

Chapter Four
**The Changing
Structure and Roles
within Online Education**

New technologies, media, and practices are changing the familiar educational experience for students, their parents, and instructors. This changing landscape has been described as creating a radical connectedness which includes shifting power from institutions to individuals.

Education is but one sector where networked technology—specifically the anytime, anywhere connections offered by the internet—is changing how individuals relate to institutions. Stakeholders in the educational process—including students, teachers, administrators, commercial curriculum developers, technology companies, policy makers, and parents—are faced with unprecedented challenges, as well as opportunities. At the Center, along with its partners at the Center for Applied Special Technology (CAST), and the National Association of State Directors of Special Education (NASDSE), researchers with decades of experience focused on researching and implementing digital and technologically supported learning environments have been working to understand these challenges and opportunities, especially as they lead to

promising practices associated with K-12 online learning. Four interconnected research interests focusing on students with disabilities and their families have driven this collaborative work:¹

- Understanding the contexts (home, school, or elsewhere) that impact online learning outcomes.
- Identifying and promoting promising approaches for the design and delivery of online education relative to diverse learners.
- Exploring the data capabilities of the online environment to support distinct student learning needs.
- Investigating the unique expectations placed on educators as they provide instruction and administrative support in online learning environments.

This chapter explores key impressions for improving the educational experiences of students with disabilities (and other diverse learning needs) from various research projects and field-based activities across some of these focus areas. The first part of the chapter will address issues associated with gathering usable data to support online instruction within these systems. The second part of the chapter will review a few projects in which researchers from the Center have investigated the role of parents in online learning. Each of the sections concludes with overall impressions and then considerations for policy, practice, and research. As previously mentioned, it is important to note that research in online learning, whether full-time virtual, blended or supplemental, is an emergent field of study, and

that the represented studies, associated findings, as well as implications should be viewed as only preliminary. This publication is being written to inform multiple stakeholders of the developing systems of practice, to encourage greater dialogue across these stakeholders, as well as to support a greater focus on research in K-12 digital learning for individuals with disabilities and other diverse learning needs.

Acquiring Usable Data: Challenges and Benefits to Compliance and Instruction

When state special education administrators are asked, “How many students with disabilities are enrolled in online learning, which of these students perform best in which types of environments, and how are they progressing?” they may be able to identify how many of these students were enrolled at the start of a semester, and whether the academic achievement for these students was at, above, or below the established standards. However, beyond basic initial enrollment and outcome information, they simply do not know the answers to these questions. More critically, administrators are required to provide (annually) information on the enrollment, persistence, and achievement of students with disabilities to the Office of Special Education Programs on their State Performance Plan (SPP), but the more frequently that students with disabilities enroll in full-time virtual, blended, or supplemental online programs, the more remote that information becomes. Not only is the information often unavailable, but, even when it can be collected, interpreting how to report the data can pose a challenge.²

For example, the expectation is that students with disabilities will be enrolled with their non-disabled peers in general education settings to the greatest extent possible. The SPP terminology refers to general education as “regular class.” Is a full-time virtual, blended or supplemental

course a “regular” class? How is that known? Beyond enrollment, persistence in a course of study, and outcomes, determining which factors actually promote learning—pathways, media, supports, activities, technologies, interpersonal connections (virtual or face-to-face)—is a more significant challenge.

The education personnel (at both the local and state levels) charged with reporting on the progress of students with disabilities struggle to access the information they need which makes reporting extremely difficult. Often, entities in possession of the relevant data sets may not be aware that the data they have collected could, when combined with other entities’ data, benefit all of the stakeholders in a system. Others may be unable or unwilling to share the data with others.

Center research, including surveys of state directors in 2012-2013 and a state directors’ forum held in 2014, indicated that the acquisition and use of student data is an ongoing, central issue. In particular, early research indicated that many seemingly basic questions about the recruitment, enrollment, retention, progress, and performance of students

with disabilities in online environments cannot readily be answered using extant online data, either because the necessary data do not exist, the data exist but cannot be accessed, or what data do exist cannot be made usable for research purposes at reasonable cost (if at all).³

Two Center research efforts have discovered that the cost-effective collection of large amounts of detailed data on student behavior is a potential benefit of online learning environments. This data collection and subsequent analysis may create new opportunities for understanding student learning behavior and progress, as well as for providing more individualized support for diverse learners. Research efforts, including interview data from the stakeholder forums and online providers, and descriptive data from long-term, site-based observations, have shown that this data exists, and is, in some cases, readily available to local and state-level personnel

State Directors Survey 2012 (N=46)	
Does your state have data on which students with disabilities are receiving their instruction through an online environment?	
Online program Yes: 24% No: 76%	Blended program Yes: 7% No: 93%
Supplemental online course Yes: 11% No: 89%	Related services Yes: 9% No: 91%

Table 4.1



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(this availability is not yet the norm). It is reasonable to conclude that when learning moves from offline to online environments, more operational data is collected. Often, however, the inability to aggregate this data with student demographic information (disability type, for example) isolates its usefulness.⁴

The summaries below present, in counterpoint, two examples of the present state of data collection, aggregation, and reporting relative to tracking the placement, progress, and provision of services to students with disabilities. In the first example, students with disabilities are fully integrated into a blended learning environment where they received approximately 50% of their access to curricular materials, assessments, and activities online, using a personalized learning system that provides them, their teachers, and their parents with real-time, actionable information about their academic progress. The personalized system was designed to be interoperable with district demographic information and with summative academic tests.

In the second research summary, the progress of stu-

Equity Matters: Digital & Online Learning for Students with Disabilities

dents with disabilities (and of all students) in online supplemental courses offered by a national virtual school was untraceable due to a lack of interoperability across the myriad of entities collecting that information. This summary is presented both as a cautionary tale and as an example of student data and reporting barriers that persist as the rule rather than the exception.

In 2012, the Center began conducting research in a reform district in one of the most disadvantaged cities in the U.S. The district served roughly 6,500 students in 12 inner city schools. Nearly all students previously attended chronically low performing schools. At the time of the reform district takeover, approximately 20% of students were identified as special education eligible. Following the first year of the district's operation, the identification of students receiving special education services dropped to 12%.

In its approach to disrupting the status quo, the district embraced a "student-centered" paradigm where pedagogy, assessments, support systems, and culture were refocused to facilitate student progress, and organized

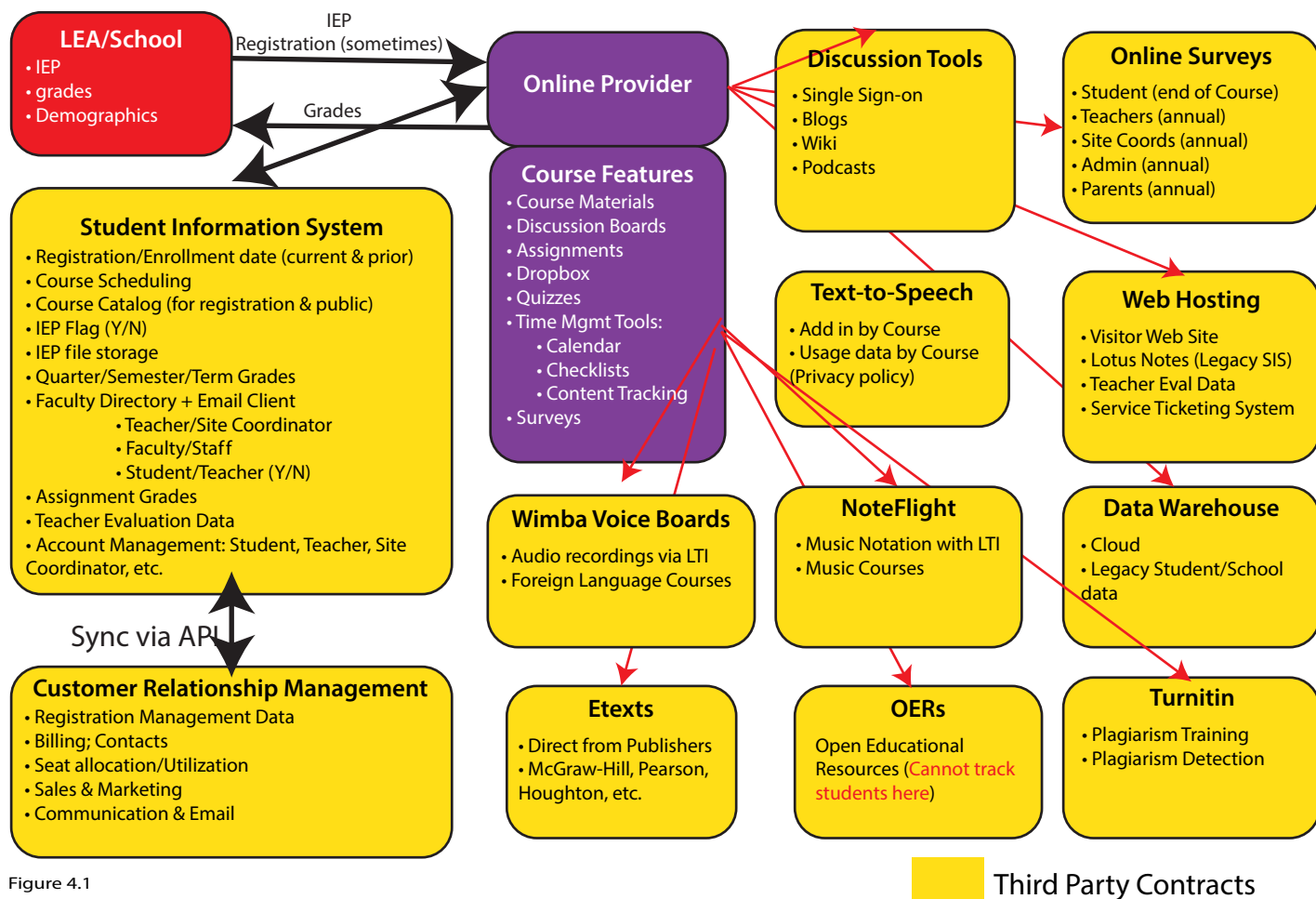


Figure 4.1

around mastery instead of age and seat time. In these schools, students became active contributors, assuming responsibility for their learning. Students participated in planning, setting goals, and producing evidence of what they had mastered.

Technology was a critical component of the district's blended curriculum design. Technology did not replace the teacher but rather was readily available to serve a multi-faceted role, including virtual instruction, tutoring, 21st century skill-building, and enrichment. Core to the revised curriculum was a centralized content delivery system—designed to support digital academic materials from commercial, open, and teacher-developed sources—across all elementary and secondary instructional areas. The system's architecture allowed for easy and flexible movement of standards-aligned content into and out of the digital delivery platform, and strong analytics with real-time access to daily progress data. This data tracking provided students and teachers with a daily assessment of student progress which allowed students to record their levels of interest, effort, and understanding. To identify design principles and practices, researchers conducted numerous long-form and

short-form observations and interviews over an 18-month window, across multiple classrooms and other learning environments within the district.⁵

In an initial evaluation of factors associated with academic achievement, data analysis revealed that a higher percentage of students with disabilities met two-year growth targets in English Language Arts than their non-disabled peers. However, the effect size estimates were small for all those differences. In English, having an IEP was found to have a significant effect: students with an IEP were 16% less likely to meet at least one-year growth than students without an IEP. In mathematics, students with disabilities showed a higher percentage of meeting two-year growth and at least one-year growth than students without disabilities. The effect sizes, however, were small.

The initial findings suggested that students with disabilities made substantial gains in both academic areas in this blended setting, especially in mathematics. Throughout all of the models tested, age demonstrated a significant primary interaction on the level of student achievement. This interaction was maintained across

students with disabilities and their non-disabled peers. Irrespective of these correlations, the personalized learning system employed in this environment was established from the outset to be interoperable with other systems containing student data, and these linkages meant that the progress of students with disabilities could be tracked and reported at a granular level sufficient to address local and state reporting requirements.

In an initial descriptive study of an online supplemental course provider (NE1) and their online learning platform (LMS), vendor (NE2), researchers collected and analyzed quantitative data on students with disabilities related to recruitment, enrollment, retention, progress, and performance, and contextualized these data with information from a series of surveys and structured interviews. From these sources a diagram was compiled depicting the primary information systems in which student and other usage and outcome data are stored. The intent was to extract a minimal “unified student record” from historical data as a pilot approach with the following types of data elements:

- Demographic: Student ID, IEP status (Yes/No)
- Usage: Frequency of login, time spent on platform, features used, pages visited
- Learning Outcomes: Assignment scores, end-of-course grades, course completion (Yes/No)

Figure 4.1 provides a visual portrayal of the data relationships between the student’s “home” school (LEA: in red), the online school offering supplemental courses (NE1: online provider in purple), and the vendor’s (NE2) LMS (and the vendor’s 3rd party connections) in yellow.

Once the structural relationship among these entities was identified, Center researchers worked closely with NE1 and NE2, as well as with a third partner responsible for providing text-to-speech functionality (ASR), to develop a technical specification. This specification would call for generating a unified student record by compiling appropriate data from each partner into a single, centralized database as students progressed through an academic semester in an online course. Within this design, each partner would facilitate collection and aggregation of the unified student record from which Center researchers could measure students’ instruc-

tional outcomes and use of ASR supports. The intent of this data aggregation was based on the assumption that, by combining student demographic usage and learning outcome data for IEP and non-IEP students and then applying evidence-based learning analytics, indicators associated with successful and unsuccessful learning profiles and pathways would emerge.⁶

While the creation of a unified student record was viable in theory, this was not possible to achieve in practice. The student data (demographic, achievement, and system usage) collected and stored by each of the entities involved in the design, delivery, and implementation of online courses was either not interoperable, not tracked at the individual student level, or not available for research purposes due to perceived student data privacy uncertainties.⁷

Many of the data generated by online learning systems (to date) are ill-suited to support research on student progress and the factors supporting, inhibiting, or neutral to academic achievement. For example, it is possible to provide most online services—eBooks, websites, multimedia—and online supports (e.g., ASR and glossary support) without recording any information about students, student activity, or outcomes. However, without some capacity to associate a student-level identifier to individual data points (clickstream, dwell time, entry/exit addresses, etc.) making the data usable for research is nearly impossible after the fact.

In this instance, valuable and important data were “siloes” by the complex interaction of technical, legal, policy, and economic issues that exist between organizations, despite the fact that they are all working collaboratively towards a common goal of delivering quality online learning opportunities.

General Impressions

From the Center’s research on students with disabilities in online learning environments, the management of student data has emerged repeatedly as a central issue. In particular, early research and reports from the field indicated that many seemingly basic questions about the recruitment, enrollment, retention, progress, and performance of students with disabilities in online environments cannot readily be answered using extant online data, either because the necessary data do not

exist, the data exist but cannot be accessed, or what data do exist cannot be made usable for research purposes at reasonable cost (if at all).

The first research summary makes a strong case for how the appropriate use of data and the design of the learning environment can support learning outcomes for all students. Nearly all students in the learning environment demonstrated sizeable growth. An important finding is that this district was able to achieve greater integrated data usage because data systems were built with a focus on personalized learning for all students. Educational personnel and students used these data and systems to support progress in a competency-based model of learning. The combined systems and practices allowed for needed flexibility in achieving learning outcomes. Overall, the researchers found that inclusive practices, data-based personalization, and student self-regulation were overarching factors in the design of the district's learning environments.

Initial Considerations for Policy, Practice, and Research

Policy: This research highlights the need for developing cooperative partnerships amongst states, school districts, and industry to create learning environments that support and provide usable information about all learners. Within these digitally enhanced environments, data to support more effective decision making is possible, but the field's lack of understanding, interpretation of privacy policy, lack of industry data interoperability, and sharing standards and policies make data-driven personalization difficult. These new environments require educators to be more focused on how data-driven progress monitoring occurs. Purchasing requirements that require interoperability in digital materials have been enacted in some large districts—a step in the right direction. However, unless a more unified—even national—approach is established, local initiatives threaten to burden an already complex system with differing data requests. The data reporting requirements associated with students with disabilities offer a unique impetus for establishing a voluntary unified data standard that could be embraced by and offer benefits to both industry and educators.⁸

Practice: The unprecedented growth of technology in schools can be overwhelming and difficult to conceptu-

alize within the traditional instructional and curricular frameworks. While the technology itself has the potential to dramatically shift teaching and learning, the greater impact may actually come from the data these systems generate. Combining real-time data collection from technology provides the potential to achieve individualized educational outcomes that may otherwise be unattainable, especially for students with disabilities and other diverse learning needs. To maximize this potential, designing environments that consider—from the outset—learner variability is critical. Personalized environments use the best of online education along with data to support all students in a highly engaged, often competency-based environment, where each student works at their own pace, on their own path, and has an individualized learning plan. Numerous school districts are already attempting to develop or implement these personalized environments. The ability of these systems to share data about student usage and decision-making should be a key factor in procurement decisions. Moreover, teachers need to be prepared to gather data, use data, and make data-based decisions. Currently, many teachers have difficulty in using data in the decision making process which limits their ability to implement more innovative approaches and technologies in the classroom.⁹

Research: Strategies regarding privacy, data ownership, and usage need to be researched using sample, possibly case study-based, data sharing agreements. A unified student record that includes demographic, usage, and outcome/achievement data linked to an individual student is a necessary requirement for realizing the full potential of online learning environments. Such records should include monitoring student progress, adapting instruction for diverse learners, and, significantly, conducting research on what works for which students and under what conditions, testing design assumptions, and identifying ways to continuously improve the system. The comprehensive progress monitoring that such unification would provide would be important for all learners, and especially for students in the margins (such as students with disabilities) who often require the most adaptation and support to succeed.

Much in the same way that the roles and responsibilities of state special education directors are impacted by the enrollment of students with disabilities in online

learning, the role of parents may also change dramatically depending upon the context and scope of their student's online involvement. The next section addresses some aspects of those changes that have emerged from the research of the Center and other inquiries.

The Role of Parents in Online Learning

Across various Center research projects, stakeholders in digital learning environments have expressed that technology has changed both the *what* and *how* of learning for all students. Concurrently, groups and individuals participating in the Center's research (and that of others) have articulated difficulty interpreting how these changes align with or diverge from special education statutes. As a result of the contextual variation presented by full-time virtual, blended, and supplemental online learning, uncertainties exist regarding the roles of administrators, educators, and, in particular, parents, as students become increasingly involved in these different educational settings. Questions arise about how to optimize the design and delivery of curriculum, remediation, accommodations, and related services (speech, occupational therapy, physical therapy, counseling, etc.); who is responsible for carrying out the various aspects of special education; and how the delivery of these IEP-mandated supports and services should be monitored and documented.

Although administrators, teachers and parents are hopeful that digital learning and mandates included in the Individuals with Disabilities

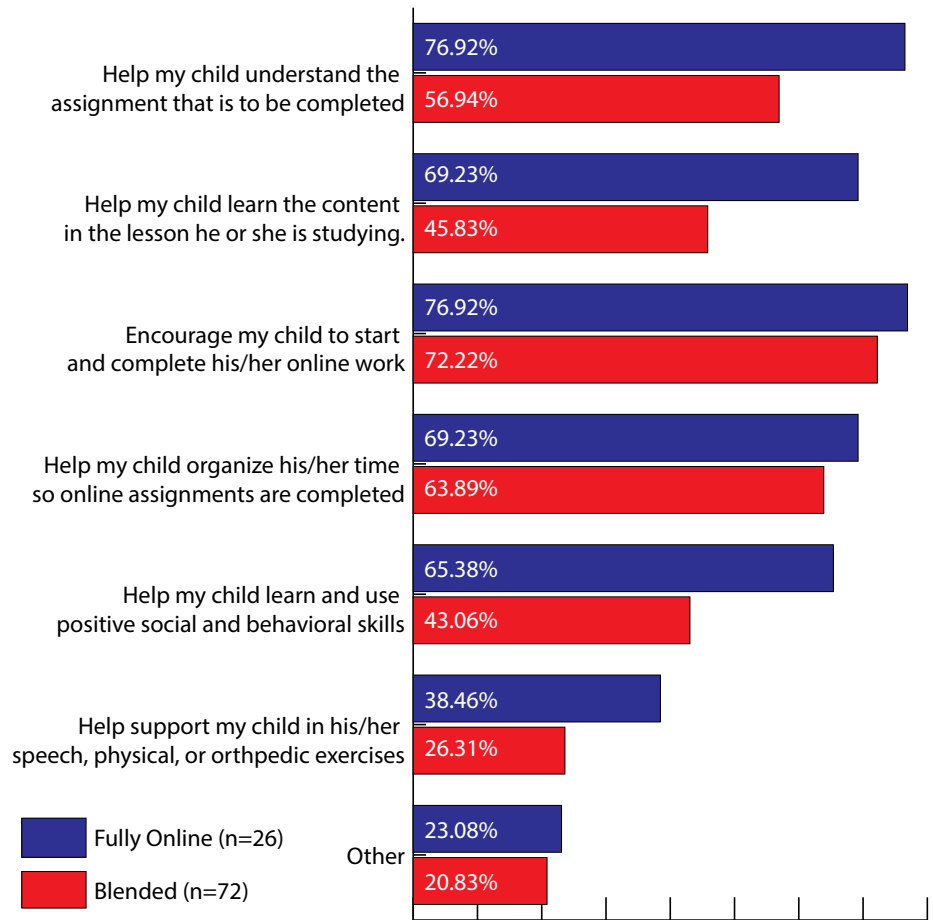


Figure 4.2

Education Act (IDEA) are essentially compatible, no consensus exists as to how that relationship is actually defined. Online learning, with its full-time virtual, blended, and supplemental variants, has introduced substantial contextual variability and students with disabilities, are, by definition, a highly diverse group with highly differentiated needs. Addressing IDEA mandates in these environments will require careful thinking around the practical and ethical issues at stake in providing services to students with disabilities in online settings. Similar to the inception of Public Law 94-142, identifying needed changes must come from a vast array of stakeholders—including parents.

In considering the role of parents, addressing fundamental distinc-

tions in how online learning is structured and delivered become even more important. Online learning in elementary and secondary settings generally falls into three categories: full-time virtual schooling, blended environments where students receive some considerable percentage of their instruction online, and supplemental online courses that offer credit recovery or a content area focus not locally available. For students enrolled in supplemental coursework, the provision of special education services generally follows the established brick-and-mortar procedures and parental involvement may not differ greatly from what occurs in schools not offering supplemental online courses. Parent involvement in blended settings is generally more active since, in most blended settings, students are



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expected to engage in some online learning at home. Alternatively, in full-time virtual settings parents may spend 1–3 hours per day supporting their students.¹⁰

The research summaries below highlight some of the Center’s findings related to the role of parents in full-time virtual and blended settings.

Center researchers deployed two parent surveys, one in 2012 and one in 2013, to different sets of parents of students with disabilities enrolled in online learning. Each of the 102 respondents in 2012 and 101 in 2013 addressed the question, “What role do parents play in their child’s day-to-day online learning experience?” The chart below depicts the 2012 findings which disaggregated full-time virtual from blended settings.

The percentage responses to this question from the 2013 survey (49% blended; 51% full-time virtual) were very similar to the 2012 survey, and the chart above (from the 2013 survey) illustrates the differing levels of involvement of parents of students with disabilities in full-time virtual placements versus that of parents of students in blended placements.

In the 2012 survey, 38% of parents indicated that the most challenging aspects they faced supporting their students were 1) issues with knowing how to accommodate for the student’s disability in an online setting, 2) issues with timing or scheduling, and 3) issues with access to school personnel. The 2013 survey indicated some substantial shifts. Timing or scheduling emerged as the greatest challenge (40%), followed by issues with knowing how to accommodate for the student’s disability in an online setting (24%). Issues with access to school personnel dropped to 9%.

In the 2012 survey, 29% of parents reported that their child received no special education services in a blended setting similar to the 28% reported (full-time virtual and blended) in the 2013 survey. Since this response was not paired with information related to the provision of special education services offline, it is difficult to assess the extent to which no services of any kind were provided to these students—this finding bears further investigation. However, in the 2013 survey, 29% of 101 parents reported either “no” or “don’t know” to the question “Is there a certified special education teacher

assigned to your child?" which also raises concerns.¹¹

These results mirrored the impressions from a prior case study of six students with disabilities attending two full-time virtual schools. From direct observations of the students and caregiver, along with teacher interviews, that inquiry revealed that parents did not receive any formal training or guidance in how to deliver appropriate scaffolding to students.¹²

Researchers from the Center developed and administered an additional survey to parents (half of whom had students in full-time virtual settings, and half in blended settings) regarding: 1) their level of involvement, 2) how they accommodate and modify the online work for their children, 3) what benefits, challenges, and barriers are encountered, and 4) what supports or guidance the online schools are providing to them in order to educate their children online. Findings were drawn from 119 responses across the U.S. from individuals identified as parents of students with disabilities. The reported disability categories of students in full-time virtual and blended online learning were:

- Specific learning disability 29%
- Autism 13%
- Other health impaired 13%
- Speech or language impairment 9%
- Intellectual and multiple disabilities 8% (both)
- And emotional disturbance 7%
- Hearing impaired <3%
- Orthopedic impaired <1%
- Traumatic brain injury <1%
- Visually impaired <1%

Thematic findings from this research illustrated some of the changed contextual factors in online learning: 1) in full-time virtual settings parents often act as the primary teacher in their child's fully online education, representing a marked shift from teacher-led instruction to parent-led instruction, 2) parents are responsible for engaging the child, ensuring the child completes the assigned lessons, supporting the child when challenged, identifying and implementing adaptations, collaborating with the teacher to determine the appropriateness of the lessons, determining (with the teacher) the grade-level of the lessons assigned and the amount of work the student can complete, and similar components of the child's day-

to-day learning, 3) good communication between the teachers and parents is a necessity in this process, 4) in some instances, the teacher's role in instruction is one of supporter, problem solver, and facilitator with day-to-day contact with the student, and 5) parent level of commitment and expertise appears to be a factor supporting student success.¹³

In another study, Center researchers conducted interviews with parents of elementary and middle school-age children with disabilities. Parents were referred by teachers in fully online programs (thus, the students were participants in a full-time virtual program). From this list of referrals, 13 parents were interviewed. These participants were mostly mothers who had some college education or full college degrees. Several male caretakers also participated in the interviews as support for the mothers. The students' disabilities included autism, attention deficit/hyperactivity disorder, and specific learning disabilities. During the single interview, parents were asked 17 questions around four constructs:

1. Support for parental involvement from the online school program;
2. Parental engagement necessary for a child's academic achievement;
3. Their role in children's learning and academic success; and
4. Benefits and challenges embarking on online coursework.

In addition, two questions queried parents about their children's exceptionalities and how they came to be in their current online school. Parents in this study generally articulated that their primary reason for choosing fully online education was to avoid certain circumstances in their own local school, rather than a desire or preference for online education. Precipitating circumstances included bullying and a perceived lack of appropriate follow-through on disability service plans.

Parents considered the time they spent in close proximity helping children with their school work as primary evidence of their engagement. All but one parent agreed that their child's success depended on the active involvement of parents. These parents also acknowledged providing considerable instructional support (e.g., implementing instructional interventions), similar to



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that of a teacher. In particular, the parents provided encouragement, basic accommodations and modifications, and developed techniques for quick, informal progress monitoring.¹⁴ A limitation to acknowledge is that the interviewees from this study were considered a convenience sample from the school. Thus the degree to which the participants may or may not be representative of a larger sample is uncertain. Nonetheless, the Center staff believes the study's findings are important to share because the findings are reflective of other informal communications Center researchers have had with parents of students with disabilities across the field of online education.

General Impressions

Parent participation is one of the core principles of IDEA, and the rapid infusion of online learning into elementary and secondary education challenges previous understandings of how—and to what extent—parents are involved in the education of students with disabilities. Addressing the role of parents as active agents supporting students in online settings should be a concern of policymakers, school administrators, teachers, and families. Parents are an especially important source of

support in full-time virtual settings because they will actively engage the child in completing the work. When parents are unable to or unavailable for fulfilling this role, online learning coursework providers often require, or strongly advise, the participation of another adult who can be in the physical presence of the child on a regular basis. For many students with disabilities, this additional adult presence is critical because too often the students lack the self-regulatory, reflection, and self-monitoring skills necessary to persist and succeed in online learning. The adult provides this support through their presence. The demands and requirements of fully online learning, especially for elementary-aged students, lead to the need for a parent or other caretaker to be present.¹⁵

Center research indicates a need to better understand how to optimize the role of parents working to support students with disabilities in full-time virtual, blended, and supplemental learning contexts. The increased expectation for parent involvement in these settings suggests the need for adequate training and support in this role. With respect to IDEA mandates and safeguards, while the survey results do not indicate how many of

the responding parents were actually involved in providing special education services for their children, the fact that few, if any, of them were certified special education teachers raises the question of how IDEA's "qualified teacher" requirements are being met.

Initial Considerations for Policy, Practice, & Research

Policy: The role of parents varies considerably depending on the context of online learning, with full-time virtual schooling requiring more extensive parental involvement, especially if the students are elementary aged. Preliminary research reflects that approaches to supporting parents in areas of specialized instruction, online accommodations, and time management vary from one online instructional setting to another. As other Center research summaries have detailed, state-level special education administrators often have limited information regarding the placement, persistence, and outcomes associated with students with disabilities in online settings—information that is often insufficient for use in establishing policies. Alternatively, some states have moved to address the issue of parent roles by requiring a specific or "sufficient" teacher: student ratio in full-time virtual settings that enroll students with disabilities, or have established statewide policies for supporting both parents and teachers working with students with disabilities in blended settings. Clearly, IDEA safeguards should be considered across all three contexts of online learning to determine if and how these learning environments facilitate or inhibit the delivery of effective and appropriate special education services.¹⁶

State-level special education administrators who participated in a Center-hosted forum in the fall of 2014 agreed that a delineated system for parent preparation, support, and monitoring would be immensely helpful. As yet, states do not feel comfortable that this system has been developed or tested. In addition, another missing component is a set of best practices to facilitate a clearer understanding of each party's responsibilities. In addition, administrators are uncertain about shifts in responsibility for providing services or accommodations when the student is educated in a full-time virtual setting. In a typical school setting, the school provides related services and accommodations. In an online setting, uncertainty exists about those same responsibili-

ties as some are beyond what the parent can provide for their children with disabilities.¹⁷

Practice: Not all online learning contexts require the same level of parent involvement, although each requires different parental roles with different responsibilities. Some online schools require parents to meet with teachers or watch an orientation or training video that includes modeling tools and applications to help parents in their learning support role. However, in some circumstances, little to no follow up occurs to ensure that parents understand these expectations. In the absence of any monitored orientation and support, parents may not be able to provide the accommodations and interventions necessary to implement their child's IEP with fidelity. One should also consider that many parents are not asking for this level of support, so the district and online school may not know that the need exists or may not have instituted a clear communication protocol for parental input into what training might be needed, or how to deliver it.

Center research has identified a need for those engaged in the delivery of online learning—a local, regional or state provider, a commercial vendor, or both—to provide an orientation program and on-going support resources for parents. These offerings might include instructional support, time management strategies, parent mentorship sessions, and parent meetings specifically for parents of students with disabilities. While some purveyors of online learning do offer these types of resources to parents, it is not the norm. Clear and easily discoverable procedures should be in place to identify who has responsibility to communicate with parents about their child's schoolwork. Protocols should be implemented regarding the sharing of student information, as should procedures for communicating with parents about their child's schoolwork and instructional expectations. Communication plans need to include accountability benchmarks appropriate for all stakeholders, including goal setting, progress monitoring, changes in interventions or placements, participants' respective roles, information flow, and dispute resolution. Where possible, parents should be offered the opportunity to communicate with other parents of enrolled students with and without disabilities to form social support networks. Beyond access to these resources, parents could benefit from assistance in facilitating these "parent peer" interactions. Video and phone conferencing, email and text

communications would expand the support options available to parents.

Research: From a research perspective, the Center perceives a need to explore how technology can play a role in helping instructors and related services staff build and maintain relationships with and for students with disabilities and those persons (e.g., parents) who support them in online learning environments. Existing research also suggests that further exploration of the pedagogical skills required by teachers, parents, or other “learning coach” adults is warranted. Additional research should also examine how the perspectives of

culturally, linguistically, and ethnically diverse parents may impact student engagement and outcomes in online learning. In full time virtual and many blended settings parents and teachers may share (or exchange) roles related to instruction, and additional research is needed to investigate the impact of these changes on student achievement. For example, what prompts, sustains, or threatens the stability of role sharing? How can teachers and parents prepare to engage in interactions with students (and one another) that are different from what occurs in brick-and-mortar settings? What characterizes the home setting and parental involvement for students achieving high success in online learning?

Endnotes

1. Basham, Smith, Greer, and Marino, 2013; Deshler, Rose, & East, 2011

2. The State Performance Plan (<https://www2.ed.gov/policy/speced/guid/idea/bapr/2008/2partbmeatable081308.pdf>) includes 20 indicators regarding the education of students on IEPs. For example, Indicator 5 asks states to identify the percent of children with IEPs aged 6-21 who have been: a) removed from regular class less than 21% of the day, b) removed from regular class greater than 60% of the day, or c) served in public or private separate schools, residential placements, or homebound or hospital placements. (20 U.S.C. 1416(a)(3)(A))

3. The State Directors Forum indicated that data on the enrollment, persistence, progress and achievement of students with disabilities in online education was the most pressing need. Retrieved from <http://centeronlinelearning.org/whats-important-to-state-departments-of-education/>.

4. State Leaders Forum, November, 2014; School Superintendents Forum, March, 2015; Vendor Forum, August, 2015. Retrieved from <http://centeronlinelearning.org/publications/center-research/>.

5. During initial observations, researchers used an open observation technique to identify common principles and practices across settings. In later observations, the researchers used a Universal Design for Learning (UDL) Instructional Observation Instrument to align practices to the UDL framework. In the process of identifying design principles and practices, researchers also interviewed both instructional staff and students to determine how these principles and practices were operationalized on a day-to-day basis within the environment. To investigate the factors associated with student outcomes, researchers accessed 2012-2013 school year data. These data included all student and school-wide data associated with academic performance, behavioral incidences, and enrollment. These data also included student demographic information, including but not limited to disability status.

6. Research by Means, et al. (2014) and Norris, et al. (2008) reference the potential benefits of student data analytics to enhance the accuracy of measuring learning trajectories. They note the potential benefits of combining student demographics, and achievement and usage data, to create an overview of how these factors are interrelated (how learning environments act on students and how students act on environments), and to help determine effective instructional pathways customized to learner needs.

7. The effort was both significant and informative—significant because the study revealed the hidden complexities related to the management, access to, and use of student data, and informative because the study exposed, in this circumstance, the existing technical, legal, policy, intellectual property and economic barriers that currently block the ability of any stakeholder (including students, parents, instructors, policymakers, and online providers) from using existing information to evaluate materials, policies, procedures, and practices.

8. Both Anderson (2008) and Wilson & Stacey (2004) emphasize the potential of teacher/student interaction and close progress monitoring opportunities available in online learning environments to build on real-time data that may otherwise be difficult or impossible to collect in non-digital settings.

IMS Global Accelerates Adoption of Integrated Digital Curriculum. Retrieved from <http://gettingsmart.com/2015/09/ims-global-accelerates-adoption-of-integrated-digital-curriculum/>.

Big Districts Pressure Publishers on Digital-Content Delivery. Retrieved from <http://www.edweek.org/ew/articles/2014/12/03/13techstandards.h34.html>.

9. Basham, Smith, Greer, and Marino (2013) argue that while technology is a powerful vehicle for delivering instruction and monitoring student progress, instructional goals and curricular design principles continue to be critical factors for ensuring student success. Means, et al., (2011) address the need for teachers to develop skills in the timely use of student data to inform instructional decision-making.

10. Burdette & Greer (2014) noted wide differences in parent involvement and student support with 27% of the parents in their study spending three hours or more per day assisting students in full-time virtual settings, especially if the child was elementary-age. A participant, who represented a full-time virtual service provider, in the COLSD Vendors Forum offered a similar perspective in August 2015 and indicated considerable parent involvement for parents of students with or without IEPs. The need to address parent responsibilities from a contextualized perspective was also referenced by Wicks, (2010) and Rose, (2007). For many full-time virtual schools, “learning coach” is the title given to the parents of enrolled children. While little is known about what learning coaches do to support their children as students, or how they do it (Black, 2009), most of the available information comes from descriptive literature (Bogden, 2003; Butler, 2010; Van Dusen, 2009). Some information can be found in literature produced by third-party curriculum vendors (e.g., K12.com, connectionsacademy.com).

11. COLSD Parent Surveys 2012 and 2013.

12. IDEA, 2004 §300.18 requires special education teachers to meet specific standards and engage in professional development that is sustained and intensive. Retrieved from <http://idea.ed.gov/explore/view/p/.root.regs.300.A.300%252E18>. In December 2012, the Center established a collaborative relationship with two fully online schools, one located in the West and one in the Midwest regions of the U.S. Researchers examined what actually happens when students with disabilities participate within these fully online learning environments. To do so, researchers studied six children with disabilities, along with their parents and their teachers, using multiple methods of gathering contextual information: 1) two structured observations of each student while engaged in online course work (e.g., in their homes), 2) 30-60 minute interviews with students, parents, teachers, support staff, and administrators, and 3) 60-90 minute focus groups with parents, teachers, administrators, and support staff. In addition, information on student achievement, disability, and engagement was collected. Additional similar findings were reported in Coy, et al. (2014).

13. The population of students in online learning includes all of those found in brick-and-mortar settings, including students with disabilities (Barbour, et al. (2013)). The opinions, perceptions, and orientation of parents to their students’ education is as important in online environments as it is in “traditional” school settings (Black, 2009). Significantly, the role of parents in online settings expands to become that of a “learning coach” (Burdette & Greer, 2014, and Klein, 2006). While little research assessed the academic outcomes of more intensive parent instruction of students with disabilities in full-time virtual or blended environments, the preliminary impressions from the Center indicate general parental satisfaction. The extent to which this satisfaction correlates with student academic achievement is unknown.

14. Smith & Burdette (2013), Parent Engagement in K-12 Instruction; COLSD.
15. Borup, West, Graham, & Daves, 2014; Hasler-Waters, Menchaca, & Borup, 2014
16. Retrieved from <http://www.doc.mass.edu/odl/cmvs/> and <http://www.ncvps.org/index.php/ocs-blended-learning/>.
17. Retrieved from http://centerononlinelearning.org/wp-content/uploads/SEA_Topic_2_Summary_May_2015.pdf.

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