responsibility for providing educational resources, tracking the student, and managing funding. This scenario can be implemented at the district, school, or classroom levels, and encompasses fully virtual or blended, or hybrid, learning models. This scenario may be implemented during temporary emergencies, such as a public health crisis or natural disaster, that limit the ability of students and/or staff to safely participate in in-person education.

Traveling Student Scenario: A student enrolls in a virtual education program or course through their LEA. The virtual teachers and instructional staff are credentialed in the state. The student travels outside of the state for a period, but the original LEA in which the student enrolled maintains responsibility for the student. This situation often arises due to family military assignments, a guardian's extended business trip, medical leave that requires treatment in another state, or when a family decides to travel as a unit while the children attend school virtually (such when a family travels cross-country to visit national parks). Unless the student changes residency, the original LEA maintains administrative responsibility for the student.

Educating Students During a Crisis

During the COVID-19 pandemic, some state and local education agencies waived traditional residency requirements for students. For example, if a student moved from one school district to a new school district, the former remained responsible for educating that student. The decision to keep students with their original teacher and district was made to minimize learning interruptions during a time of unprecedented disruptions.

Out-of-State Instruction—Learning Scenario: A student enrolls in a virtual education program or course through the LEA; however, the actual instruction is provided by an organization outside the state. This scenario commonly occurs when SEAs and LEAs purchase virtual educational services. Such services often include content and assessment materials that are developed outside the state. This situation may become more complicated if the student travels outside the state for an extended period, and neither the student nor the instructional materials are physically located within the LEA's boundaries. In this scenario, the LEA maintains administrative responsibility for tracking the student, managing funding, and ensuring that virtual teachers and instructional staff are appropriately credentialed. If the student becomes a resident of an area served by another LEA, the administrative responsibility and financial burden should be moved to the new LEA. In some cases, inter-district or interstate agreements exist to facilitate the transfer of student records and responsibility.

The rapid growth of teaching and learning technologies is affecting the way that virtual education is organized and administered. Clear policies that consider state and local regulations that affect virtual education funding, student data, and teacher qualification requirements can help SEAs and LEAs effectively manage many different scenarios and collect high-quality virtual education data. As virtual education continues to grow and new organizational structures emerge, SEAs and LEAs may benefit from reviewing and updating policies. Emerging areas for consideration include the following:

- *LEA policies and procedures for working with virtual education service providers.* LEAs that offer virtual education may contract with one or more service providers. Service providers may not be in the same district or state, and LEAs must be clear about how district policies govern virtual education.
- *The role of SEAs in virtual learning oversight.* While some states implement a statewide approval process for virtual courses or service providers, others do not; in this case, LEAs, schools, or individual teachers are responsible for evaluating and choosing virtual resources.
- *The role of charter schools in virtual education.* Some SEAs and LEAs offer virtual education through charter schools. As a result of state restrictions on funding, private companies that offer virtual education programs often incorporate into charter schools operating within different states. Charter schools typically must be approved by a governing agency within a state and cannot be exempted from state standards and assessments.

Providing Multiple Learning Models During Challenging Circumstances

In 2020, the COVID-19 pandemic had a broad and systemic impact on the education system. In the months following the COVID-19 pandemic's arrival in the United States, SEAs and LEAs had to rapidly transition to different learning models to ensure learning continuity during this challenging crisis.

Adapting to Changing Conditions in Delaware

Brandywine School District (DE) (BSD) has adopted different learning models during school year (SY) 2020-21 as the COVID-19 pandemic has impacted the local community. Federal and state guidelines to lower the risk of COVID-19 spread (including physical distancing in classrooms, common areas, and buses; enhanced safety and sanitation procedures; and personal protective equipment use) prevented schools from opening for in-person instruction at 100 percent capacity. Initially, all students started with remote learning when schools reopened in September 2020.

Synchronous instruction was provided to elementary school students five days a week, with art, music, physical education, and library instruction provided asynchronously. At the secondary level, synchronous instruction took place four days per week (Monday, Tuesday, Thursday, and Friday), and Wednesdays were 100 percent asynchronous. These models continued for all students through the first marking period.

BSD leadership and staff recognized that the changing conditions caused by the COVID-19 pandemic could continue to interrupt student learning during SY 2020-21. To minimize learning gaps, the Curriculum and Instruction Department identified priorities in the curriculum and developed sequence and pacing guidance. For example, if a class was supposed to cover 10 learning objectives in a marking period, the curriculum guidance set priorities for six of the 10 objectives. This approach helped to ensure that teachers covered essential content, regardless of changes or interruptions in learning continuity. Another area of concern has been learning loss related to interaction, problem-solving, and social-emotional learning (SEL) skills. BSD has prioritized SEL development in students by incorporating asynchronous SEL learning time into each school day.

At the start of the second marking period, elementary schools adopted the secondary level model (synchronous four days and asynchronous Wednesdays) in preparation for a hybrid instruction model. Middle and high school students remained 100 percent remote, and elementary school students were provided the option to phase into a hybrid learning model option. Students who chose the hybrid model were scheduled to be phased-in by grade level, starting with PreK through 1st grade, followed by grades 2 through 3 two weeks later, then grades 4 through 5 one week later. Approximately half of the elementary school students chose the hybrid model, and the other half elected to remain remote learners.

- Hybrid learning model (Cohorts A and B)—Students attended school in person two days per week and remotely three days per week, as follows:
    - Cohort A—25 percent of students attended class in person Mondays and Tuesdays and learned from home Wednesdays (asynchronous), Thursdays, and Fridays.
    - Cohort B—25 percent of students attended class in person Thursdays and Fridays and learned from home Mondays, Tuesdays, and Wednesdays (asynchronous).
- 100 percent remote learning model (Cohort C)—50 percent of students attended school remotely five days per week. Although students were remote, virtual instruction was aligned with in-person instruction.

Teachers taught in-person and remote students synchronously; meaning, students attending school in person learned online with their fellow remote students who were learning from home. Wednesdays remained a 100 percent asynchronous day for custodial staff to deep-clean school facilities using more in-depth disinfection and sanitization procedures than can be conducted during routine nightly cleanings. The hybrid model was scheduled to begin for grade 4-5 students in early December, followed by an expansion to middle and high school students in late 2020. However, the Governor of Delaware recommended a pause on in-person/hybrid instruction starting December 14, 2020. BSD returned to 100 percent remote learning for all students on December 7, 2020. Prioritizing certain aspects of the curriculum helped to minimize learning loss as students in the hybrid learning model transitioned back to 100 percent remote learning.

Ensuring Learning Continuity in Montana

In March 2020, the Governor of Montana announced a set of directives and guidance to slow the spread of the COVID-19 pandemic, including the closing of public K-12 schools in the state. Bozeman School District #7 (MT) (BSD7) adopted a 100 percent remote learning model to ensure the continuity of student learning. In mid-May 2020, Montana school districts had the option to return to in-person learning, but BSD7 continued providing remote learning due to the relatively large size of the district in comparison to more rural Montana LEAs.

A survey was sent to parents in June 2020 to collect their feedback on different learning models for SY 2020-21. BSD7 considered the survey data as staff worked over the summer to develop a return-to-learning plan. The district did not previously have an LMS but opted to purchase one to reduce the burden of providing students with a virtual education option. The district provided high school students with two learning options when schools reopened in September 2020:

- Blended learning model (Tracks A and B)—Students attend school in person two days per week and remotely three days per week:
    - Track A—Students whose last names begin with the letters A through L attend class in-person Mondays and Tuesdays and learn from home Wednesdays, Thursdays, and Fridays.
    - Track B—Students whose last names begin with the letters M through Z attend class in person Thursdays and Fridays and learn from home Mondays, Tuesdays, and Wednesdays.
- 100 percent remote learning model (Track C)—Students attend school remotely five days per week. Although students are remote, virtual instruction is aligned with in-person instruction.

More than 80 percent of high-school students opted for the blended learning model. This model allows for smaller groups of 10 to 15 students in a classroom at a time, sitting at a distance from each other. Wednesdays are used for teacher preparation, working with struggling students, and deep cleaning of physical facilities.

Students and their families have the option to switch to a different learning model, depending on their individual preferences. In some cases, students switched from the blended model to the 100 percent remote model due to health concerns. In other cases, students switched from the 100 percent remote model to the blended model to help improve student performance and grades. If the district changes from a blended learning model to a cohort model or decides to go fully remote, families may re-evaluate their student's learning model.

A second survey was sent to parents in October 2020 to gauge potential interest in in-person and remote learning if BSD7 expanded in-person learning to five days per week. The district's high schools had tentatively planned to transition into the next model of learning in late January 2021, where most students would return to in-person learning five days per week. However, rising COVID-19 case numbers and other public health data indicators have suggested that blended learning may need to continue past the target transition date.

Overall, BSD7 students and families preferred the blended learning model over the 100 percent remote learning model. Most elected to pursue the blended learning model and attend school two days per week in-person, even at the height of community concerns regarding COVID-19 spread. The blended learning model provided consistency, stability, and normalcy during the disruptive times caused by the COVID-19 pandemic. District leaders are proud that BSD7 schools remained open during SY 2020-21 and continued to offer education to students and helped them work toward graduation.

Schools, Programs, Courses, Course Sections, and Units of Study

Educational technology use is becoming widespread within classroom settings, and teachers often incorporate virtual education by offering a single virtual unit of study within the classroom. These small-scale uses of virtual education allow teachers and students to explore virtual learning opportunities within traditional education structures and systems. More extensive uses of virtual education include entirely online programs, courses, or course sections. The expansion of virtual education has also opened new opportunities in the form of completely virtual schools.

This document makes the following distinctions between units of study, course sections, courses, programs, and schools:

- **School:** An institution that provides educational services, has one or more grade groups, has one or more teachers, is located in one or more buildings, and has an assigned administrator(s).
- **Program:** A series of courses that build upon one another to provide either depth or breadth within a subject matter area. A virtual or traditional school may offer a virtual program that consists of a series of related online courses. Administrative uses of the term "program" are more varied and may describe initiatives, plans of action, or administrative structures (such as a dropout prevention program or afterschool program). These programs provide services that may be instructional or non-instructional, may be direct or indirect, and may be provided within or outside of a school building.
- **Course:** The organization of subject matter and related learning experiences provided for the instruction of students on a regular or systematic basis, usually for a predetermined period to an individual or group of students.
- **Course Section:** A setting in which organized instruction of course content is provided to one or more students for a given period. One or more teachers may provide course section instruction, in person or via a different medium, as in the case of virtual education. The term "course section" refers to a particular instance or setting when a course is offered to one or more students, while the term "course" refers to the subject matter content. Thus, a course may be scheduled or offered as one or more course sections at different times and with different staff.
- **Unit of Study:** Subdivisions of instruction within a course or subject field that may be implemented within a specified timeframe.

Pace and User Experience

For course section management, pace measures the rate of advancement or progress through academic content. Virtual education provides different approaches to course section pace and delivery than those that are employed in traditional public school courses:

- **Synchronous Pacing:** Virtual course sections that consist of group-oriented teaching and learning organized around participants interacting at the same time and in the same virtual space. In these courses, content is taught to a group of students who log in, tune in, or otherwise participate at a specified time and learn at the same time, as in a traditional course section, but without a shared physical presence.
- **Asynchronous Pacing:** Virtual course sections that consist of student-oriented teaching and learning which is not organized around participants interacting at the same time and in the same virtual space. These sections may be self-paced, in which

students access course section instruction and materials, and complete assignments at their convenience by agreed-upon deadlines.

- **Combined Synchronous/Asynchronous Pacing:** A third alternative for course section pace combines asynchronous activities with periodic synchronous activities such as live online discussions and chats, webinars (online seminars), or videoconferencing sessions.

Some virtual education courses may grant credit for the course based on a successful score on a standardized test of comprehension or proficiency. In these situations, students have the option of taking tests to demonstrate their proficiency of course subject matter without taking a course—a process commonly known as testing out of a course.

User experience also differs between traditional in-person and virtual education. Virtual education offers increased opportunities for tailoring the teaching and learning experience to each student's needs. Alternatives to a one-size-fits-all model of classroom instruction include:

- **Individualized learning** refers to instruction and learning designed to meet the unique pacing of each student. Learning objectives remain the same for the class or group, but individual students can progress through the material at different speeds, based on their own learning needs. For example, students might take longer to progress through a given topic, skip topics that cover information they already know, or repeat topics they need more help on.
- **Mastery-based/Competency-based learning** refers to instruction and assessment focused on the demonstration of knowledge of content, without adherence to traditional instructional schedules. Mastery/competency may be demonstrated in varied ways and at different times by individual students.
- **Personalized learning** refers to instruction in which the pace of learning and the instructional approach are optimized for the needs of each learner. Learning objectives, instructional approaches, and instructional content (and its sequencing) may all vary based on learner needs. Learning activities are meaningful and relevant to learners, driven by their interests, and often self-initiated.[11]

> **Forum Guide to Personalized Learning Data**
> https://nces.ed.gov/forum/pub_2019160.asp
> This resource is designed to assist education agencies as they consider whether and how to use personalized learning. The resource provides an overview of personalized learning and describes best practices used by education agencies to collect data for personalized learning; to use those data to meet goals; and to support the relationships, resources, and systems needed for the effective use of data in personalized learning.

- **Tailored instruction** refers to instruction that is specifically designed to meet the preferences and needs of different learners. Learning goals are the same for all students, but the method or approach of instruction varies according to the preferences of each student or what research has found works best for students like them. Teachers may differentiate content, learning processes, the learning environment, or student groupings to best address varying levels of knowledge, skills, and needs.

Each of these learning models and instructional approaches can be implemented in traditional classroom settings—for example, by teachers who can identify student needs and learning styles and modify lesson plans for individual students. However, advancements in technology enable and facilitate the increased use of these methods by providing teachers and students

11 U.S. Department of Education, Office of Educational Technology. (2017). *Reimagining the Role of Technology in Education: 2017 National Education Technology Plan Update*. Retrieved October 16, 2020, from https://tech.ed.gov/files/2017/01/NETP17.pdf.

with additional resources and offering students new ways of engaging with and demonstrating their understanding of course content. Teaching methods and learning environments that are directed by the individual student's interests, capabilities, learning styles, and needs result in different user experiences for students and teachers. User experience also is impacted by the proliferation of devices and the ability to access virtual education resources at any time.

Teachers and students may no longer meet in the traditional face-to-face classroom, and while students once needed to sit in front of a desktop computer for virtual education courses, now they may log in to courses from their homes or anywhere with high-speed internet access, interact entirely virtually with instructors, and access course material on mobile phones. User experience also is changing within traditional classrooms as more schools utilize blended, or hybrid, learning, where students learn in part through virtual education and in part in a supervised location away from home.

Changes in pacing and user experience impact the learning environment. Education leaders in both traditional and virtual settings must carefully select the type or types of pace and educational technologies to offer and support. This will ensure that any changes have a positive impact on teaching and learning. Education leaders must also consider the impact of changes on many other instructional and administrative issues that arise when operating any education institution, whether traditional, blended, or hybrid, or fully virtual. These policy decisions will have a profound impact on the types and effectiveness of learning environments they will be able to establish in their states, districts, and schools.

Data and Policy Implications

When properly employed, technology can enhance and support learning opportunities available to any student, at any location, and at any time. Determining which instructional and delivery methods are best for a specific individual, group of students, community, or circumstance demands that high-quality data be available to students, parents, instructors, administrators, and policymakers. Despite widespread interest in enhancing and expanding virtual teaching and learning, many SEAs and LEAs face challenges in collecting accurate, high-quality virtual education data. Some agencies have not yet specified the data they want to collect, while others have not developed reliable processes for gathering and managing data. In some cases, existing data collection applications may be present in multiple systems, which can make tracking difficult and may necessitate system enhancements or the adoption of new policies to collect and use data differently. For example, adopting interoperability policies can enable the quick and easy transfer of data between systems using a common set of data standards (definitions, codes, and technical specifications). The prevalence of virtual education, the increasing diversity in virtual education opportunities, and the rapid pace of technological change require new ways of thinking about how to modify data elements and systems to effectively identify, collect, and use virtual education data to inform and improve education.

The implications of policymaking on virtual education are many and varied. Often, policies that apply to in-person education must be reconsidered and modified to accurately reflect virtual education experiences. Relevant policy issues include school accreditation, testing and assessment, credits and credit transferability, teacher qualifications, technology access, instructional quality, attendance and participation criteria, accessibility for individuals with disabilities, fees/tuition payment, student enrollment, privacy, funding formulas, and resource equity. These issues are both administrative and instructional, and arise at the state, local, school, and classroom levels.

- At the state level, for example, teacher credentialing policies within and across state boundaries may disqualify some individuals from teaching virtual classes within one state even though they may be considered qualified in another.
- At the district level, policymakers have the authority to determine which technologies are available for virtual education in schools and classrooms.
- At the school level, standards may (or may not) be established to limit the number of students and teachers participating in virtual coursework or to determine the time of day best suited for such courses.
- Finally, at the classroom level, decisions to adapt online materials and instruction to accommodate the needs of special populations might affect access to, and therefore the equity of, resources.

Given the breadth and depth of issues that affect, and are affected by, virtual education, policymakers must simultaneously demonstrate foresight and caution as they grapple with important pedagogical and policy choices. In many circumstances, virtual education can be a powerful tool that allows students and teachers to access otherwise unavailable expertise, information, and experience. Virtual education can be particularly beneficial when

District Policies for Virtual Education and Distance Learning

Implementing virtual education can be a challenge, but once such a plan is implemented, the effective use of virtual education can provide students and teachers with new options for teaching and learning. Bozeman School District #7 (MT) (BSD7) recognizes that online classes may be a good fit for some students and that those students may wish to pursue the option of enrolling in online classes. BSD7 Policy 2410P (https://www.bsd7.org/common/pages/DisplayFile.aspx?itemId=3994266) outlines the expectations, guidelines, and procedures for online coursework. The Montana Digital Academy (MTDA) (montanadigitalacademy.org) is the district's preferred provider because it is defined as the state online program for Montana. MTDA helps support instruction in partnership with public schools across the state. MTDA exclusively uses Montana public school teachers for every course and course standards are based on Montana curriculum standards. Other providers can be approved on a case-by-case basis, but only after MTDA has been considered. Students can complete 1.5 total credits online in most cases. In special circumstances, there is no limit and no restriction regarding the total number of credits or the accredited program through which the course is taken. The circumstances include students whose Individualized Education Program (IEP)/Section 504 plan specifically recommends online coursework, homebound students, or students pursuing credit recovery or accelerated/early graduation, amongst others. If a student takes a course through MTDA or another provider, the provider's name is listed on their transcript.

- optimizing the use of facilities (for example, by offering alternate scheduling to relieve overcrowding or enforce social distancing);
- offering coursework not otherwise possible (such as when student enrollment is too low to feasibly offer a course section);
- accessing instructional expertise or materials not otherwise available;
- assisting students with accessing dual enrollment opportunities;
- presenting instructional material in a format better suited to some students' learning needs;
- allowing teachers to personalize learning for students;
- introducing supplementary experiences otherwise impractical to offer in real time and space (such as virtual field trips);
- maximizing educational opportunities beyond traditional school hours;

- eliminating travel time between instructional locations;
- permitting students to set their own learning pace;
- offering instruction to hospitalized, incarcerated, homebound, and other students physically unable to travel to a school site;
- offering services to homeschooled students and their parents;
- providing services to students who may prefer alternative settings (for example, to avoid bullying or because they do not function well in a social setting);
- providing alternatives to students who have other life circumstances that make it difficult or impossible for them to meet inflexible seat-time or attendance policies associated with traditional schools;
- ensuring equity of instructional opportunity for all students regardless of school assignment (for example, to equalize options in urban, suburban, and rural settings); and
- offering supplemental, remedial, and credit recovery options.

These benefits can be evident at any time and are not limited to crises that require virtual education (such as during the COVID-19 pandemic).

Using Historical Data Modeling to Inform Grading Decisions

In March 2020, the Governor of Delaware directed all Delaware public schools to close for two weeks in response to the COVID-19 pandemic. The two-week closure allowed school leaders and public health experts to create a plan and prepare for the potential impact of extended school closures on Delaware students, families, and educators. The closure was later extended through May 15, 2020, and subsequently for the remainder of SY 2019-20.

Brandywine School District (DE) (BSD) decided that remote learning in spring 2020 would consist of reviewing learning content to reinforce and enrich previous learning that occurred in SY 2019-20. To ensure all students had equitable access to learning opportunities and students would not fall behind, new curricular content would not be covered. This decision ensured that students would not be penalized if they were unable to participate in remote instruction due to connectivity or accessibility barriers. While some parents favored the decision to ensure students would not be delayed academically due to inequitable access, others were concerned that students would not have the opportunity to progress.

Delaware LEAs also had to consider if and how student grades should be counted during remote learning. The Delaware Department of Education (DDOE) provided voluntary grading recommendations to incentivize learning continuity during remote learning.[12] Each Delaware district and charter school was allowed to determine how to grade students to allow flexibility in meeting individual district and charter policies, practices, and submitted remote learning plans. Grades are not included in Delaware's accountability model and state report cards, so waivers and accommodations from the DDOE were not needed. Delaware school districts took different approaches: some continued to grade the same way they had been, others changed the weighting of 4th quarter marking period grades (by, for example, counting 4th marking period as 10 or 20 percent), and BSD developed a data-informed approach.

Normally, BSD uses a standards-based grading system for elementary school students and a 10-point traditional A-F grading scale for 6th-12th grade (middle and high school) students. The district recognized that the typical grading scale for 6th-12th grade students would not be

12 Delaware Department of Education. (2020). *Supporting Continuity of Learning in Delaware Schools*. Retrieved December 11, 2020, from https://www.doe.k12.de.us/cms/lib/DE01922744/Centricity/Domain/599/continuity_of_learning.pdf.

suitable for remote learning. The Assessment and Accountability Supervisor analyzed four years of grade data from grades 6-12 to determine how grades should be calculated during spring 2020. The historical analysis focused on how much grades during the 4th quarter marking period impacted a student's overall grade point average (GPA). The historical analysis found that the standard deviation for student's final grades based on the 4th quarter marking period grade was 0.2-0.4. In many cases, students that are doing well in the previous three marking periods continue to do well, and students who struggle continue to do so.

The results of the historical data analysis allowed the district to develop a value-added model for calculating student GPA that would serve two objectives: avoid penalizing students due to extenuating circumstances related to equity and accessibility, and allow students to improve their final GPA. The district decided that student GPA would not decrease based on the 4th quarter marking period and that each student's GPA could increase by 0, 0.2, or 0.4 based on the student's completion of assignments during the 4th quarter marking period. Students could submit completed assignments online or drop off completed enrichment packets at their school's contactless drop-off point. Teachers would then review the student's work and assign a 0, 0.2, or 0.4 to the assignment, per the 0-0.4 scale. Teachers then calculated a final GPA at the end of the 4th-quarter marking period based on all the student's completed work. For example, if a student had a 3.2 GPA at the end of the 3rd marking period and did not complete any assignments during the 4th quarter marking period, their GPA would remain the same because they would receive a 0 for not completing their assigned work. Alternately, if a student had a 1.3 GPA at the end of the 3rd marking period but satisfactorily completed all their assignments during the 4th quarter marking period, 0.4 would be added to the student's GPA, increasing the student's final GPA to 1.7.

Parents appreciated that student grades would not be negatively impacted due to the switch to remote learning during the 4th quarter marking period, particularly parents of high school students who aim to attend colleges or qualify for scholarships. Conversely, some teachers were initially troubled that students could not receive a failing grade for not completing coursework. After district leaders explained the need to not penalize students for learning barriers that were beyond their students' control, most teachers were amenable to the 4th marking period grading policy. An analysis of SY 2019-20 final grade distributions showed a near-exact alignment with the final grade distributions from the previous four years. This analysis validated the district's decision to implement a value-added approach based on rich historical data. Ultimately, the key lesson learned by the district is that the education system should always do what is best for students. District data leaders are proud that BSD could develop a grading policy that would help, and not harm, students during this challenging time.

Privacy, Confidentiality, and Student Protection

Any data system that collects information about individual students and staff members must comply with regulations and laws intended to protect the privacy, security, and confidentiality of students, staff, and parents. SEAs and LEAs that offer virtual education or work with virtual education service providers must be sure that data are collected, shared, and used in ways that are allowed under the Family Educational Rights and Privacy Act (FERPA), the Protection of Pupil Rights Amendment (PPRA), the Richard B. Russell National School Lunch Act (NSLA), the Children's Online Privacy Protection Act of 1998 (COPPA), the Children's Internet Protection Act (CIPA), and any other relevant federal, state, or contractual requirements. Guidance and legally authoritative resources on protecting student privacy are available through the SPPO website: https://studentprivacy.ed.gov. The SPPO has developed numerous resources, including online training modules, videos, webinars, and frequently asked questions to help states, districts, and schools protect the privacy of student data.

Individual states are increasingly developing prescriptive rules and regulations to protect student privacy that are in addition to the requirements of federal laws such as FERPA. Implementing new and changing privacy policies and practices can be difficult for virtual education providers that serve multiple states. Moreover, Attorneys General of individual states may interpret laws differently. SEAs and LEAs must be aware of these changes and the challenges they present to ensure the privacy of student data is protected according to all relevant laws and requirements. This applies regardless of whether virtual education is offered through the agency or a virtual education service provider.

Forum Guide to Education Data Privacy
https://nces.ed.gov/forum/pub_2016096.asp
This resource provides state and local education agencies with best practice information to help school staff protect the confidentiality of student data in instructional and administrative practices. This guide also may be useful for SEAs and LEAs developing privacy programs and related professional development programs. For current information on Family Educational Rights and Privacy Act (FERPA) and education data privacy, please refer to the Student Privacy Policy Office (SPPO) website: https://studentprivacy.ed.gov.

Summary

Advancements and growth in virtual education have provided education agencies, educators, and students with innumerable options for incorporating virtual experiences into teaching and learning. The many variations of virtual education show promise for expanding educational opportunities and improving education endeavors. Therefore, informed decisionmaking about virtual education requires an understanding of the impact of technological innovations and changes on education policies and the collection of education data. Discrepancies between the types of data that are relevant to virtual education and the data elements collected by traditional education data systems can hinder decisionmaking at the national, state, district, school, and classroom levels. Educators, policymakers, and other stakeholders must therefore consider and address policy questions that affect virtual education and then implement best practices to effectively identify, collect, and use virtual education data.

Updating education data systems to reflect the current needs of virtual education will improve the quality of data available to inform decisionmaking.

Chapter Two: **Virtual Education Data: Opportunities, Challenges, and Best Practices in States and Districts**

This chapter identifies opportunities available through virtual education data, discusses some of the data challenges that have emerged during the widespread adoption of virtual education, and identifies best practices that address those challenges.

Opportunities Available Through Virtual Education Data

Although virtual education data do not always align well with existing data systems, students, educators, and policymakers are benefitting from new and different types of information that are available through virtual education. Virtual education technologies can help strengthen relationships between teachers and students, reinvent approaches to collaborative learning, minimize equity and accessibility disparities, and adapt learning experiences to meet the needs of all learners.[13] New technologies can also ease the implementation of individualized, personalized, and differentiated education. Virtual education data can advance learning opportunities in various ways:

- Virtual education can provide precise information on student skills and knowledge, which allows the award of course credit based on a student's mastery of materials rather than time spent in class.[14]
- Classroom technologies such as student response systems, clicker systems, or polls can provide teachers with immediate feedback, such as baseline metrics of comprehension, information on how to proceed with course material, and validation of student understanding. This formative data can guide teaching decisions throughout the school day and in longer-term planning.
- Some software, applications, and tools collect data that can provide a better understanding of how a student arrived at a decision. Data on keystrokes, button clicks, attempts made, and the path a student took when working on a problem are not possible to collect using paper and pencil.
- Some classroom technology solutions include student monitoring and feedback features. This information can help teachers with remote classroom management and keep students focused on classroom instruction.

13 U.S. Department of Education, Office of Educational Technology. (2017). *Reimagining the Role of Technology in Education: 2017 National Education Technology Plan Update*. Retrieved October 16, 2020, from https://tech.ed.gov/files/2017/01/NETP17.pdf.

14 Freeland, J. (2014). *From Policy to Practice: How Competency-based Education is Evolving in New Hampshire*. Lexington, MA: Clayton Christensen Institute. (ERIC ED561275)

The proliferation and prolonged use of virtual education during the coronavirus disease (COVID-19) pandemic has the potential to permanently change the breadth and depth of virtual education. The use of virtual education was relatively limited in the years preceding the COVID-19 pandemic. However, all states had to adopt some form of virtual education in 2020. The widespread adoption of virtual education tools and technologies has generated increased interest in virtual education options for some students, and the need for high-quality virtual education is anticipated to continue following the COVID-19 pandemic. Therefore, state and local education agencies (SEAs and LEAs) may be interested in improved systems and data to support the continued provision of virtual education.

Technology Equity in SEAs and LEAs

The abrupt shift to remote learning during the COVID-19 pandemic illuminated long-standing challenges regarding internet access, bandwidth, access to devices, and other issues of technology equity. In the weeks and months following widespread school closures, SEAs and LEAs prioritized closing the gap between families with and without reliable internet and technology access at home. Data on technology equity, access, and availability has helped agencies target their efforts and extend services and support to students in need.

Collecting Digital Learning Data in Nebraska

The Nebraska Department of Education (NDE) was already taking steps to collect data on technology equity when the COVID-19 pandemic closed schools. It was therefore known that nearly half of Nebraska's public school students did not have a device for school use, and a significant portion of the state's student body did not have reliable internet access at home. As the transition to remote learning for all students came into focus, community groups were eager to help by purchasing devices for students who needed them. While NDE was grateful for community involvement, merely providing devices would not be enough; infrastructure and broadband access issues would also have to be addressed. NDE established a Hierarchy of Digital Learning (https://www.launchne.com/leadership-and-planning/technology/) to illustrate the different types of resources that are needed for digital learning, including infrastructure, devices, software systems, digital content, and professional development/training. System privacy and security are also essential.

Working together with Wisconsin, Indiana, and other states, NDE identified data elements and refined the process of collecting data from families to best capture information on technology and internet access in Nebraska's LEAs. A key factor in this process was developing survey questions that would be easy to answer, and would not confuse parents with little knowledge of technology.

Survey Question	Response Options
Can the student access the Internet on their primary learning device at home?	• Yes • No - Not Available • No - Not Affordable • No - Other
What is the primary type of internet service used at the residence?	• Residential Broadband (for example, Digital Subscriber Line [DSL], Cable, Fiber) • Cellular Network • School Provided Hot Spot • Satellite • Dial-up • Other • None
Can the student stream a video on their primary learning device without interruption?	• Yes - No issues • Yes - But not consistent • No
What device does the student most often use to complete schoolwork at home?	• Desktop/Laptop • Tablet • Chromebook • Smart Phone • None • Other
Is the primary learning device a personal device or school-provided? Is the primary learning device shared with anyone else in the household?	• Personal - Dedicated (one person per machine) • Personal - Shared (sharing among others in household) • School Provided - Dedicated • School Provided - Shared • None

Table 1. Digital Equity Survey Questions and Data Elements

SOURCE: Nebraska Department of Education, "Launch Nebraska: Infrastructure," 2020.

Closing the Digital Divide in Arkansas

As a state with limited financial resources and a significant population of students in rural districts, Arkansas' digital divide was a known issue before the COVID-19 pandemic. A set of surveys from the Arkansas Department of Education (ADE) discovered that the percentage of public school students that lacked broadband access at home was even higher than expected. The state's Ready for Learning survey (https://insight.ade.arkansas.gov/BlendedLearningReadiness/ARReadyForLearning?lea=AR#) compiled a student-centered image of what was lacking and where, while a Blended Learning Needs Assessment (https://insight.ade.arkansas.gov/BlendedLearningReadiness/Home?lea=AR) survey evaluated the technology needs of schools with regards to learning management systems (LMSs), digital providers, devices, and

connectivity. ADE also added new elements to its statewide student information system (SIS) to allow identification of options that were not present/widely needed before the COVID-19 pandemic, including the following: student instructional options (attending in person, entirely virtual, or blended, or hybrid, learning); student internet access at home; the source of student device access (district-provided or personal); and student's status as a "no show" (meaning not attending in any way, without having exited the system)—the extremely rural nature of some districts made this last element a necessity.

To help close the divide, the governor's budget for rural broadband included $10 million for the Arkansas Hotspot Project, which created 21,000 hotspots in rural Arkansas. This effort is a strong step toward progress, but only covers a small portion of students in need. The COVID-19 pandemic's impact on device availability and shipping meant the state's lack of devices persisted, with orders continuing into July 2020 and unable to be fulfilled until January 2021. Despite these challenges, the COVID-19 pandemic has proven that reaching students through technology is a viable path forward, and the work continues to bring improvements to Arkansas.

Distributing Technology Devices in North Carolina

Wake County Public School System (NC) (WCPSS) had a fortuitous jump on technology equity—when the COVID-19 pandemic hit, the district was already at a 3:1 student-to-laptop ratio and was developing plans to move to 1:1 by the end of the 2021-2022 school year. The LEA was also able to distribute nearly 5,000 laptops to staff in the nine days following school closures in March 2020 to support remote teaching. Technology and the other attendant issues of education during the COVID-19 pandemic were handled in a way that would best support families. Socially distanced, masked device distribution occurred at sites with hand sanitizer and temperature checks. Several agencies partnered with WCPSS to make this possible, from local nonprofits and internal departments to other outside entities. WCPSS's new goal for device distribution is 1:1 by August 2021.

Gaps in the WCPSS's knowledge of student and staff access to home broadband became apparent at once. As remedies, the district launched a remote learning help desk (with phone service in English and Spanish), set up a remote learning site for parents and students to access learning materials from home, and established an online guide to technology (https://www.wcpss.net/techguides) to ensure students and families can make the most of learning in school and at home. The district noted that better availability of data on student and family access to the Internet and technology devices before the disruption, as well as data on internet availability/coverage, would have been beneficial.

WCPSS also launched a new Virtual Academy in fall 2020, in which roughly half of the district's students were enrolled. WCPSS data collection revealed that Virtual Academy enrollment was representative of the district's overall student population and its subgroups. One key takeaway from the situation caused by the COVID-19 pandemic is that a student's family income is not the only barometer of technology/broadband needs—a multi-student family regardless of income may still have difficulties when all those students need to connect at the same time.

One-to-One Computing in Delaware

When Delaware schools were closed in March 2020, Brandywine School District (DE) (BSD) had to quickly develop a plan to provide students with computing devices for remote learning. BSD surveyed parents to identify students who lacked adequate internet and device access. The district then conducted a systematic device distribution program: Parents were assigned a date and time to pick up their device, were required to sign a device release form, and received their student's device at a drive-up distribution site. BSD's efforts resulted in more than 95 percent of students having a device by May 2020. The district also created a remote learning portal on

its website, which included a remote learning toolkit for families, as well as a webpage with provider links to help households with internet connectivity issues.[15]

In addition to supporting technology equity, BSD provided a variety of services and supports to students during remote learning. The district set up food distribution sites at schools and used district buses to distribute meals to locations in the community. The Curriculum and Instruction Department prepared printed enrichment/practice packets with subject matter content and "book bags" that contained 3-4 library books for students. The packets and books were prepared for four sets of grade levels: K-2, 3-5, 6-8 (middle school), and 9-12 (high school). These materials were intended to help students remain engaged in learning, even if they experienced barriers to accessing school materials online.

Starting in school year (SY) 2020-21, all students in grades K-12 were issued a computing device by BSD. Students are required to use their BSD-provided device for schoolwork completed both at school and at home. In short, students who attend school in person are expected to bring their devices to school with them to complete their work. The one-to-one program is helping the district use technology to improve student learning outcomes and ensure that students have the technological skills and abilities that are needed post-graduation.

Transitioning to Virtual Learning in Virginia

Loudoun County Public Schools (VA) (LCPS) has the characteristics of two counties in one: urban communities with 15 high schools in the east, adjacent to the Washington, DC metro area, and a rural west with only two high schools. Happily, LCPS's existing assets and infrastructure meant that the district could transition to 100 percent remote learning in a way that would bring help to those who needed it the most. The LEA's 1:1 device distribution goal began with the deployment of laptops to students in grades 3 through 12 in March 2020 and grades K through 2 by August 2020. LCPS set up a multilingual support line for information technology (IT) questions and opened 11 hardware repair centers throughout the county.

LCPS acquired hotspots to distribute to the small percentage of students who lacked home broadband. The LEA also opened internet cafés for students and expanded the reach of wireless coverage within school buildings, so that students could connect from outside the building if needed. LCPS avoided a mass of data requests during the COVID-19 pandemic thanks to its analytics platform, which provides useful data visualizations and allows for self-service. The LEA also collected data that were required at the SEA level and engaged in statewide brainstorming sessions with the Technology Directors Forum.

From their experience with the COVID-19 pandemic, LCPS learned that putting ideas into action as quickly as possible is key, as are collaboration and clear lines of communication. Rapid response and an openness to new ideas allowed the LEA to deal with unforeseen challenges and changes to plans. LCPS was fortunate enough to already have a solid infrastructure and a battery of paperless tools in place well before they were needed. Therefore, their response was quite successful.

Challenges to Collecting High-Quality Virtual Education Data

Education data are collected in districts and schools; stored in state, district, and school information systems; and reported by the federal government and SEAs. Existing data systems that can provide high-quality data for accountability and decisionmaking may not be able to accommodate virtual education data that are not aligned with traditional administrative, instructional, and policymaking contexts. Moreover, the individual data elements used in

15 Brandywine School District. (2020). *Remote Learning*. Retrieved December 14, 2020, from https://www.brandywineschools.org/remotelearning.

data systems may not accurately capture data related to virtual education. There are multiple challenges to consider when modifying data systems to capture virtual education data:

- *The use of virtual education and the types of virtual education offered vary greatly among SEAs and LEAs.* Some SEAs have state-endorsed virtual education opportunities, while others do not. Some individual LEAs may offer virtual education, while others do not—for example, rural districts may turn to virtual education to access appropriately certified teachers. The wide variety of virtual education models, both within a state and within an LEA, can make data consistency and comparability difficult.
- *Data management and governance can be challenging when students are enrolled in multiple LEAs.* These challenges are further complicated when students and their data are distributed across multiple states and organizations that use different data systems. The use of data standards based on the Common Education Data Standards (CEDS) and School Courses for the Exchange of Data (SCED) standardized course codes can help to minimize such challenges through interoperability, which allows for the quick and easy transfer of data between systems.
- *Virtual education providers may have data collection timelines that vary from an SEA's or LEA's timelines.* Often, SEAs and LEAs will establish data-reporting timelines that correspond to reporting requirements. Timelines and requirements that are not relevant to the virtual provider can cause difficulties when coordinating data collections.
- *Accurately tracking and accounting for students can be more difficult when students enroll in virtual schools that are not state-sponsored (for example, independent charter schools).*
- *Grade levels and school assignments are more flexible in virtual environments.* Although school and grade level assignments may be unnecessary for student achievement within a virtual environment, this flexibility could complicate traditional reporting measures and assignments that are often necessary for accountability measures.
- *Information that is relevant to virtual education may not comply with established reporting schemas.* For example, many data systems track seat time as an indicator of student participation and readiness for progression. However, seat time is an imprecise and often meaningless measure for self-paced virtual education courses. Competency-based measures that indicate a student's proficiency in the material are often better indicators of virtual education participation and readiness for progression.
- *Virtual instruction and coursework that can be accessed at any time from any location blur the distinction between instructional time and homework.* This distinction is important when schools must comply with federal and state policies that require that an appropriately certified teacher be available to students during instruction time.
- *Virtual education courses may not fit traditional ideas of course duration or structure.* Courses in a virtual education model may not have a specified length because they are based on coursework completion or student demonstration of competency, and as a result, a student may be able to complete more than the traditional number of courses in a given semester or year. For example, a student who failed the first attempt at Algebra I may be allowed to demonstrate proficiency in various components of that course and will only be expected to repeat or remediate the specific areas in which they cannot demonstrate proficiency. The student may be able to work on those areas outside of class time while still maintaining enrollment in a full day of classes. However, state funding structures may prohibit LEAs from providing funding for students enrolled more than full-time. Relatedly, virtual section closing dates that fit within the

academic year are important for state and federal reporting purposes. While a virtual course section may allow a student to complete the coursework over multiple years, reporting procedures do not allow course sections to extend over multiple years of enrollment.

- *Education organizations, educators, students, parents, researchers, and other stakeholders need information on what types of virtual education programs/configurations are most effective; however, evaluation is difficult without several years of high-quality data.* An SEA may want to know which vendor-provided virtual education programs are effective by grade level. A teacher may need to know which supplemental virtual activities will benefit their students and make effective use of class time. Parents who wish to enroll their child in a fully online school may want to compare how students at the online school perform on state assessments with how students performed in school buildings. These types of decisions require high-quality virtual education data that can be compared longitudinally.
- *LEAs often must change established structures/cultures (such as school districts, schools, or 7-period days) to accommodate virtual education.*
- *Various systems needed to accurately track and evaluate virtual education may not be integrated with existing systems.* Transferring data that are collected in disparate systems (such as an LMS) to a system of record can be complicated in states without a statewide SIS. Interoperability is needed to support data movement between SISs and other data systems, even when a statewide SIS is used.
- *Virtual education data that are needed for high-stakes decisionmaking (such as funding allocations) may need to be translated to more traditional measures that are commonly used.* For example, attendance and aggregate hours of instruction may be required for state funding calculations, but these measures may be inapplicable in self-paced virtual education courses.
- *Remote proctoring protocols are needed to ensure data from assessments of student learning are representative of individual student performance.*
- *Data on multiple learning models (including in-person, blended, or hybrid, and virtual) may need to be defined and compared for a wide variety of purposes.*
- *New data may need to be collected for new purposes.* For example, teacher health information can be considered when allocating and assigning teachers to in-person, hybrid, or virtual education settings.
- *Data systems may or may not easily be able to accommodate repeatedly switching between education modes.* For example, during the COVID-19 pandemic, some districts, schools, and students have had to switch between in-person learning and virtual education after being exposed to or contracting COVD-19.

Forum Guide to Attendance, Participation, and Engagement Data in Virtual and Hybrid Learning Models
https://nces.ed.gov/forum/pub_2021058.asp
This resource provides an overview of best practices that will help education agencies collect, report, and use attendance, participation, and engagement data in different learning formats. It was developed as a companion publication to the 2018 *Forum Guide to Collecting and Using Attendance Data* and incorporates lessons learned by state and local education agencies (SEAs and LEAs) during the coronavirus disease (COVID-19) pandemic.

SEAs and LEAs collect data for many reasons related to improving education, such as monitoring student progress; providing students with high-quality teachers; communicating education information to the public; and meeting federal, state, and local reporting requirements.

The information generated from data collections has real-world, high-stakes consequences for schools and students, such as determining school funding. SEAs and LEAs that offer virtual education or serve students who engage in virtual learning must be certain that data systems can capture accurate information on both virtual and in-person education. Data elements and systems that were designed to capture information relevant to in-person education must be modified and expanded to capture information relevant to virtual education. Failing to update data systems can result in inaccurate or incomplete data.

Proctoring Virtual Assessments

During the COVID-19 pandemic, Pasco County Schools (FL) provided students with three options when schools opened in August 2020:

1. Traditional in-person learning. In this model, students and teachers follow a traditional school schedule that includes all the core classes and other subject areas facilitated by a highly qualified teacher in a traditional in-person classroom setting.
2. An online learning option for students who wish to remain connected to the school but learn virtually. In this model, students have scheduled times, synchronous class meetings, and digital resources and assignments that can be completed at home or school if circumstances change during the year.
3. A full-time online learning program offered by the district's nationally recognized virtual model. This full-time virtual school offers courses for K-12 students supported by a dedicated team of highly qualified virtual teachers.

The district needed to determine how to implement a required assessment district-wide for all learning models. In the traditional in-person learning model, teachers can proctor the assessments and help students who may have questions or need support. However, the LEA needed to adopt a new proctoring method for students who were learning virtually and remained connected to the school. The LEA decided to use a videoconferencing platform to proctor the assessment. The platform posed a challenge because students who needed to speak to the teacher could be heard by all students, which risked causing distractions during the assessment.

The LEA implemented two methods to proctor virtual assessments with minimal distraction:

- In the first method, students were placed in breakout rooms and a designated teacher moved between rooms to check on students. Students were able to "call" the teacher to come to their room next for immediate help.
- In the second method, students remained in the main room and turned off their audio, unless they needed to ask a question. This allowed students to test without distraction and enabled teachers to monitor the entire class's test progression.

Best Practices for Collecting High-Quality Virtual Education Data

To evaluate whether virtual education is effectively and efficiently serving its purpose, decisionmakers must have access to high-quality data. SEAs and LEAs can benefit from following established best practices for collecting high-quality data on virtual education.

- Use of CEDS, SCED, and other voluntary data interoperability standards and codes can help to minimize data management and governance challenges, especially when students and their data are distributed across multiple states and organizations that use different data systems.
- Establish internal governance and collaboration processes to help staff understand the importance of high-quality virtual education data.
- Proactively identify priorities for data collection and create if-or-when scenarios. For example, if one student is enrolled in one virtual education course, a dedicated virtual education data collection may not be necessary. On the other hand, if an entire class or school participates in virtual education (for example, due to a public health emergency), data would need to be collected on virtual education.
- Prepare virtual education data elements for rapid deployment and timely implementation. Including a virtual education indicator, for example, can be very helpful in identifying data elements that would otherwise be indistinguishable from traditional data elements. This indicator can be activated to identify and track virtual education data.
- Coordinate data collection requirements and timelines to ensure that the required data can be reported accurately and on time.
- Ensure that all grade levels have consistent expectations for student grades, attendance, and performance indicators. Although traditional measures may be unnecessary in certain virtual education environments, these data are often necessary for accountability measures.

The National Forum on Education Statistics has produced a wide variety of publications designed to improve data quality in elementary and secondary education agencies (https://nces.ed.gov/forum/publications.asp). The collection, maintenance, and use of high-quality virtual education data are a product of education data staff who

- understand how their education organization operates and how data are used;
- recognize the information needs of their stakeholders (including teachers, administrators, decisionmakers, parents, and community members);
- acknowledge the challenges inherent in updating data systems to accurately reflect changes in virtual education;
- have the support of high-level policymakers in the agency; and
- develop information systems based on commonly accepted standards for elementary and secondary education data.

Forum Curriculum for Improving Education Data: A Resource for Local Education Agencies

https://nces.ed.gov/forum/pub_2007808.asp

This curriculum supports efforts to improve the quality of education data by serving as training materials for K-12 school and district staff. It provides lesson plans, instructional handouts, and related resources, and presents concepts necessary to help schools develop a culture for improving data quality.

Forum Guide to Building a Culture of Quality Data: A School & District Resource

https://nces.ed.gov/forum/pub_2005801.asp

This resource was developed to help schools and school districts improve the quality of data they collect and to provide processes for developing a "Culture of Quality Data" by focusing on data entry–getting things right at the source. This resource shows how quality data can be achieved in a school or district through the collaborative efforts of all staff.

Forum Guide to Data Ethics

http://nces.ed.gov/forum/pub_2010801.asp

While laws set the legal parameters that govern data use, ethics establish fundamental principles of "right and wrong" that are critical to the appropriate management and use of education data in the technology age. This guide reflects the experience and judgment of seasoned data managers; while there is no mandate to follow these principles, it is hoped that the contents will prove a useful reference to others in their work.

Forum Guide to Data Governance

https://nces.ed.gov/forum/pub_2020083.asp

This resource provides timely and useful best practices, examples, and resources for agencies implementing or updating their data governance programs. It provides an overview of data governance; discusses effective data governance practices, structures, and essential elements; describes how to meet privacy and security requirements while also meeting data accessibility and sharing needs; and includes detailed case studies from education agencies in their data governance efforts.

Chapter Three:
Virtual Education Data Elements

This chapter offers an overview of commonly used elements to collect virtual education data.

While many of the elements state and local education agencies (SEAs and LEAs) use to collect data on virtual education are the same elements used to collect data on in-person education, other elements must be added or modified to meet the needs of virtual education data collection. For example, both virtual and traditional schools need basic elements to identify students, teachers, and schools, but different elements are often needed to track attendance for traditional and virtual courses. In response to the widespread use of new technologies and new opportunities for virtual and blended (or hybrid) learning, many SEAs and LEAs are developing new elements and modifying existing elements to improve the collection of education data. The elements described below are also included in CEDS.

One of the basic requirements for tracking virtual education data is the ability to identify virtual education data in traditional data systems. A common approach is the use of a virtual education indicator that can be used to identify data elements that would otherwise be indistinguishable from traditional data elements. For example, a stakeholder reviewing information on K-12 schools within a district may be unable to identify which schools are in-person and which are virtual. The use of a virtual indicator in addition to information such as the school identifier and name can help to easily distinguish virtual schools. Common elements that identify K-12 virtual and blended, or hybrid, data include the following:

SCED

https://nces.ed.gov/forum/sced.asp

SCED is a voluntary, common classification system for prior-to-secondary and secondary school courses. SCED includes elements and attributes that identify basic course information and that can be used to compare course information, maintain longitudinal data about students' coursework, and efficiently exchange coursetaking records. The *Forum Guide to SCED* (http://nces.ed.gov/forum/pub_2014802.asp) provides an overview of the SCED Framework elements, recommended attributes, and information for new and existing users on best practices for implementing and expanding their use of SCED.

CEDS

https://ceds.ed.gov/

CEDS is an education data management initiative whose purpose is to streamline the understanding of data within and across early learning, elementary, secondary, postsecondary, and workforce (P-20W) institutions and sectors. The CEDS initiative includes a common vocabulary, data models that reflect that vocabulary, tools to help education stakeholders understand and use education data, an assembly of metadata from other education data initiatives, and a community of education stakeholders who discuss the uses of CEDS and the development of the standard

- **Virtual Indicator:** Indicates a school, institution, program, or course section focuses primarily on instruction in which students and teachers are separated by time and/or location and interact using computers and/or telecommunications technologies.
- **Virtual School Status:** An indication of the extent to which a public school offers instruction in which students and teachers are separated by time and/or location, and interaction occurs via computers and/or telecommunications technologies.
- **Course Interaction Mode:** The primary type of interaction, synchronous or asynchronous, defined for the course.
- **Blended Learning Model Type:** A type of formal education program in which a student learns at least in part through online learning, with some element of student control over time, place, path, or pace; at least in part in a supervised location away from home; and the modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience.
- **Course Section Instructional Delivery Mode:** The primary setting or medium of delivery for the course.

Additional information on these elements and their use in K-12 data systems is available in the CEDS publication, *CEDS Addresses Virtual and Blended Learning* (https://ceds.ed.gov/pdf/ceds-addresses-blended-learning.pdf).

In addition to elements that specifically identify virtual data, SEAs and LEAs have found that certain elements that exist in traditional data systems are particularly useful for virtual education data collection. This list includes elements that are intended to identify the organizations responsible for different aspects of education, such as providing funding, issuing/rewarding diplomas, or tracking attendance. An SEA that serves students who are simultaneously enrolled in a local school based on their home address and a virtual school in another district may find that one LEA is responsible for student funding while another is responsible for attendance. While these situations are common in traditional education settings, they are more prevalent and maybe more complex when students are enrolled in virtual programs. Data elements that help to clarify organizational responsibilities include the following:

- **Responsible Organization Identifier:** Identifies an organization responsible for specific educational services and/or instruction based on a type of responsibility specified in the Responsible Organization Type.
- **Responsible Organization Type:** The type of responsibility the organization has for the student, such as issuing/rewarding diplomas, funding related to a student enrollment, or individualized education programs (IEPs), which are written instructional plan for students with disabilities designated as special education students under the Individuals with Disabilities Education Act (IDEA-Part B).
- **Organization Name:** The name of a non-person entity such as an organization, institution, agency, or business.
- **Responsible District Identifier:** The district responsible for specific educational services and/or instruction of the student.
- **Responsible District Type:** The type of responsibility the district has for the student.
- **Responsible School Identifier:** The school responsible for specific education services and/or instruction of the student.
- **Responsible School Type:** The type of services/instruction the school is responsible for providing to the student.

Other data elements that feature prominently in virtual education data systems are those that can capture accurate data on both traditional and virtual methods of reporting course section time and course credit completion. Some virtual education opportunities conform to traditional time and credit structures—for example, course sections that meet daily for a set period, resulting in a credit amount based on the time spent in the course. Other virtual education opportunities are available outside of traditional time and credit structures—for example, self-paced course sections that students can log into at any time and that assign credit based on skill proficiency or competency. Data elements that help to accurately track this information include the following:

- **Course Credit Units:** The type of credit (unit, semester, or quarter) associated with the credit hours earned for the course.
- **Credential Definition Criteria:** The criteria for competency-based completion of the achievement or award.
- **Competency Set Completion Criteria:** The criteria for the set of competencies that represent completion or partial completion of a unit, course, program, degree, certification, or other achievement or award. Specifies whether completion requires achievement of all items in the set or some number of items.
- **Competency Set Completion Criteria Threshold:** The minimum number of competencies in the set that must be achieved for completion or partial completion of a unit, course, program, degree, certification, or other achievement or award.
- **Course Section Time Required for Completion:** The actual or estimated number of clock minutes required for course completion. This number is especially important for career and technical education courses and may represent (in minutes) the clock hour requirement of the course, the number of minutes (or clock hours) of class time per week, times the number of equivalent weeks the class typically meets.

Chapter Four: **Virtual Education Data Use Policy Questions and Common Practices**

This chapter discusses policy questions and common practices that are intended to aid education agencies as they develop data elements and systems that will capture essential information on virtual education, improve the quality of data available on blended, or hybrid, learning, and provide information on the interaction between virtual and traditional learning environments.

Integrating virtual education data into existing data systems begins with policy questions. State and local education agencies (SEAs and LEAs) need to know what types of questions data systems must be able to answer. They also need to know whether existing policies and practices are sufficient to collect quality virtual education data. For example, knowing how LEA teacher certification requirements are applied to virtual schools is essential for collecting quality teacher certification data.

The policy questions and common practices discussed in this chapter are intended to aid SEAs and LEAs as they develop data elements and systems that will capture essential information on virtual education; improve the quality of data available on blended, or hybrid, learning; and provide information on the interaction between virtual and traditional learning environments. Data systems that can capture information on both virtual and traditional education are increasingly important as blended, or hybrid, learning evolves and the demarcation between traditional and virtual education becomes less distinct.

Policy questions that impact the collection of high-quality virtual data can be categorized into the following topic areas:

1. School Identification/Classification
2. School Governance
3. Accreditation
4. Contact Information
5. School Location
6. School Enrollment
7. School Calendar
8. Course Information
9. Course Section Information
10. Learner Activities and Resources
11. Academic Achievement and Accountability
12. Reporting Information
13. Safety and Discipline
14. Student Demographic Information
15. Student Enrollment/Exit Information
16. Student Attendance Information
17. Student Participation/Performance Information
18. Student Progress Information
19. Student Disability Information
20. Staff Member Information
21. Staff Member Employment Status
22. Staff Member Employment Credentials

23. Staff Member Assignment Information
24. Staff Member Attendance Information
25. Staff Member Professional Development

These topic areas were identified by SEAs and LEAs that have successfully integrated virtual education data collections into their existing data systems. They are not intended to address all aspects of an SEA or LEA data system but instead focus on areas where the differences between virtual and in-person education commonly impact data collections. This chapter provides detailed information on each topic area, including

- **Description:** definition of the topic area and related data;
- **Examples:** real-world scenarios describing how data in a topic area can be used (or misused) in SEAs, LEAs, and schools;
- **Policy Questions:** considerations for the interpretation and use of data elements or information collected and maintained in a topic area;
- **Common Practices:** methods implemented by SEAs, LEAs, and schools to modify or add data elements that better reflect the information and reporting needs unique to a virtual education setting; and
- **Related Data Elements:** list of elements that are commonly used in virtual education data systems. The elements are also included in CEDS.

Data elements are the basic unit of information within an education information system. Each data element has a precise meaning or semantics that can be defined and measured. This chapter includes elements that are commonly used in virtual education data systems; it does not include a comprehensive list of all possible virtual education data elements. These elements are useful for establishing virtual education data systems that can provide information for basic operational, management, and reporting purposes. SEAs and LEAs may find this information useful as they build new data systems or expand existing systems to capture data on virtual education. Many of these elements are not unique to virtual education; while they may already be in use in existing, non-virtual data systems, they may need to be updated to account for virtual education delivery.

CEDS Connect

https://ceds.ed.gov/connect.aspx

CEDS Connect is an online resource mapping CEDS data elements to specific uses or questions. Whenever possible, policy questions in this document are linked to CEDS Connect. The CEDS connections listed in the topic areas throughout this chapter provide state and local education agencies (SEAs and LEAs) with information on data elements commonly used to answer specific policy questions. CEDS also provides a myConnect tool, which allows registered users to compare their data dictionary to CEDS to determine if they have the data elements necessary to answer specific policy questions.

Topic Area 1: School Identification/Classification

Description: Information used to identify a public school or other education institution, agency, or organization providing teaching and learning or education services to students. Virtual courses are offered by a wide range of school types, organizational structures, and funding sources.

Examples: Advanced coursework is offered to students statewide through a state's "virtual school," but when local schools attempt to register students in the virtual school, they cannot find a school identification number in the state data system. After much research, school staff determines that the state runs its virtual school as a program rather than as a school, even though the program's name suggests the opposite.

The county high school had changed its classification many times: originally a regular high school, it became a magnet school, then a charter school, and eventually an alternative school.

In its final reconstitution a separate, virtual school was housed in the school's technology center. State auditors called the district several times to confirm that both the alternative school and the virtual school had the same street address, and only released supplemental funding after verifying that the school classifications had been reported correctly.

An LEA allowed students to access advanced coursework that was not offered locally through an out-of-state virtual program. However, when submitting data to the state, the LEA found that the virtual program did not collect data in the same manner as in-person schools.

Policy Questions:

- Is the virtual entity a school, a program, a course, or a course section?
- How is a school that is geographically outside of the district or state identified (meaning, flagged in the education data system)? Does identification require a separate address data element?
- What criteria are used to establish or recognize a school in your state or locality?
- Does your definition of a school accommodate virtual schools?
- Does your organization define virtual schools differently than regular schools?
- Are out-of-district and out-of-state schools recognized by the same criteria?
- Can your data system identify or flag a school classified in several categories (for example, if a school is simultaneously alternative, magnet, charter, and virtual)?

Common Practices:

- School attributes that reference school classification may simplify communications and recordkeeping.
- A school may belong to more than one category (for example, a single institution may simultaneously be an alternative school, a magnet school, a charter school, and a virtual school). Systems that maintain these data element flags separately can identify these schools.
- Many education data system managers have found the collection of classification information necessary for each school within their jurisdiction, as well as for schools in other jurisdictions attended by any of their students, either virtually or in person.

Related Data Elements:

- Virtual Indicator
- Name of Institution
- School Identifier
- School Identification System
- Administrative Funding Control
- School Type
- Magnet or Special Program Emphasis School
- Charter School Indicator
- Organization Type
- Short Name of Institution
- Grades Offered
- School Level
- Charter School Type
- School Operational Status
- Operational Status Effective Date
- Program Type
- Alternative School Focus Type

Topic Area 2: School Governance

Description: School governance refers to the entity or institution responsible for oversight and policy decisions for an education organization. Because virtual schools may be beyond the control of state and local authority, school leaders should identify the governance structure of any entity providing virtual education services to local students.

Example: The SEA governs all public schools statewide, and staff are accustomed to maintaining data on public school students submitted by LEAs throughout the state. When several students enrolled in a virtual school in another state, the SEA began receiving reports from LEAs that the virtual school failed to share student data with them on time, and the delays impacted the SEA and LEA data reporting schedules. The SEA, LEA, and virtual school had to quickly meet to establish data governance and ensure that the SEA had access to data needed for reporting.

Policy Questions:

- Does your organization have a process to determine the governance structure of a virtual school located beyond your administrative boundaries?
- When working with a virtual school located beyond your organization's administrative boundaries, which organization governs student records? Is there a process in place for resolving questions of data ownership?
- Does your organization recognize the governance structure of the virtual school?
- Do other governing bodies, such as an SEA or LEA, need to recognize the governance structure of the virtual school? If so, do they?
- Do you have accurate contact information for the school's administrators so you can reach the appropriate authorities as needed?
- Which administrative or legal entity will resolve conflicts?

Common Practices:

- Several governing bodies (such as an SEA or LEA) may need to recognize a virtual school's governance structure before credit can be transferred or funds expended.
- Some organizations have both public and private governance structures (such as a private organization receiving public funds to operate public schools).
- Some organizations have governance structures beyond the traditional elementary/secondary education setting, such as universities offering courses to high school students.
- Some organizations' governance structures cross traditional administrative boundaries in the public sector (such as national and regional virtual schools).

Related Data Elements:

- Name of Institution
- Administrative Funding Control
- Responsible District Type
- Responsible Organization Type
- Responsible School Type
- Organization Relationship Type

Topic Area 3: Accreditation

Description: Information on the accreditation status and accrediting institution of any entity offering virtual education services to local students.

Example: A national news show exposed an accreditation organization that never conducted site visits, financial audits, or program reviews as a part of its accreditation process. Instead, any organization that paid its annual fee was labeled "accredited." The school district realized that its supplemental services partner boasted the very same credential that was discussed in the show. Accreditation was only meaningful relative to the standards set by, and the integrity of, the institution issuing the credentials.

Policy Questions:

- Does your organization have a process to determine the accreditation status of a virtual school or service provider located beyond your administrative boundaries?
- Does an existing reciprocity agreement mean your organization must recognize a virtual school's accreditation by another entity's recognition (for example, if your state and a neighboring state have agreed to recognize each other's schools)?
- Does your organization recognize the accreditation status of all virtual schools in which your students are enrolled?
- Do other governing bodies, such as an SEA or institution of higher education, need to recognize the accreditation status of the virtual school? If so, do they?
- Do you have accurate contact information for the accrediting organization so you can reach the appropriate authorities as needed?

Common Practices:

- Other governing bodies, such as SEAs and LEAs, may need to recognize the accreditation status of a virtual school before credit can be transferred or funds expended.
- The meaning of the label "accredited" varies based on the standards used to measure a school, program, or staff. A virtual school's accreditation is significant only when granted by an agency whose review process conforms to standards deemed acceptable by local authorities.
- The process for determining whether to recognize a virtual school's accreditation is often identical to the one used for traditional schools (such as when credits are transferred from an out-of-state physical school).

Related Data Elements:

- Name of Institution
- Accreditation Agency Name
- Accreditation Award Date
- Accreditation Expiration Date
- Virtual Indicator

Topic Area 4: Contact Information

Description: Information used to communicate directly with an organization, institution, or person.

Example: The virtual content provider's system is down on a Monday morning and students cannot access their coursework. How can the affected students be notified? Will students be without access to their needed content? How can the local school contact the provider to get their questions answered?

Contacting a Virtual School

https://ceds.ed.gov/connectReport.aspx?uid=809

This connection contains the basic data elements needed to identify contact information for a virtual school. The element Address Type for Organization can be used to specify multiple address records for a single virtual school, for example, if the school has different mailing and shipping addresses.

Policy Questions:

- What are the avenues for contacting a virtual school or service provider? Payments? Instructional and administrative issues? Technical problems? Emergencies?
- Can the virtual provider guarantee accessibility during standard or "routine" business hours? If technical problems occur, such as a server going down, how is communication handled during off-hours?
- Have planners accommodated differences in time zones when negotiating "routine" business hours and other contact periods?
- Is your communication system equipped to contact virtual students via phone and email?
- If the district's system is impaired, including virtual learning connections and email, how can the district or school communicate with its students? Are social media avenues in place for this communication?

Common Practices:

- Maintaining accurate contact information about virtual schools and service providers is imperative because they could operate from locations across the globe. E-mail addresses and websites are especially relevant, and telephone numbers should include international (country) codes for sites outside of the United States.
- As legal entities, even virtual organizations have a formal business address. This official address (and telephone number) is a logical starting place for contact information.
- Different contact information may be necessary for routine correspondence, payment, instructional matters, administrative concerns, technical problems, and emergencies.
- Many organizations require that service providers maintain "routine" business hours, during which they must be accessible via the provided contact information.
- Data systems should allow for multiple types of virtual school contacts (meaning, different contact information for administrators and tech support) and multiple types of contact methods (including e-mail, address, and telephone number).
- A traditional school offering virtual courses (within or beyond its administrative borders) will have an address associated with its physical site and to which traditional address-related data elements will apply without modification. In contrast, a virtual school may or may not have a physical location where students receive education services. A virtual school's only physical presence may be that of a server, while its students, teachers, and administrators may all be geographically separated. When this is the case, a physical business address or primary contact address should be listed as the school address.

Related Data Elements:

- Institution Telephone Number Type
- Primary Telephone Number Indicator
- Telephone Number
- Web Site Address
- Virtual Indicator
- Address City
- School Identifier
- School Identification System
- Name of Institution
- Address Postal Code
- State Abbreviation
- Address Street Number and Name
- Address Type for Organization
- LEA Identifier
- LEA Identification System

Topic Area 5: School Location

Description: Information used to identify the physical location(s) and business address(es) of a virtual school.

Example: Rural enhancement grants and other federal and state funds are often allocated based on the geographic location of a school's mailing address (assuming the school is serving students in that region). This assumption is not necessarily valid for virtual schools, which may serve students from other counties, states, and even countries. Therefore, allocating funding aimed at specific populations within a geographic area based solely on a school's mailing address may be unwise.

Policy Questions:

- Does your organization or its governing authority require that service providers be located within certain geographical boundaries (such as within the state or district) if they are to be paid with state or local funds?
- Does your organization award or receive resources based on a school's geographic location? If this resource distribution assumes that a school serves its local population, consider that an out-of-state virtual school may be serving your local students. At the same time, a virtual school headquartered within your geographic boundaries may receive funds without serving the targeted local population.

Common Practices:

- When physical location affects funding, concerns may arise about inconsistencies between a school's physical location and its business address. Funding agencies may wish to consider additional criteria, including student demographic data, when determining a school's eligibility for such programs (other examples include high poverty and enterprise zone locations).
- Some organizations have governance structures that cross traditional school boundaries (such as national and regional virtual schools).
- To meet state requirements, some organizations certify virtual instructors even when they teach through a school located in a different state.

Related Data Elements:

- Virtual School Status
- Address Type for Organization
- Address Street Number and Name
- Address Apartment Room or Suite Number
- Building Site Number
- Address City
- State Abbreviation
- Address County Name
- Latitude

- Longitude
- Address Postal Code
- County ANSI Code
- Country Code

Topic Area 6: School Enrollment

Description: Information used to describe a school's enrollment.

Example: A student in a local school building uses the school's equipment to access a virtual school. The local school believes it should receive some portion of the full-time equivalency (FTE) pupil funding for providing facilities, equipment (computers, water fountains, and restrooms), and custodial support; the virtual school disagrees because it hires staff based on student-to-teacher ratios. Who will mediate this dispute and on what criteria will they base the decision?

Policy Questions:

- Can your data system identify students who have partial or full enrollment in virtual schools, or who have no primary school of record?
- Will a point-in-time count accurately depict enrollment in both traditional and virtual schools?
- Do any rules and regulations limit student participation in virtual offerings based on attendance areas (such as a single-district virtual education program)?
- Have policymakers decided when students in a traditional school may enroll in virtual courses? Reasons might include enhanced course offerings, postsecondary credits, remedial support, homebound instruction, cultural outreach, and virtual field trips.
- How is funding allocated when a student is physically present in one school but enrolled in another, as may occur in virtual education (for example, when students use the technology at their local school to access a virtual school)?

Common Practices:

- Enrollment data for virtual and traditional schools may change if students begin but do not complete a virtual course, illustrating the limitations of point-in-time measurements.
- Enrollment counts based on physical presence may undercount virtual enrollments if students access their virtual coursework via computers in traditional schools.

Related Data Elements:

- LEA Identifier
- LEA Identification System
- School Identifier
- School Identification System
- Responsible District Identifier
- Responsible District Type
- Responsible School Identifier
- Virtual School Status
- Enrollment Entry Date
- Responsible School Type
- Entry Grade Level
- Entry Type
- Exit Grade Level
- Exit or Withdrawal Type
- Exit or Withdrawal Status
- Cohort Year
- Cohort Graduation Year
- Enrollment Status
- Enrollment Exit Date

Topic Area 7: School Calendar

Description: Information about the days and times a school is accessible for student instruction.

Example: A student enrolled in a virtual course that covers, and assesses, the content in a shorter timeframe than the school's calendar for the semester. How does the student pass the school district's requirement to measure seat time using the school's defined calendar?

Policy Questions:

- Does the virtual provider adhere to a defined calendar? Are there established transcript and graduation dates? Will discrepancies between virtual and in-person calendars affect required reporting?
- What are the units of measurement in your organization's instructional calendar (for example, instructional minutes, days, weeks, or performance), and can they be aligned with the units of measurement in the virtual provider's instructional calendar?
- Does your organization measure course credit based solely on traditional seat time, or are other measures more applicable to the virtual environment accepted (such as total days login-accessible, total days website-accessible, time online, time estimated to complete a course, or demonstrated competency)?

Common Practices:

- When a student is enrolled in multiple schools, comparing instructional calendars is necessary to provide appropriate logistical support and accurately credit coursework.
- Some translation is necessary from traditional time-based measures of session length to units more applicable to virtual settings (such as total days log-in accessible, total days website-accessible, time online, time estimated to complete a course, or demonstrated competency).
- Many schools assess course credit based on traditional seat time, although this is changing. In a virtual setting, seat time is often not an accurate measure.
- Virtual school calendars that function according to years (365-day limits between start and end dates) help to maintain student cohorts.

Related Data Elements:

- Session Type
- Session Begin Date
- Session End Date
- Days in Session
- Instructional Minutes
- Session Code
- Session Description
- Session Marking Term Indicator
- Session Scheduling Term Indicator
- School Year
- Calendar Code
- Calendar Description
- First Instruction Date
- Last Instruction Date
- School Year Minutes
- Minutes Per Day
- Session Attendance Term Indicator
- Virtual Indicator
- Competency Definition Previous Version Identifier
- Competency Definition Blooms Taxonomy Domain
- Competency Definition Concept Keyword

Topic Area 8: Course Information

Description: Information on the organization of instructional subject matter and related learning experiences provided on a regular or systematic basis, usually for a predetermined period (such as a semester), to people or groups of students. Note that the term "course" refers to subject matter content, whereas "course section" refers to the setting in which course content is offered to one or more students.

Example: A student took English I in 9th grade at a virtual school, so her guidance counselor assumed she would be prepared for English II when she enrolled the next year at the local high school. Unfortunately, the virtual school curriculum was not aligned to the state standards, and some of the content expected on the statewide graduation exam was not covered. The guidance counselor realized that courses with identical names may not teach identical content and, in the absence of a standard course classification system, there was no way of knowing how similar or different such courses might be.

SCED
https://ceds.ed.gov/connectReport.aspx?uid=515
SCED is a voluntary, common classification system for prior-to-secondary and secondary school courses. This connection contains the basic data elements needed to implement the SCED classification system, which can be used to map course information from one classification system to another. SCED can also be used to compare course information; maintain longitudinal data about students' coursework; and exchange coursetaking records.

Policy Questions:

- Does your curriculum framework or standard apply to virtual coursework?
- Do your organization's required content assessments apply to virtual coursework?
- Can students acquire exceptions to curriculum framework and assessment requirements (such as when transferring coursework)?
- Can you map transferred course information, including credits, to your organization's course classification system?
- Does the virtual course meet state and local graduation requirements?
- Is your organization's data system capable of linking virtual course section information to competency measures?

Common Practices:

- Course names may vary between organizations (and different subject matter areas may have the same, or a similar, course name). Whenever credits are transferred, course codes and coding systems need to be coordinated between institutions for the data to be meaningful.
- Terminology regarding frameworks, standards, benchmarks, grade-level expectations, and other instructional factors may also vary between organizations. Organizations must be aware of these differences and their effects on data when transferring information.
- The SCED Classification System provides a voluntary, common classification system for prior-to-secondary and secondary school courses that can be used to compare course information, maintain longitudinal data about students' coursework, and efficiently exchange coursetaking records.

Linking Virtual Course Section Information to Competency Measures
https://ceds.ed.gov/connectReport.aspx?uid=810
This connection contains the basic data elements needed to assign course credit to a virtual course section based on measures of competency. Additional information can be linked using the Course Section Identifier.

- To accurately track competency-based measures, SEAs and LEAs can link specific course sections to learning standards, achievement measures, and assessments. Can you map virtual coursework to your organization's course classification system?

> Rubric Definition
> https://ceds.ed.gov/connectReport.aspx?uid=503
> This connection catalogs the basic data elements used to define various types of rubrics (for instance, analytic and holistic rubrics).

Related Data Elements:

- Course Code System
- Course Description
- Course Title
- Curriculum Framework Type
- Course Aligned with Standards
- Course Identifier
- Course Credit Units
- Credit Value
- Additional Credit Type
- SCED Course Code
- SCED Course Level
- SCED Course Subject Area
- SCED Grade Span
- SCED Sequence of Course
- Available Carnegie Unit Credit
- High School Course Requirement
- Course Grade Point Average Applicability
- Course Level Characteristic
- Instruction Language
- Core Academic Course
- Ability Grouping Status
- Advanced Placement Course Code
- Tuition Funded
- Additional Credit Type
- Related Competency Definitions
- Course Section Assessment Reporting Method
- Course Department Name
- Blended Learning Model Type
- Career Cluster
- Course Applicable Education Level
- Course Certification Description
- Course Funding Program
- Course Interaction Mode
- Family and Consumer Sciences Course Indicator
- K12 End of Course Requirement
- National Collegiate Athletic Association Eligibility
- Work-based Learning Opportunity Type
- Course Section Instructional Delivery Mode
- Virtual Indicator
- Credential Definition Criteria
- Credential Definition Criteria URL
- Competency Set Completion Criteria
- Competency Set Completion Criteria Threshold
- Course Section Identifier
- Competency Framework Creator
- Competency Framework Description
- Competency Framework Identifier URI
- Competency Framework Jurisdiction
- Competency Framework Publication Status
- Competency Framework Subject
- Competency Framework Title
- Competency Framework Valid End Date
- Competency Framework Valid Start Date
- Competency Framework Version
- Competency Framework Language
- Competency Framework License
- Competency Framework Publication Date
- Competency Framework Publisher
- Competency Framework Rights
- Competency Framework Rights Holder
- Competency Definition URL

- Competency Definition Code
- Competency Definition Education Level
- Competency Definition Identifier
- Competency Definition Prerequisite Identifier
- Competency Definition Statement
- Competency Definition Type

Topic Area 9: Course Section Information

Description: A setting for providing organized instruction of course content to one or more students (including cross-age groupings) for a set period. Note that more than one "course section" may be offered for the same "course."

Example: A student advances through a self-paced Algebra I course and easily passes the end-of-course assessment in the third month of the school year. The student completes an online geometry course two months later. As the student enrolls in trigonometry, the school guidance counselor realizes that the school district has never awarded so much credit to a student in a single academic year. The administration and school board want to encourage the student, but realize they must consider the consequences of such rapid academic progress and establish policies to guide future decisionmaking.

> **Virtual Course Section**
> https://ceds.ed.gov/connectReport.aspx?uid=811
> This connection contains the basic data elements needed to identify a virtual course section.

Policy Questions:

- How does your organization define a course section, and is your system capable of collecting information on virtual or blended, or hybrid, course sections that do not use traditional measures of course pace and timing?
- Are students allowed to begin a new course if they complete a self-paced course before the end of the normal grading period?
- Is there a maximum number of credits a student may earn (or an education agency will fund) per unit time, and does this limit conflict with the self-paced acceleration of academic progress?
- Does your organization's scheduling system accommodate asynchronous class settings that do not have traditional class periods, beginning and ending times, and meeting days?
- Can your organization's attendance system accommodate asynchronous class settings that may not employ traditional time-based attendance measures such as "school days"?
- Do established policies clarify permissible rates of advancement from course to course? For instance, is a student permitted to complete self-paced Algebra I, Geometry, and Trigonometry in a single academic year?
- Are funding formulas dependent upon class pace and class timing expectations that do not apply to virtual education?

Common Practices:

- Virtual education may use performance-based instruction, in which students advance from one instructional level to the next based on mastery of subject matter and skillsets. In asynchronous virtual courses, communication between participants occurs at different times and students often advance through the course material at their own pace but must meet minimum contact requirements to demonstrate participation. Students may thus complete a virtual course in less–or more–time than is allotted during a normal grading period.

- In a synchronous virtual environment, attendance is relatively straightforward to measure—either the student is present and on time for class or not, just as in face-to-face coursework. For asynchronous classes, however, some states, districts, and schools have established a minimum number of online interactions to measure student attendance; others count logins, time online, or the number of keystrokes per unit time.
- Student competency is often determined according to specific learning standards. Organizations that use learning standards have found that maintaining a web link to the learning standard and a copy of the learning standard statement in the local data system can be useful.

Related Data Elements:

- Course Section Identifier
- Classroom Identifier
- Course Section Time Required for Completion
- Course Section Instructional Delivery Mode
- Session Begin Date
- Session End Date
- Session Designator
- Session Type
- Class Period
- Class Beginning Time
- Class Ending Time
- Class Meeting Days
- Timetable Day Identifier
- Receiving Location of Instruction
- Blended Learning Model Type
- Course Interaction Mode
- Virtual Indicator
- Competency Set Completion Criteria
- Competency Set Completion Criteria Threshold
- Credential Definition Criteria
- Competency Definition URL
- Competency Definition Code
- Competency Definition Statement
- Competency Association Type
- Competency Association Destination Node Name
- Competency Association Destination Node URI
- Competency Association Origin Node Name
- Competency Association Origin Node URI
- Competency Association Weight

Topic Area 10: Learner Activities and Resources

Description: Within a class, information that is used to describe a topic or theme taught during a specified period and the resources used to support learning.

Example: A virtual education course has lesson activities and assignments due at periodic points throughout the grading period. Rather than work at an even pace between due dates, some students ignore their coursework for long periods and complete their assignments at the last minute. Administrators recognize that this is not the best way to encourage sound study habits and student behavior, so they develop policies to structure expectations more evenly throughout the course. Unfortunately, this leads to the creation of "busy work" in some courses not well suited for frequent assignments or assessments (such as reading-intensive history courses). District leaders are then forced to reconsider blanket policies about online course management.

Policy Questions:

- Does your organization maintain learning resources used by courses in traditional schools? If so, should you maintain similar information for coursework offered by virtual providers?
- Do the required learning standards apply to virtual coursework?

- Are procedures in place for acquiring exceptions to learning standards requirements (such as when transferring coursework)?
- Can you map learning standards from transferred coursework to your organization's learning standards requirements?

Common Practices:

- Terminology regarding frameworks, standards, benchmarks, grade-level expectations, and other instructional factors may vary between organizations.
- Many districts assess course credits based on traditional classroom time, although this is changing. In a virtual setting, these time-based measures may need to be translated into units more applicable to the virtual environment (such as total days login-accessible, time online, time estimated to complete a course, or performance).
- In addition to (or in place of) data on units, some schools track learner activities (for example, a lesson or homework assignment). Learner activity elements can be used to collect data on both personalized learning and group learning. This shift is particularly suited to virtual education that may be individually paced and adaptive.

Related Data Elements:

- Related Competency Definitions
- Course Section Instructional Delivery Mode
- Learner Activity Add to Grade Book Flag
- Learner Activity Creation Date
- Learner Activity Description
- Learner Activity Due Date
- Learner Activity Due Time
- Learner Activity Language
- Learner Activity Maximum Attempts Allowed
- Learner Activity Maximum Time Allowed
- Learner Activity Maximum Time Allowed Unit
- Learner Activity Possible Points
- Learner Activity Prerequisite
- Learner Activity Release Date
- Learner Activity Rubric URL
- Learner Activity Title
- Learner Activity Type
- Learner Activity Weight
- Learner Action Actor Identifier
- Learner Action Date Time
- Learner Action Object Description
- Learner Action Object Identifier
- Learner Action Object Type
- Learner Action Type
- Learner Action Value
- Learning Resource Access API Type
- Learning Resource Access Hazard Type
- Learning Resource Access Mode Type
- Learning Resource Adaptation URL
- Learning Resource Adapted From URL
- Learning Resource Assistive Technologies Compatible Indicator
- Learning Resource Based on URL
- Learning Resource Book Format Type
- Learning Resource Concept Keyword
- Learning Resource Control Flexibility Type
- Learning Resource Copyright Holder Name
- Learning Resource Copyright Year
- Learning Resource Creator
- Learning Resource Date Created
- Learning Resource Description
- Learning Resource Digital Media Sub Type
- Learning Resource Digital Media Type
- Learning Resource Education Level
- Learning Resource Educational Use
- Learning Resource Intended End User Role

- Learning Resource Interactivity Type
- Learning Resource Language
- Learning Resource License URL
- Learning Resource Media Feature Type

Topic Area 11: Academic Achievement and Accountability

Description: Information that is used to measure and report learning.

Example: The state supports students who cannot attend school in person through a state-run virtual high school. These students receive the same curriculum as any student in the state and need to participate in the state assessment. How does the state ensure that these students can participate in the state assessment? Does the state provide students with virtual assessments or are there other arrangements to support these students' assessment taking?

Policy Questions:

- Do state assessment results determine that students in virtual schooling are learning and growing at the same rate as students in brick-and mortar-schools? Are there other measures that should be used?
- Is learning in virtual schooling equitable for all student populations?
- How are statewide assessments administered in virtual environments?
- How does your organization account for virtual courses that are not aligned with standards?
- Is outcomes-based accountability allowed or is "seat time" still a large part of the measures of success for students?
- Are there teachers trained to provide necessary content using online pedagogy?
- Who may supervise assessments and student work? For example, may a student's parents/guardians supervise homework and assessments when a student accesses virtual coursework from home?
- What software is needed to administer assessments remotely (such as a secure browser extension)?
- What policies are in place to address virtual school with low student achievement scores on state assessments?

Common Practices:

- SEAs and LEAs often require all virtual instructors to be certified according to state and local requirements, even when a virtual school is in another state.
- Agencies may provide hardware, software, and connection technology to their students who engage in virtual education.
- Many states allow and develop alternates to state curriculum that require in-person learning.
- Statewide assessments can be developed in such a way that they can be administered offsite in a secure manner.

Related Data Elements:

- Responsible District Type
- Responsible Organization Type
- Responsible School Type
- Course Aligned with Standards
- Accountability Report Title
- Assessment Identifier
- Assessment Performance Level Identifier
- Assessment Type
- Assessment Academic Subject

- Assessment Level for Which Designed
- Proficiency Status
- Progress Level
- Number of Credits Attempted
- Number of Credits Earned
- End of Term Status
- Promotion Reason
- Nonpromotion Reason
- Academic Honors Type
- Graduation Rate Survey Cohort Year
- Graduation Rate Survey Indicator
- Diploma or Credential Award Date
- High School Diploma Type
- High School Diploma Distinction Type

Topic Area 12: Reporting Information

Description: Information used to describe academic performance of schools and districts.

Example: A school district follows strict reporting requirements from their state on the academic progress of all of their students. Some of the district's students are taking virtual courses from an outside provider that does not always provide the necessary data on time. What measures would ensure that the data are received so that they can be reported and the district can understand students' academic growth?

Policy Questions:

- What information is required for state and federal public reporting?
- Can you crosswalk grading systems when coursework is transferred in from another organization?
- Who may access online information about individual student performance? What are the security rules for online report cards?
- Do you have appropriate data-sharing agreements with virtual education course providers?
- What organization is responsible for tracking data on courses that a student takes in addition to the standard number of courses?

Common Practices:

- Some districts still measure grading periods based on traditional classroom time. In a virtual setting, these time-based measures may need to be translated into units more applicable to the virtual environment (such as total days login-accessible, total days website-accessible, time online, time estimated to complete a course, or performance).
- Virtual courses that are supported by school districts have to follow all the same reporting requirements as any other course so that any reporting for the district's students is complete.

Related Data Elements:

- Number of Credits Attempted
- Number of Credits Earned
- Assessment Content Standard Type
- Assessment Identification System
- Assessment Identifier
- Assessment Type
- Assessment Academic Subject
- Assessment Level for Which Designed
- Assessment Objective
- Assessment Purpose
- Proficiency Status
- Progress Level
- Credential Definition Title
- Credential Definition Description
- Credential Award Start Date
- Credential Award End Date
- Credential Award Issuer Name
- Credential Award Issuer Origin URL
- Credential Definition Category System
- Credential Definition Category Type
- Credential Image URL
- Credential Definition Criteria

- Credential Definition Criteria URL
- Credential Evidence Statement
- Goal Description
- Goal End Date
- Goal Start Date
- Goal Success Criteria
- Learner Activity Title
- Learner Activity Description
- Learner Activity Prerequisite
- Learner Activity Type
- Learner Activity Creation Date
- Learner Activity Maximum Time Allowed
- Learner Activity Maximum Time Allowed Unit
- Learner Activity Due Date
- Learner Activity Due Time
- Learner Activity Maximum Attempts Allowed
- Learner Activity Add to Grade Book Flag
- Learner Activity Release Date
- Learner Activity Weight
- Learner Activity Possible Points

Topic Area 13: Safety and Discipline

Description: Information that is used to document the occurrence of safety and discipline incidents.

Examples: A student uses their district-assigned computer to participate in a virtual course, but then views inappropriate internet content and hacks into other files on the network. The district's acceptable use policy clearly states that such offenses are punishable by loss of technology privileges. However, the principal realizes that if the student loses access to the district's technology, the student would effectively be suspended from virtual coursework, which was not the intention of the disciplinary action.

> **Forum Guide to Cybersecurity: Safeguarding Your Data**
> https://nces.ed.gov/forum/pub_2020137.asp
> This resource provides timely and useful best practice information to help education agencies proactively prepare for, appropriately mitigate, and responsibly recover from a cybersecurity incident. It provides recommendations to help protect agency systems and data before, during, and after a cybersecurity incident and features case studies from state and local education agencies.

A teacher's recent virtual interactions with a student raise concerns that the student may be abused or neglected. The student has become unusually withdrawn during synchronous class sessions and the teacher has overheard signs of family dysfunction and potential violence during a recent one-on-one videoconferencing session. These observations signal a safety concern and, as a mandatory reporter of suspected child abuse or neglect, the teacher is required to report their suspicions to the appropriate authorities.

Policy Questions:

- Does your organization have student conduct regulations and acceptable use policies, and do those policies apply to virtual education and address cyberbullying?
- How are disciplinary incidents monitored and reported in virtual education?
- Are virtual collaboration rooms subject to filtering and monitoring?
- Are all virtual providers in compliance with the Children's Internet Protection Act (CIPA)?
- Do fee-based virtual providers have financial disincentives to expel students? Are virtual providers allowed to expel students without consulting the home LEA?
- What are your organization's policies and procedures for mandatory reporting of known or suspected instances of child abuse and neglect? Do these policies and procedures align with state requirements? Do they address situations where a student resides in a different state from the mandated reporter (such as the teacher of record)?

Common Practices:

- Any organization providing K-12 education should have published acceptable use policies.
- SEAs and LEAs should require virtual providers to report violations of student conduct regulations and acceptable use policies to the SEA, LEA, or law enforcement authorities.
- Providing internet safety training to students can help to educate students about safe and appropriate internet use.
- Schools often require filters on web-accessible technologies.
- As mandatory reporters of child abuse and neglect, teachers and school staff are required by law to report their concerns. Virtual schools should be cognizant of how different state policies and procedures apply to mandatory reporting.

Forum Guide to Crime, Violence, and Discipline Incident Data
https://nces.ed.gov/forum/pub_2011806.asp
This resource focuses on the use of crime, violence, and discipline data to improve school safety. It presents strategies for implementing an incident database, including system design, management, and training; recommends a body of data elements, definitions, and code lists useful for collecting accurate and comparable data about crime, violence, and discipline; and offers suggestions for the effective presentation and reporting of data.

Related Data Elements:

- Incident Identifier
- Incident Time
- Incident Location
- Facilities Identifier
- Reporter Identifier
- Disciplinary Action Taken
- Duration of Disciplinary Action
- Incident Date
- Incident Reporter Type
- Incident Description
- Incident Behavior
- Incident Injury Type
- Related to Zero Tolerance Policy
- Incident Time Description Code
- IDEA Interim Removal Reason
- IDEA Interim Removal
- Discipline Reason
- Educational Services After Removal
- Incident Cost
- Secondary Incident Behavior
- Disciplinary Action Start Date
- Disciplinary Action End Date
- Discipline Action Length Difference Reason
- Full Year Expulsion
- Shortened Expulsion
- Incident Multiple Offense Type
- Incident Perpetrator Identifier
- Incident Perpetrator Injury Type
- Incident Perpetrator Type
- Incident Person Role Type
- Incident Regulation Violated Description
- Incident Related to Disability Manifestation
- Incident Reported to Law Enforcement Indicator
- Incident Victim Identifier
- Incident Victim Type
- Incident Witness Identifier
- Incident Witness Type
- Weapon Type
- Firearm Type

Topic Area 14: Student Demographic Information

Description: Descriptive information that is used to identify a student participating in an educational experience, including the student's name, background, and other vital identifying information.

Example: A student becomes homeless and is no longer able to use her home computer to participate in a virtual class regularly. Because demographic information is regularly updated in the student record system, the instructor at the virtual school is aware of this and handles the student's changing attendance and performance patterns by offering support services, such as a district laptop, rather than approaching the situation as a disciplinary issue.

Policy Questions:

- What information is necessary to ensure equitable access to virtual education for all students?
- Are your organization's virtual programs, courses, and course materials accessible to all students, including students that lack access to the Internet and devices, English learner (EL) students, and students with disabilities?
- Which staff need to be involved in and notified of changes in student demographic information?

Common Practices:

- Accurate demographic information about enrolled students is required by many federal, state, and local funding formulas.
- Staff may need to know when special adaptive and assistive technologies (such as language translation software, audio described video, and section 508-compliant websites) are required for a student to equitably participate in virtual education, even though access to the student's personal information might otherwise be restricted.
- Data on access to the Internet and devices can help identify which students may need additional support (such as a school-provided laptop or internet hotspot) to access virtual courses.

Related Data Elements:

- First Name
- Last or Surname
- Student Identifier
- Student Identification System
- Hispanic or Latino Ethnicity
- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- White
- Demographic Race Two or More Races
- Sex
- Language Type
- Homelessness Status
- Migrant Status
- Title III Immigrant Status
- Economic Disadvantage Status
- English Learner Status
- Military Connected Student Indicator
- Internet Access
- Digital Device
- Device Access
- Internet Access in Residence
- Internet Access Type in Residence
- Internet Performance

Topic Area 15: Student Enrollment/Exit Information

Description: Enrollment information concerns the entry or re-entry of students into a school, including their status and classification upon admission. Exit information concerns a student's exit or withdrawal from a class, grade, or school.

Example: A student is enrolled full-time in a virtual school that is paid for by the local school district. Two months into the school year, the student's family moves away but fails to formally withdraw from the school district. Without accurate data about the student's current enrollment status, the first school system continues to pay for the student's virtual school costs even though the new local school system should now be covering the costs.

Forum Guide to Exit Codes

https://nces.ed.gov/forum/pub_2020132.asp

This resource provides best practice information for tracking data about when students transferred, completed high school, dropped out, or otherwise exited an education agency. The resource defines exit codes and reviews their use in an education agency; provides an updated, voluntary, common taxonomy for exit codes; discusses best practices and methods for addressing specific challenges in exit codes data collection; and features case studies that highlight different education agencies' approaches to and experiences with exit coding.

Policy Questions:

- What constitutes full-time/part-time status? Is status based on the number of classes, minutes of instruction, credits taken, or some other measure?
- To ensure comparable data, has the virtual provider agreed to your organization's definition of "full-time/part-time" status?
- Is tuition charged and paid by the course section, credit, term, or another basis?
- Is there a limit on the tuition your organization will pay for a student's virtual education (either by course, credit, term, or cumulative over time)?
- Must the student pay for virtual education that exceeds the maximum number of funded hours?
- Who bears the costs when students repeatedly register for, but do not complete, virtual courses?
- Must virtual education service providers be located within established geographic boundaries (such as within the state) to receive public funds?
- Do virtual education vendors charge technology fees?
- How will you verify a student's enrollment/exit status when paying for students to attend virtual schools?
- If students are enrolled in virtual coursework, how will schools determine average daily membership and other statistics used in funding calculations?

Common Practices:

- SEAs and LEAs must consider the effects of self-paced virtual education when tracking cohorts.
- Virtual education funding is usually based on either enrollment or attendance. Either unit may be measured per class, day, or term, and translated to a full-time equivalency (FTE) standard. "FTE" is defined as the amount of time a student is enrolled in (attending) a school, stated as a proportion of full-time enrollment (attendance); or the number of courses or credits taken, stated as a proportion of full-time course load.
- At the high school level, the number of credits taken is generally most relevant when determining FTE. At the elementary school level, FTE is often stated in instructional minutes per full-time day.

- "Time enrolled in a school" may need to be translated into units that correspond to enrollment in a virtual setting.
- Enrollment and credit data may be compared to determine whether students are completing their virtual coursework.

Related Data Elements:

- Enrollment Status
- Enrollment Entry Date
- Entry Type
- Entry Grade Level
- Cohort Year
- Enrollment Exit Date
- Exit or Withdrawal Status
- Exit or Withdrawal Type
- Nonpromotion Reason
- Promotion Reason
- LEA Identifier
- LEA Identification System
- School Identifier
- School Identification System
- Responsible District Identifier
- Responsible District Type
- Responsible School Identifier
- Responsible School Type
- Exit Grade Level
- Cohort Graduation Year
- Displaced Student Status
- Number of Credits Attempted
- Number of Credits Earned

Topic Area 16: Student Attendance Information

Description: Information that is used to describe a student's presence, absence, and tardiness in class or school.

Example: A virtual school's attendance policies for synchronous courses require that students enable their video at least once during a live video-conferencing class to be marked as "present." A student attended a synchronous class session, but was unable to use their video because their web camera broke. The virtual teacher marked the student as absent, in keeping with school policies, and made a note in the attendance log that the student participated in the class session.

Policy Questions:

- What constitutes "in attendance" status? Is attendance based on the number of classes, minutes of instruction, number of keystrokes, time logged in, performance, or some other measure?
- Given the high stakes of attendance data (for instance, they are used in funding formulas), what definition of attendance must be used? Does this definition reasonably accommodate virtual education and different education models, such as blended, or hybrid, synchronous, and asynchronous?

Forum Guide to Collecting and Using Attendance Data

https://nces.ed.gov/forum/pub_2017007.asp

This resource offers best practice suggestions and features real-life examples of how attendance data have been used by education agencies. A set of voluntary attendance codes that can be used to compare attendance data across states districts, and schools is included, as well as tip sheets for a wide range of education agency staff who work with attendance data.

Forum Guide to Attendance, Participation, and Engagement Data in Virtual and Hybrid Learning Models

https://nces.ed.gov/forum/pub_2021058.asp

This resource provides an overview of best practices that will help education agencies collect, report, and use attendance, participation, and engagement data in different learning formats. It was developed as a companion publication to the 2018 *Forum Guide to Collecting and Using Attendance Data* and incorporates lessons learned by state and local education agencies (SEAs and LEAs) during the coronavirus disease (COVID-19) pandemic.

- Is the way attendance is counted in a virtual school different from in-person school?
- How do your state's compulsory attendance laws apply to virtual education students? Are districts responsible for children who live in the district's administrative boundaries but are enrolled in a virtual education program outside of those boundaries?
- To ensure comparable data, has the virtual provider agreed to your organization's definition of "in attendance" status?
- Have you and the virtual provider determined which organization is responsible for a student missing class because of a technical problem? For example, will a student be marked absent if there is server downtime? What about when a student's home internet connection does not work?
- What policies and protocols are in place to help when technology issues interfere with student attendance?

Common Practices:

- There is a need for alternate measures of student attendance, as seat-time is not necessarily applicable in virtual education.
- Attendance and instructional time often vary in virtual settings and these differences could be a challenge in states that calculate attendance by instructional minutes.
- Attendance in a virtual (especially asynchronous) setting may be most accurately measured by factors that are not time-based or do not otherwise apply to a traditional face-to-face setting; these might include the number of keystrokes, time logged in, or end-of-unit performance.
- Some situations may call for combinations of attendance factors, for example, a learning coach or parent may log the number of hours a student works both online and offline, while the system also monitors time online and the frequency of student contact with teachers through synchronous live lessons or email.
- Attendance should incorporate after-hours and at-home activities for all virtual classes, including evening classes.

Related Data Elements:

- Number of Days Absent
- Number of Days in Attendance
- Calendar Event Date
- Attendance Event Date
- End Time
- Start Time
- Attendance Event Type
- Attendance Status
- Absent Attendance Category
- Present Attendance Category
- Student Attendance Rate

Topic Area 17: Student Participation/Performance Information

Description: Information about student involvement and achievement in organized subject matter and related learning experiences (including programs, courses, and classes).

Example: A high school student earned a C in a virtual course at a highly competitive college, but the local high school awarded the student an A for the high school credit equivalent. School administrators felt this policy was fair, but worried when another student was awarded an F by the college, yet claimed that, given the course's difficulty, they should receive a passing grade on their high school transcript. In addition to the immediate concern of awarding credit for a failing grade, administrators found themselves wondering how these somewhat subjective grade translations might influence the determination of class rank and other class honors (such as class valedictorian).

Policy Questions:

- Can a student receive a grade from an instructor not employed by your organization (including for courses taught virtually)? Is the teacher of record the instructor of the virtual course, or a proctor employed locally?
- Is there a way to distinguish between virtual courses and in-person courses for reporting purposes?
- Is relevant information about the virtual course (such as the method of delivery) lost in reporting?
- Who makes the final determination when a grade assigned in a course is questioned?
- Can you map grading systems when coursework is transferred from another organization?
- Does your organization need to monitor student completion of virtual coursework?
- How are virtual assessments conducted? Are remote proctoring protocols in place?
- Are data from virtual assessments segmented or differentiated from in-person assessment data?
- Are virtual assessments included in your state's accountability models?
- Are virtual service providers systematically monitored and evaluated based on student outcomes such as participation and performance?

Common Practices:

- Depending on policies and agreements between local schools and virtual service providers, the institution that maintains a student's permanent record often retains the right to determine (or change) final grade assignments.
- Student completion of, and performance in, virtual courses may vary based on a wide range of factors, including student readiness, curricular choices, content presentation, instructor-student interactions, local supervision and support, assignment and assessment rigor, and grading practices. Some students may perform better (meaning, receive an acceptable grade) in courses offered by some providers than in courses offered by other providers. Local schools may wish to monitor student completion and performance for each provider to ensure that coursework is appropriately rigorous and verify that local investment in virtual courses is not squandered on enrollments that do not earn credits.
- Students fail to complete coursework for a wide range of reasons, including lack of interest, aptitude, and support. Some students may find virtual coursework adds another layer of difficulty, especially if they are uncomfortable using technology, have problems accessing instructional materials online, or are unfamiliar with online

assessment procedures. Local schools may want to collect data about why students do not complete virtual courses.
- Assessment protocols and requirements are needed in virtual education settings. An online proctoring service or testing arrangements through a local testing center, local school, university, or public library will be needed for high-stakes assessments.

Related Data Elements:

- Enrollment Entry Date
- Enrollment Exit Date
- Exit or Withdrawal Type
- Name of Institution
- School Identifier
- School Identification System
- Program Name
- Program Identifier
- Course Title
- Course Identifier
- SCED Course Code
- Course Code System
- Responsible School Type
- Number of Credits Attempted
- Number of Credits Earned
- Student Course Section Grade Earned
- Responsible District Type
- Responsible Organization Type
- Assessment Session Proctor Identifier

Topic Area 18: Student Progress Information

Description: Information about credit earned and academic progress during a given grading period, session, school year, or career.

Example: As the school year ended and graduation approached, school staff began determining class rankings and honors. After comparing student grade point averages and course credits, staff found that the highest-ranked students were those who had taken a multitude of virtual education courses that were considerably less rigorous than courses offered at the school. Moreover, these students were able to take multiple courses in a single semester, which gave them considerably more credits than students who enrolled in in-person courses. The school had not established policies governing the transfer of virtual credits and had failed to ensure that virtual courses were as rigorous as traditional courses.

Policy Questions:

- How is class rank determined among virtual students?
- How does your organization measure course completion/credits (instructional minutes, competency, or other criteria)?
- Is virtual course content aligned with applicable content standards?
- How will your organization and the virtual provider compare course completion information to ensure that credits are accurately and reliably awarded?
- Is there a maximum number of credits a student may earn per unit time (meaning, per traditional grading period or per year) that conflicts with the self-paced acceleration of academic progress?
- Is there a limit to the number of credits a student is permitted to transfer in for the calculation of grade point average, class rank, honors, or other achievement indicators?
- Is there a limit to the number of credits a student is permitted to transfer in for graduation purposes?

Common Practices:

- Once a school establishes a policy governing how credit is awarded for virtual courses, those credits can be transferred in the same way as any other transferrable credits.

Related Data Elements:

- Promotion Reason
- Nonpromotion Reason
- Credits Attempted Cumulative
- Credits Earned Cumulative
- Grade Points Earned Cumulative
- Grade Point Average Given Session
- Grade Point Average Cumulative
- High School Student Class Rank
- Size of High School Graduating Class
- Class Ranking Date
- Projected Graduation Date
- Honors Description
- Additional Credit Type
- Grade Value Qualifier
- Proficiency Status
- Progress Level
- Number of Credits Attempted
- Number of Credits Earned
- Student Course Section Grade Earned
- Course Repeat Code
- Course Identifier
- SCED Course Code
- Course Code System
- Course Title
- Grade Level When Course Taken
- Technology Literacy Status in 8th Grade
- Diploma or Credential Award Date
- High School Diploma Type
- Academic Honors Type
- High School Diploma Distinction Type
- Career and Technical Education Completer
- Recognition for Participation or Performance in an Activity
- End of Term Status
- Literacy Assessment Administered Type
- Literacy Goal Met Status
- Literacy Post Test Status
- Literacy Pre Test Status
- Postsecondary Enrollment Action
- Cohort Description
- Graduation Rate Survey Cohort Year
- Graduation Rate Survey Indicator
- Pre and Post Test Indicator
- Career Education Plan Date
- Career Education Plan Type
- Course Department Name
- Professional or Technical Credential Conferred
- Student Course Section Grade Narrative

Topic Area 19: Student Disability Information

Description: Information about a student's health or disability status that is relevant to service, placement, or accommodations decisions.

Example: A student with partially impaired vision enrolls in a virtual class. Without access to this information, the instructor has no way of knowing that the student needs curricular materials to be adapted to meet his physical needs. The absence of information about special needs may effectively deny equitable access to students who require adaptive or assistive technologies, or other modifications to which they are entitled.

Policy Questions:

- What demographic information is required for the organization's state and federal public reporting?
- What information about a student's accommodations and special needs is necessary to ensure equitable access to virtual education?
- What information about a student's special needs is necessary for informed and appropriate decisions about services, placement, and accommodations?

- What other health-related information is necessary for appropriate curricular accommodations for students (for example, adjusting "fieldwork" requirements for a student hospitalized for an extended period)?
- What student health information may be necessary for virtual education decisionmaking during a public health emergency?

Common Practices:

- Instructors may need to know about a student's disabilities, related individualized education program (IEP), and Section 504 plan for informed decisionmaking.
- Technical staff may need to know when special adaptive and assistive technologies (such as a large print monitor or screen reader) are required for a student to equitably participate in virtual education, even though access to the student's disability status information may be restricted.
- Virtual education can be an adaptive technology when students are not mobile or unable to attend a traditional school (such as when they are home- or hospital-bound).
- Virtual education can help ensure learning continuity during public health emergencies. For example, districts, schools, and individual classes transitioned to virtual learning during the coronavirus disease (COVID-19) pandemic.

Related Data Elements:

- Primary Disability Type
- Disability Condition Type
- IDEA Indicator
- Individualized Program Type
- Section 504 Status
- Awaiting Initial IDEA Evaluation Status
- IDEA Educational Environment for School Age
- Disability Determination Source Type
- Disability Status
- Accommodation Type
- Medical Alert Indicator
- Immunization Date
- Immunization Type

Topic Area 20: Staff Member Information

Description: Information that identifies people who perform services for any public or private education institution or agency that provides instructional or support services to students, including name, background, and other vital information.

Forum Guide to Staff Records

This forthcoming resource is intended to help education agencies effectively collect, manage, utilize, and dispose of staff data. The resource provides an overview of the many types of information that may be classified as staff records; effective practices for collecting, maintaining, and protecting the privacy of these records; and information on managing access to the records, including open records requests.

Example: A student who attends a local school also takes a virtual course. When the student suddenly stops showing up at school, an alert administrator wants to ask the virtual school teacher whether the student is still participating in the virtual course. Without accurate contact information, the administrator may be unable to contact the virtual teacher promptly.

Policy Questions:

- Do you maintain identification information about employees, contractors, consultants, volunteers, in-kind providers, independent contractors, business people, and any other individual providing services to students?
- Does your organization maintain identification information about staff who work at

virtual schools, especially for individuals whose jobs put them in contact with students or confidential student information, either directly or indirectly?
- What do you need to know about a staff member's disabilities to ensure an accommodating work environment?
- Are background checks conducted by outside organizations acceptable?
- Which virtual school staff will have access to data about your student? Is access to be limited by "need to know" and security clearance verification? Have all privacy expectations, based on the Family Educational Rights and Privacy Act (FERPA) and applicable federal and state laws, been formally communicated to the virtual school?
- Must staff members reside in a specified geographic region (for example, in the community served by the school district)?
- Should you maintain contact information about virtual school teachers in case an administrator needs to call, e-mail, or otherwise contact them?
- Should contact information be maintained in case law enforcement officials need to locate a virtual school teacher?

Common Practices:

- Accurate data systems should include identification information about employees, contractors, consultants, volunteers, in-kind providers, independent contractors, business people, and any other individual providing services to students.
- Data systems should distinguish between a teacher of record, an on-site facilitator, an instructional designer, and a technical support provider.
- Technical staff may need to know when special adaptive and assistive technologies (such as large print monitors or screen readers) are required for staff members to accomplish their job, even though access to staff disability status may be restricted.
- Staff members capable of accessing student data may include administrators and instructors, as well as technical and research staff who maintain and operate data systems. Many institutions require that all staff with access to individual staff or student information be credentialed or licensed, receive a background check/security clearance, and have a "need to know" as defined by FERPA.

Related Data Elements:

- First Name
- Middle Name
- Last or Surname
- Generation Code or Suffix
- Personal Title or Prefix
- Staff Member Identifier
- Staff Member Identification System
- Address Type for Staff
- Address Street Number and Name
- Address Apartment Room or Suite Number
- Address City
- Address County Name
- Address Postal Code
- State Abbreviation
- Country Code
- Telephone Number Type
- Telephone Number
- Primary Telephone Number Indicator
- Electronic Mail Address Type
- Electronic Mail Address

Topic Area 21: Staff Member Employment Status

Description: Information about the circumstances, conditions, and agreements of a person's employment at an organization.

Example: Selecting a virtual school as the district's supplemental education partner was difficult. The school board was unable to break the tie between the competing service providers until a perceptive board member noticed that one of the virtual schools had a much lower staff turnover rate than the other. The school board felt strongly that this indicator of stability differentiated the competitors, and finally selected its new virtual service provider.

Policy Questions:

- Do your contracts with service providers (such as virtual schools) clearly state that your organization does not assume an employment relationship with contracted staff?
- Should you maintain employment status information for contracted virtual service providers (such as employment history or how long a teacher has been employed by the virtual school)?

Common Practices:

- Virtual school staff members have privacy rights. Any information maintained by an SEA, LEA, or school about virtual service providers should be afforded standard privacy considerations, as specified by education and employment regulations.
- If an education institution is paying a virtual teacher or another staff member directly, the institution must verify employment eligibility based on standard, federally recognized criteria.

Related Data Elements:

- Employment Status
- Employment Start Date
- Employment End Date
- Employment Separation Reason
- Employment Separation Type
- Position Title
- Hire Date
- Contract Days of Service Per Year
- Staff Compensation Total Salary

Topic Area 22: Staff Member Employment Credentials

Description: Information about any active certificates, licenses, permits, or other credentials that authorize a holder to perform certain functions or make certain claims about competence in an employment or assignment. Credentials may be issued by state agencies, postsecondary institutions, professional associations, or other organizations; and are based on education and training, experience, assessment, background verification, and/or other requirements.

Example: The district had to report the number of qualified teachers who instructed their students. This status was based in part on state certification, which required teachers to have completed a state history course in college. Administrators wondered how the district's virtual service providers could be expected to have taken such a course if they lived in other states.

Policy Questions:

- Does your organization have credentialing requirements for staff members (such as teaching degrees or certificates)? Do these credentialing requirements apply to virtual education staff?
- Can staff acquire exceptions to these requirements? For example, are virtual staff who do not live in your state exempted from completing a state history course?

- Does any other governing body (such as an SEA) need to approve these exceptions?
- Should you maintain experience information for contracted virtual service providers (such as how long teachers have been employed by the virtual school)?
- Does your organization require teachers to hold a certification for online teaching?

Common Practices:

- Assessing virtual staff credentials is no different from evaluating traditional staff credentials. However, because many credentialing requirements are based on state or local regulations not otherwise applicable to virtual staff, policymakers may consider whether exceptions to some credentialing requirements are appropriate for virtual staff.
- Credentialing requirement exceptions may need to be approved by other governing bodies (such as an SEA or LEA).
- The terms "certification," "licensure," and "endorsement" are not used consistently, and care should be taken to verify meaning when using this terminology.

Related Data Elements:

- Credential Type
- Teaching Credential Type
- Teaching Credential Basis
- Credential Issuance Date
- Credential Expiration Date
- Years of Prior Teaching Experience
- Highest Level of Education Completed
- Paraprofessional Qualification Status
- Program Sponsor Type
- Career and Technical Education Instructor Industry Certification
- Credential or License Award Entity
- Name of Professional Credential or License
- State Issuing Professional Credential or License

Topic Area 23: Staff Member Assignment Information

Description: Information related to a staff member's job classification, including the scope and timing of assignments, as well as their work location, schedule, and workload.

Example: A virtual school advertises a 12:1 student-to-instructor ratio for its middle school classes. However, the virtual provider includes online teaching assistants in its definition of "instructor." Therefore, its student-to-certified teacher ratio is 36:1, which is not what contracting school districts had been led to expect.

Policy Questions:

- Can your data system distinguish between a teacher of record, an on-site facilitator, an instructional designer, and a technical support provider?
- Does your organization have a required curriculum framework, content standard, class time, or instructional approach that applies to virtual coursework?
- Does your organization expect class size to be within a certain range?
- May class size limits be modified in the presence of online teaching assistants or other special circumstances?

Common Practices:

- Determinations about the adequacy of staff member credentials are often contingent upon assignment. For example, a math credential is relevant for an individual teaching an algebra class but less relevant for a language arts teacher. Mapping course subject to educator (or staff member) credentials can help to determine the best fit for staff assignments.

Related Data Elements:

- School Level
- Session Type
- LEA Identifier
- LEA Identification System
- School Identifier
- School Identification System
- Teaching Assignment Start Date
- Teaching Assignment End Date
- K12 Staff Classification
- Primary Assignment Indicator
- Staff Full Time Equivalency
- Assignment Start Date
- Assignment End Date
- Classroom Position Type
- Itinerant Teacher
- Migrant Education Program Staff Category
- Professional Educational Job Classification
- Special Education Age Group Taught
- Special Education Paraprofessional
- Special Education Related Services Personnel
- Special Education Support Services Category
- Special Education Teacher
- Staff Member Identifier
- Staff Member Identification System
- Teacher of Record
- Teaching Assignment Role
- Teaching Assignment Contribution Percentage
- Classroom Position Type
- SCED Course Code
- Course Section Identifier
- Course Title
- Course Code System
- Course Identifier

Forum Guide to the Teacher-Student Data Link: A Technical Implementation Resource

http://nces.ed.gov/forum/pub_2013802.asp

This resource provides a practical guide for implementing a teacher-student data link (TSDL) that supports a range of uses at the regional, state, and local levels. The guide addresses the considerations for linking teacher and student data from multiple perspectives, including governance, policies, data components, business rules, system requirements, and practices. It provides references to promising practices for high-quality data linkages, including TSDL-specific processes such as roster verification and the establishment of the teacher of record.

SCED

https://ceds.ed.gov/connectReport.aspx?uid=515

SCED is a voluntary, common classification system for prior-to-secondary and secondary school courses. This connection contains the basic data elements needed to implement the SCED classification system, which can be used to map course information from one classification system to another. SCED can also be used to compare course information; maintain longitudinal data about students' coursework; and exchange coursetaking records.

- Course Aligned with Standards
- Course Interaction Mode
- Course Section Time Required for Completion
- Course Section Instructional Delivery Mode
- Class Period
- Instruction Language
- Classroom Identifier
- Session Begin Date
- Session End Date
- Session Designator
- Receiving Location of Instruction
- Virtual Indicator
- Days in Session
- School Year Minutes
- Instructional Minutes

Topic Area 24: Staff Member Attendance Information

Description: Information about a person's absence from duty assignments.

Example: When a problem with student behavior arises, local administrators try to get a status report on the student's performance from two virtual teachers. Administrators then learn that, in addition to a barrier of two time zones, communication with virtual teachers is further complicated by the virtual school's poorly defined office hours and by e-mail inquiries that are guaranteed to be answered within five days.

Policy Questions:

- Does your organization need to know when virtual school teachers, administrators, or other staff members are (and are not) expected to be available to your students?
- Do you need to know when virtual school staff are (and are not) expected to be available to your administrators and teachers?
- What specific attendance expectations apply to virtual school staff?
- How might virtual school staff schedules need to be adjusted to accommodate your school day (or vice versa)?
- Will time zone differences complicate scheduling?

Common Practices:

- Whatever the method, attendance should be reported consistently and in a manner that reflects policy direction, based on reporting requirements and the information needs of decisionmakers.
- Attendance should incorporate after-hours and at-home activities for all virtual classes, including evening classes.

Related Data Elements:

- Attendance Event Date
- Attendance Status
- Leave Event Type

Topic Area 25: Staff Member Professional Development

Description: Information about a person's training and professional development (PD).

Example: A staff member with 10 years of in-person teaching experience will begin teaching virtual courses. While the teacher has extensive experience in the classroom, they need to familiarize themselves with best practices and standards for teaching virtually. The school enrolls the teacher in a six-week summer training program to ensure the teacher is prepared to teach virtual courses in the upcoming school year.

Policy Questions:

- What type of PD requirements are in place for virtual education teachers? Do these requirements apply to all staff responsible for virtual education instruction?
- How is PD content assessed for applicability to virtual education settings?
- Do state requirements and professional standards apply to virtual education PD?
- What information is needed to ensure PD funds and time are used wisely?
- What evaluation criteria are used in conducting virtual staff evaluations? Do staff observation and evaluation procedures apply to different virtual education models, such as blended, or hybrid, synchronous, and asynchronous?

Common Practices:

- Tailoring PD content for virtual education settings can be beneficial. For example, topics such as instructional design, online pedagogy, and virtual classroom management are more relevant for virtual education.
- Staff may benefit from different types of PD. For example, teachers who have historically taught in-person courses may have different needs than teachers with extensive experience in virtual education settings.
- Staff performance on teaching evaluations may be compared to student assessment outcomes.

Related Data Elements:

- Career Education Plan Date
- Career Education Plan Type
- Staff Evaluation Outcome
- Staff Evaluation Scale
- Staff Evaluation Score or Rating
- Staff Evaluation System
- Faculty and Administration Performance Level
- Technology Skills Standards Met
- Tuition Funded
- Professional Development Activity Identifier
- Professional Development Activity Title
- Professional Development Activity Type
- Professional Development Activity Description
- Professional Development Activity Education Levels Addressed
- Professional Development Activity Objective
- Professional Development Activity Level
- Professional Development Activity Credit Type
- Professional Development Activity Credits
- Professional Development Activity Target Audience
- Professional Development Session Language
- Professional Development Activity Expiration Date
- Professional Development Activity Approved Purpose
- Professional Development Activity Approval Code
- Professional Development Activity Code
- Professional Development Activity Cost

Appendix A: **Examples of State and Local Education Agency (SEA and LEA) Policies**

Course Scheduling and Credit

To avoid discrepancies in data collection around course schedules and credit, some SEAs and LEAs have chosen to record virtual courses as yearlong and give them weight according to the value of the course rather than the timeframe over which the course is completed. For example, a student may take a .5 credit virtual history course that is slated as a yearlong course. Because the course is only worth .5 credits, such a course would appear as a single semester option in a traditional system. However, the expanded timeframe of a year allows the student to complete the course at his or her own pace—which may be faster or slower than a traditional single-semester course. Regardless of whether students follow a consistent pattern of individual class completion, they receive credit if the course is completed before the end of the school year. By recording the course as a yearlong course, the actual record of completion and credit can hold to the end of the year for recording, allowing the SEA or LEA the flexibility to manage the data.

Attendance and Competency

The actual length of time required for students to demonstrate competency in a course varies and measures of competency are often better indicators of student success in virtual courses than traditional measures of seat time such as Carnegie Units. As a result, some SEAs and LEAs have begun tracking competency instead of traditional attendance measures. To shift the focus from attendance to competency, SEAs and LEAs may establish baseline values for a course and determine appropriate assessments to measure student skills and knowledge required for the established course objectives. Such competency measurements eliminate the need to track attendance in the traditional fashion of "seat time" and minutes.

SEAs and LEAs that employ competency-based measures may need to establish new policies to ensure that students are progressing in virtual courses. Common practices include

- establishing a regular schedule of teacher-student meetings to monitor progress, and increasing the frequency of the meetings if needed;
- maintaining timelines for achieving course objectives and reevaluating and adjusting timelines quickly if students cannot meet objectives; and
- informing parents and guardians of course objectives and timelines so that if objectives are not met within the timeline, the student, parent or guardian, and teacher can adapt the timeline and/or workload to ensure that the student achieves competency.

Appendix B: **State Education Agency (SEA) Virtual and Distance Learning Websites**

The types of virtual education opportunities available to students vary across states. Many SEAs have established websites with information on state virtual schools, other virtual education providers, and relevant policies, laws, and regulations that determine the SEA's approach to virtual education. The list below provides links to information on virtual education available through each SEA's website.

State	Website
Alabama	http://accessdl.state.al.us/ https://www.alsde.edu/ofc/cs/Pages/vs-all.aspx
Alaska	https://aklearns.org/
Arizona	https://azsbe.az.gov/resources/arizona-online-instruction
Arkansas	https://dese.ade.arkansas.gov/Offices/learning-services/digital-learning-k-12
California	https://www.cde.ca.gov/ci/cr/dl/
Colorado	https://www.cde.state.co.us/onlinelearning
Connecticut	https://portal.ct.gov/DAS/CTEdTech/Commission-for-Educational-Technology/Initiatives/Remote-Learning
Delaware	https://www.doe.k12.de.us/Page/4174
Florida	http://www.fldoe.org/schools/school-choice/virtual-edu/ http://www.fldoe.org/about-us/division-of-technology-info-services/educational-technology/dcp.stml
Georgia	http://www.gavirtuallearning.org/ https://gavirtualschool.org/

State	Website
Hawaii	http://www.hawaiipublicschools.org/TeachingAndLearning/EducationInnovation/VirtualLearningNetwork/Pages/home.aspx https://sites.google.com/hawaiidoe.k12.hi.us/e-school/home
Idaho	https://www.idahodigitallearning.org/
Illinois	https://www.ilvirtual.org/ https://www.isbe.net/Pages/Electronic-Learning.aspx
Indiana	https://www.doe.in.gov/elearning/digital-learning-toolkit
Iowa	https://educateiowa.gov/pk-12/educational-technology/online-learning
Kansas	https://www.ksde.org/Agency/Division-of-Learning-Services/Career-Standards-and-Assessment-Services/CSAS-Home/Graduation-and-Schools-of-Choice/Virtual-Schools-and-Programs https://www.ksde.org/Portals/0/CSAS/CSAS%20Home/Graduation%20and%20Schools%20of%20Choice/Kansas%20Virtual%20Education%20Requirements%20and%20Monitoring%20Plan.pdf
Kentucky	https://education.ky.gov/school/diglrn/Pages/default.aspx
Louisiana	https://www.louisianabelieves.com/courses/supplemental-course-academy https://www.louisianabelieves.com/measuringresults/digital-schools
Maine	https://www.maine.gov/doe/learning/ltt
Maryland	http://www.marylandpublicschools.org/stateboard/Documents/05222018/TabN-OnlineLearning.pdf http://www.marylandpublicschools.org/programs/Pages/ITSLM/DigitalLearning/index.aspx
Massachusetts	https://www.doe.mass.edu/odl/
Michigan	https://www.michigan.gov/documents/mde/LearningDistanceGuidance_686455_7.pdf https://www.michigan.gov/documents/mde/oe_companion_doc_12-06_184084_7.pdf
Minnesota	https://education.mn.gov/MDE/dse/online/
Mississippi	https://www.mdek12.org/OTSS/MDE-Distance-Learning-Resource

State	Website
Missouri	https://mocap.mo.gov/
Montana	http://opi.mt.gov/Leadership/Assessment-Accountability/School-Accreditation/Chapter-55#848819171-distance-online-and-technology-delivered-learning https://mtva.k12.com/
Nebraska	https://www.education.ne.gov/educational-technology/distance-education/ https://www.education.ne.gov/educational-technology/
Nevada	http://www.doe.nv.gov/Distance_Education/Home/
New Hampshire	https://www.education.nh.gov/who-we-are/division-of-educator-and-analytic-resources/bureau-of-educational-opportunities/public-school-approval-office/remote-instruction
New Jersey	https://www.state.nj.us/education/techno/dld/courses.htm
New Mexico	https://www.ideal-nm.org/
New York	http://www.p12.nysed.gov/turnaround/BlendedLearning.html http://www.nysed.gov/edtech/digital-content-resources
North Carolina	https://ncvps.org/
North Dakota	https://www.ndcde.org/
Ohio	http://education.ohio.gov/Topics/Community-Schools/eSchools http://www.ilearnohio.org/
Oklahoma	https://svcsb.ok.gov/
Oregon	https://www.oercommons.org/hubs/oregon
Pennsylvania	https://www.education.pa.gov/K-12/Charter%20Schools/Pages/default.aspx
Rhode Island	https://www.ride.ri.gov/StudentsFamilies/EducationPrograms/VirtualLearning.aspx
South Carolina	https://ed.sc.gov/districts-schools/virtual-education/ https://virtualsc.org/

State	Website
South Dakota	https://sdvs.k12.sd.us/
Tennessee	https://www.tn.gov/content/dam/tn/stateboardofeducation/documents/policies/3000/3.208 Distance Learning and e-Learning.pdf
Texas	https://txvsn.org/
Utah	https://www.schools.utah.gov/edonline https://www.schools.utah.gov/curr/digital
Vermont	https://www.vtvlc.org/ https://education.vermont.gov/student-learning/content-areas/digital-learning
Virginia	https://www.doe.virginia.gov/instruction/virtual_learning/ https://www.doe.virginia.gov/instruction/virtual_learning/virtual_schools/index.shtml
Washington	https://www.k12.wa.us/student-success/learning-alternatives/online-learning
West Virginia	https://wvde.us/teaching-learning/virtual-schools-e-learning-materials/
Wisconsin	https://dpi.wi.gov/imt/digital-learning/collaborative https://dpi.wi.gov/cal/innovation/virtual-learning-time https://dpi.wi.gov/parental-education-options/charter-schools/virtual-charter-schools
Wyoming	http://edu.wyoming.gov/downloads/distance-ed/WSNP2J.pdf https://edu.wyoming.gov/in-the-classroom/technology/

Table 2. SEA Virtual and Distance Learning Websites

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Forum Resources

Forum Guide to Attendance, Participation, and Engagement Data in Virtual and Hybrid Learning Models

https://nces.ed.gov/forum/pub_2021058.asp

This resource provides an overview of best practices that will help education agencies collect, report, and use attendance, participation, and engagement data in different learning formats. It was developed as a companion publication to the 2018 *Forum Guide to Collecting and Using Attendance Data* and incorporates lessons learned by state and local education agencies (SEAs and LEAs) during the coronavirus disease (COVID-19) pandemic.

Forum Guide to Staff Records

This forthcoming resource is intended to help education agencies effectively collect, manage, utilize, and dispose of staff data. The resource provides an overview of the many types of information that may be classified as staff records; effective practices for collecting, maintaining, and protecting the privacy of these records; and information on managing access to the records, including open records requests.

Forum Guide to Cybersecurity: Safeguarding Your Data

https://nces.ed.gov/forum/pub_2020137.asp

This resource provides timely and useful best practice information to help education agencies proactively prepare for, appropriately mitigate, and responsibly recover from a cybersecurity incident. It provides recommendations to help protect agency systems and data before, during, and after a cybersecurity incident and features case studies from state and local education agencies.

Forum Guide to Data Governance

https://nces.ed.gov/forum/pub_2020083.asp

This resource provides timely and useful best practices, examples, and resources for agencies implementing or updating their data governance programs. It provides an overview of data governance; discusses effective data governance practices, structures, and essential elements; describes how to meet privacy and security requirements while also meeting data accessibility and sharing needs; and includes detailed case studies from education agencies in their data governance efforts.

Forum Guide to Exit Codes

https://nces.ed.gov/forum/pub_2020132.asp

This resource provides best practice information for tracking data about when students transferred, completed high school, dropped out, or otherwise exited an education agency. The resource defines exit codes and reviews their use in an education agency; provides an updated, voluntary, common taxonomy for exit codes; discusses best practices and methods for addressing specific challenges in exit codes data collection; and features case studies that highlight different education agencies' approaches to and experiences with exit coding.

Forum Guide to Personalized Learning Data

https://nces.ed.gov/forum/pub_2019160.asp

This resource will help education agencies as they consider whether and how to expand their use of personalized learning. It includes an overview of the topic, best practices on collecting and using data for personalized learning, and case studies from districts and states that have implemented personalized learning.

Forum Guide to Collecting and Using Attendance Data

https://nces.ed.gov/forum/pub_2017007.asp

This resource offers best practice suggestions and features real-life examples of how attendance data have been used by education agencies. A set of voluntary attendance codes that can be used to compare attendance data across states, districts, and schools is included, as well as tip sheets for a wide range of education agency staff who work with attendance data.

Forum Guide to Education Data Privacy

https://nces.ed.gov/forum/pub_2016096.asp

This resource provides SEAs and LEAs with best practice information to use in assisting school staff in protecting the confidentiality of student data in instructional and administrative practices. SEAs and LEAs may also find the guide useful in developing privacy programs and related professional development programs.

Forum Guide to SCED Classification System

http://nces.ed.gov/forum/pub_2014802.asp

SCED is a voluntary, common classification system for prior-to-secondary and secondary school courses. This resource includes an overview of the SCED structure and descriptions of the SCED Framework elements, recommended attributes, and information for new and existing users on best practices for implementing and expanding their use of SCED.

Forum Guide to the Teacher-Student Data Link: A Technical Implementation Resource

http://nces.ed.gov/forum/pub_2013802.asp

This resource provides a practical guide for implementing a teacher-student data link (TSDL) that supports a range of uses at the local, regional, and state levels. The guide addresses the considerations for linking teacher and student data from multiple perspectives, including governance, policies, data components, business rules, system requirements, and practices. It provides references to promising practices for high-quality data linkages, including TSDL-specific processes such as roster verification and the establishment of the teacher of record.

Forum Guide to Crime, Violence, and Discipline Incident Data

https://nces.ed.gov/forum/pub_2011806.asp

This resource focuses on the use of crime, violence, and discipline data to improve school safety. It presents strategies for implementing an incident database, including system design, management, and training; recommends a body of data elements, definitions, and code lists useful for collecting accurate and comparable data about crime, violence, and discipline; and offers suggestions for the effective presentation and reporting of data.

Forum Guide to Ensuring Equal Access to Education Websites

https://nces.ed.gov/forum/pub_2011807.asp

This resource is intended to raise awareness in nontechnical audiences and suggest best practices for complying with Section 508 goals at an operational level in schools, school districts, and state education agencies. It is not intended to recreate technical resources that already exist to facilitate Section 508 compliance.

Forum Guide to Data Ethics

http://nces.ed.gov/forum/pub_2010801.asp

While laws set the legal parameters that govern data use, ethics establish fundamental principles of "right and wrong" that are critical to the appropriate management and use of education data in the technology age. This guide reflects the experience and judgment of seasoned data managers; while there is no mandate to follow these principles, it is hoped that the contents will prove a useful reference to others in their work.

Forum Curriculum for Improving Education Data: A Resource for Local Education Agencies

https://nces.ed.gov/forum/pub_2007808.asp

This curriculum supports efforts to improve the quality of education data by serving as training materials for K-12 school and district staff. It provides lesson plans, instructional handouts, and related resources, and presents concepts necessary to help schools develop a culture for improving data quality.

Forum Guide to Building a Culture of Quality Data: A School & District Resource

https://nces.ed.gov/forum/pub_2005801.asp

This resource was developed to help schools and school districts improve the quality of data they collect and to provide processes for developing a "Culture of Quality Data" by focusing on data entry–getting things right at the source. This resource shows how quality data can be achieved in a school or district through the collaborative efforts of all staff.