



Report on the Stakeholder Forum on Elementary and Secondary Online Learning and Students with Disabilities

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Report from September 15 and 16, 2016 Forum
US Department of Education
Office of Special Education Programs
Washington DC

March 1, 2017

The contents of this manuscript, *Report on the Stakeholder Forum on Elementary and Secondary Online Learning and Students with Disabilities*, was developed under a grant from the US Department of Education, Office of Special Education Programs (OSEP) Cooperative Agreement #H327U110011 with the University of Kansas and member organizations, the Center for Applied Special Technology (CAST), and the National Association of State Directors of Special Education (NASDSE). However, the contents of this paper do not necessarily represent the policy of the US Department of Education, and you should not assume endorsement by the Federal Government.

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Stahl, S., Rank, S., East, T., Rice, M., and Mellard, D. F. (2017).

Report on the Stakeholder Forum on Elementary and Secondary Online Learning and Students with Disabilities. Lawrence, KS: Center on Online Learning and Students with Disabilities, University of Kansas.

I. Introduction

Millions of K-12 learners now have access to online education for the first time due to an increased access to and number of virtual courses. This access is bringing dramatic changes to the educational landscape, as online learning options—full-time virtual schools, blended learning classrooms and supplemental online courses—hold promise for expanding educational opportunities for all students, including those with disabilities.

For students with disabilities, challenging questions related to addressing important safeguards mandated by the Individuals with Disabilities Education Act (IDEA) arise when these students become involved in online instruction. Ambiguity remains regarding who provides online education to students with disabilities, the accommodations in which they can learn, and the guidance and/or policy recommendations within online learning environments. More specific questions include the following:

- Who is responsible for providing free appropriate public education (FAPE) and least restrictive environment (LRE) in full-time virtual, blended, or supplemental course-specific online educational settings? Further, which entity is responsible for the development, oversight, and reporting of a student’s Individualized Education Program (IEP) or related service provisions (speech/language therapy, physical therapy, etc.)?
- Which entity is responsible for providing IEP-mandated accommodations? Does this responsibility differ in full-time virtual, blended, or supplemental delivery environments?
- What are the key guidance recommendations from knowledgeable stakeholders for state agencies, local education agencies, teachers, and parents for supporting students with disabilities in online learning environments (full-time virtual, blended, and supplemental)?

In order to explore these issues, researchers at The Center on Online Learning and Students with Disabilities (COLSD) have sought input throughout its five years of operation from a variety of stakeholders in online learning. These stakeholders included educators, online vendors, and digital content developers actively involved in online learning and knowledgeable about these common challenges. These inquiries elicited additional considerations and potential recommendations that could benefit students with disabilities, their families, and those teaching them.

II. Center Charge

COLSD was funded as a cooperative agreement with the Department of Education's Office of Special Education Programs (OSEP). The charge of Center partners—The University of Kansas Center for Research on Learning (KUCRL), the Center for Applied Special Technology (CAST), and the National Association of State Directors of Special Education (NASDSE)—was to determine how K-12 online learning impacts the access, participation, and progress of students with disabilities. Specifically, Center research focused on how online learning can be made more accessible, engaging, and effective for K-12 learners with disabilities by investigating approaches that address learner variability within the range of conditions under which online learning occurs.

III. Forum Description

In September 2016, COLSD brought together a group of stakeholders representing state and local education agencies, elementary and secondary online learning schools and providers, standards and aligned interest organizations, and parent advocacy groups to advise the Center's work. During this two-day forum, Center researchers and stakeholders participated in a series of small-group discussions related to four guiding questions. The four questions and their associated sub-questions were provided to Forum attendees ahead of time and are listed in Appendix B.

These questions were designed to address key issues that emerged from Center research and to elicit recommendations from Forum attendees. The questions focused on addressing the provisions of IDEA in online settings (full-time virtual, blended, and supplemental), supporting parent involvement, advancing the availability of student activity data available from online learning systems, and determining what promising practices exist for advancing a research agenda. More specifically:

1. *Providing special education and related services in online environments:* What recommendations can be made related to addressing FAPE and LRE in online educational settings, including digital content and delivery system accessibility, the development and review of the IEP, and related service provision and procedural safeguards?
2. *Parental involvement and student responsibility for learning:* What guidance recommendations related to parental involvement can stakeholders make related to supporting students with disabilities in online learning environments (full-time virtual, blended, and supplemental)?
3. *Using and sharing student data for the benefit of students with disabilities:* What recommendations can be made for specifying a set of student usage data?

4. *Further Research:* What recommendations can be made about research regarding effective or optimal practices for supporting students with disabilities engaged in online learning?

IV. Forum Discussion

Forum Participant Identification, Structure, and Process

In order to elicit perspectives from a wide contingent of stakeholders involved in aspects of elementary and secondary online learning, COLSD researchers identified, via a purposeful sampling approach, representatives from the following constituent groups:

- Educational Technology Membership Organizations
 - International Association for K-12 Online Learning (iNACOL)
 - State Educational Technology Directors Association (SETDA)
- Non-Profit Agencies and Organizations
 - The National Association of State Directors of Special Education (NASDSE)
 - National Center for Special Education in Charter Schools
 - The Center on Technology and Disability, FHI360
 - The Christensen Institute
 - The Learning Accelerator
- Elementary and Secondary Education Institutions
 - Full-time virtual and blended online schools
 - Edgenuity
 - Connections Academy
 - Lee Virtual School, Florida
 - North Carolina Virtual Public School
 - Impact Academy, Henry County, Georgia
- Local school district special education administration and teachers
 - Lawrence Kansas Public Schools
- State Special Education Directors
 - Virginia
 - Ohio
- Research Institutes
 - The University of Kansas
 - CAST
 - Hobsons
 - Harvard University

- Federal Government Agencies and Programs
 - Office of Special Education Programs
 - IDEA Data Center
 - Region 6 Parent Technical Assistance Center, California

The invitees were provided with a detailed overview of the four key discussion questions in advance of the meeting (see Appendix B), a meeting agenda and participant list, and a description of the meeting process.

Forum members divided into four groups in order to discuss each of these four topical questions related to online learning and students with disabilities, and to offer research and policy recommendations. Each group addressed the same question simultaneously. Audio recordings were made of each group’s conversation to enhance the accuracy of subsequent summaries, and a “TodaysMeet” online forum was created to provide a backchannel comment opportunity. After small group discussions, each group reported out key issues raised and associated recommendations. As the forum progressed through the questions, the attendees were assigned to different tables. In this way, each stakeholder worked with everyone in attendance at least once. COLSD staff members were assigned as note takers and discussion moderators.

Participant comments and recommendations related to each of the four questions, and each of the four discussion groups—along with numerous secondary and tertiary issues that flowed from the discussion—were recorded by scribes and digital audio devices. Each of the four groups identified a group reporter, who summarized the group’s key discussion points and recommendations to the assembly at large. Forum members offered discussions and recommendations in the same session; these areas were separated into distinct categories in this document for the purpose of clarity.

We caution that some of the reported practices in the discussion sections and recommendations should not be interpreted as guidance for meeting the requirements of IDEA, Sections 504 and 508 of the Rehabilitation Act, or the Americans with Disabilities Act; and caution the reader not to infer compliance with these statutes and regulations. However, stakeholder discussion of practices and recommendations not only serves to document the current state of practice, but also assists in highlighting areas where additional resources may be needed.

The discussion items and recommendations are summarized below.

- 1. What are approaches for addressing how special education and related services are provided to students with disabilities in full-time virtual, blended, and supplemental online settings, including:**

1a. What are practices that stakeholders involved in online learning—SEA, LEA, online materials, or delivery system providers—should undertake for ensuring the provision of Least Restrictive Environment (LRE) for students with disabilities?

1a. Discussion

Conversation within and across the groups highlighted the need for both federal and state policy guidance on how to address the core safeguards of IDEA in online learning settings. This factor was perceived to be most challenging in full-time virtual settings. Since both blended learning and supplemental online instruction models include student attendance in brick-and-mortar schools, the establishment, delivery, and monitoring of special education services can be presumed to be operable along the lines of traditional (e.g. non technology-enhanced) schools, even though students in blended settings may receive online instruction anywhere from 30 to 60 percent of the time.

In full-time virtual settings, the continuum of special education services needs to be reenvisioned and even redefined to address the distinctly different structure of these schools, including, but not limited to their 24/7 availability, higher teacher-to-student ratios, the capacities of parents or caregivers to act as home-based “learning coaches,” and increased social isolation.

With respect to the potential for increased social isolation and its impact on LRE, discussants indicated the need to acquire more data on its effect. Social interactions are a key component for learning in brick-and-mortar settings, and students have regular daily access to peers and adults. Little is known about the impact of the full-time online environment on students with disabilities, including social interactions and participation. It was widely agreed that a concerted effort to acquire more data about social interaction issues and student outcomes is needed.

Additionally, “optimal” and “appropriate” social interactions should be determined in order to develop curriculum materials—including interactive projects—that are appropriate to cultivate a proper social learning environment. In these matters, student agency and behavioral modeling should not be neglected.

1a. Recommendations

- The recipients of federal funds authorized under IDEA are the entities responsible for ensuring compliance with the expectations associated with those funds. As articulated in [the August 5, 2016 Dear Colleague Letter related to virtual schools](#) from the United States Department of Education, the responsibility for ensuring FAPE falls on SEAs and LEAs. These entities should establish and disseminate clear policies (and, if appropriate, procedures) for

addressing LRE expectations for students with disabilities enrolled in full-time virtual schools.

- Distinguish appropriate from inappropriate special education practices in full-time virtual settings and publicize this information. Online learning educators, vendors, and state general and special education directors need to inform one another to avoid neglecting students with disabilities as a population of learners. There is a need for a protocol and a process to identify inclusively designed education materials and delivery systems from those that are more rigid (and therefore present more barriers for students with disabilities).
- Despite the growing prevalence of full-time virtual, blended, and supplemental online learning, there is little disaggregated data available related to the progress of students with disabilities in these environments. Consistently defined and interoperable data reporting systems need to be established.

1b. In online learning environments, what are the best approaches for stakeholders—SEAs, LEAs, vendors—for addressing a student’s IEP?

1b. Discussion

There was considerable agreement on the IEP question that optimal approaches must include balancing information access with student data privacy statutes, and within that context that those entities responsible for designing and delivering IEP-related services should, logically, have access to relevant and necessary student information. With this access, all providers should document the services delivered, environment specifications and responsibilities, and that IEPs should be reviewed whenever a change in placement occurs. Determining what constituted a “change in placement” proved to be an elusive concept, depending upon the learning context. Nearly all discussants agreed that movement from a brick-and-mortar to a full-time virtual setting was a change in placement. Similarly, agreement was fairly broad that enrollment in a supplemental online course was unlikely to be construed as a change in placement. Blended learning settings, where students might receive between one-third to two-thirds of their instruction and curricular interactions online, challenged discussants to determine by which metric or variable “change in placement” should be determined. Nevertheless, most attendees believed that an IEP review was warranted when a student with disabilities was enrolled in a blended learning classroom.

In general, there was agreement that in order to catalyze and make appropriate a setting or service prior to moving it online, an IEP review is needed with both brick-and-mortar and online staff. This is necessary because the IEP looks different when the setting or service changes. Therefore, policy guidance is essential to help practitioners make informed decisions and accurately identify student needs that include and consider contextual factors.

1b. Recommendations

- A timely IEP review should be required with brick-and-mortar and online staff when a student with disabilities enrolls in a full-time virtual school.
- A timely IEP review is needed when a student with disabilities is placed in a blended learning setting.
- Guidance policies and associated documents and training should be developed by state education agencies related to IEP determination and online learning. These should be aligned with federal IDEA procedural mandates and acknowledge the contextual differences that exist between brick-and-mortar and online schools and classrooms.

1c. What are best practices for ensuring that digital content and delivery systems are designed to be usable by students with disabilities?

1c. Discussion

Participants discussed important considerations related to the need to develop family-friendly and teacher-friendly checklists and ratings matrices. At a foundational level, these resources could provide basic information about the accessibility of online materials and delivery systems and their alignment with existing international accessibility standards, similar to the [VPAT Table](#) developed by COLSD. An optimal approach would be to associate accessibility needs with specific disability/learning challenges to more accurately inform potential users. Emphasizing the importance of acquainting those responsible for selecting, procuring, and using online learning materials and systems and encouraging them to require both commercial and open source developers to address accessibility was also thought to be a key component.

Beyond basic accessibility, additional factors related to the appropriateness of online learning materials would be based on the principles of Universal Design for Learning (UDL), as referenced in the Every Student Succeeds Act of 2015 (ESSA). Other potentially effective approaches included establishing a systematic review process for teacher-created and primary source content, and training educators in effective use. The creation and use of a UDL checklist in order to ensure that the variability of learner needs was addressed and could also address both curricular equity and effectiveness. This approach was discussed as an initial step to encourage vendors to include key features for developing inclusive personalized learning systems.

1c. Recommendations

- Require that K-12 online learning curricular materials and delivery systems conform to international accessibility standards, specifically Web Content Accessibility Guidelines (WCAG 2 AA) as proposed by [the United States](#)

[Department of Justice](#). This approach is aligned with the current considerations related to the Section 508 refresh proposed by the United States Access Board.

Question 2: What recommendations and resources can be provided to parents in supporting their child with a disability in online learning environments (full-time virtual, blended, and supplemental)?

2a. What provisions are needed for supporting the parent, learning coach, or supervising adult's role in fully online, blended, and/or supplemental settings?

2a. Discussion

Each group discussed parent (learning coach) time commitments required for supporting K-12 students with disabilities in full-time online learning versus those required by blended or supplemental course involvement. Elementary-aged students enrolled in full-time virtual settings require near-constant adult oversight, while secondary students may be more independent. Primary considerations include parent preparation, expectations specific to the student's disability, the availability of a community of practice for support, the importance of a parent feedback loop for accurate and timely home-school communication, examination of parent commitment before and during student learning times, and other factors that would affect both the capacity and availability of home-based caregivers and monitors. Other necessary provisions for supporting the parent, learning coach, or supervising adult educating students with disabilities in both full-time virtual and blended online settings include concerns of financial challenges facing families without sufficient resources to afford devices or Internet access, or any associated training with various digital environments.

A discussion of what should be done when the online learning environment is an optimal setting for a student but the parent or another adult cannot be available as the learning coach in the home raised additional questions, most with no clear path to resolution. This question did raise some significant equity issues and reinforced the need for parents to have access to devices, software, and the Internet, and raised questions about the LEAs responsibility to provide these things, if necessary, in order to ensure equity. The groups agreed that regardless of whatever support was provided for parents of students with disabilities in online learning, more information was needed on the role of parents in full-time virtual and blended online learning. These areas included parent-teacher communication, support customized to a specific parent's need, support and technology that could be offered on a sliding scale on the basis of financial need, and LEA/school-provided infrastructure to support family-teacher communication.

Above all, parents should be provided guidance on the expectations of them: time commitments, their role as learning coaches, and specifically special needs service delivery and how it may (or must) be implemented. These factors include planning

instruction, organizing materials, conducting assessments, reporting grades, monitoring progress, and communicating with the online teacher.

2a. Recommendations

- Online learning delivery systems (full-time virtual, blended, and supplemental) should routinely provide a “Parent Dashboard” detailing academic benchmarks: where the student is, how they are doing, where they are going, documentation of strengths, optimal learning time, optimal learning approaches, and other relevant and timely information.
- States should provide a “public report card” related to online learning systems to encourage informed choices by LEAs and families. Efficacy assessments by expert personnel could be augmented by an annual “Parent Perspectives” or “Service Provider Perspectives” (online provider account). An annual (or otherwise regular and timely) publication specifically targeting the different stakeholder groups involved in supporting students with disabilities in online learning would benefit all stakeholders.

2b. What recommendations can be made to address parent time commitments for students in full-time virtual versus blended/supplemental online learning?

2b. Discussion

The role and required time commitment of parents of students in full-time virtual schools generated considerable discussion. In general, critical issues that emerged were those related to advising and supporting these parents regarding their capacity to support, and in many cases teach, their students in online settings. These challenges were felt to be magnified significantly with regard to the individualized and often challenging needs presented by students with disabilities. While transparent practices and clarity regarding access to educational materials and support from the online provider were discussed, persisting questions remained as to whether the students most in need of specialized instruction and expertise were receiving those services in full-time virtual settings.

It was agreed that parent time commitments vary based on the online learning model and the age and needs of the student—motor skills, learning styles, executive functioning—and their social and emotional abilities. It was generally acknowledged that the parents of students with disabilities enrolled in full-time virtual settings needed access to resources, support, and expertise to a greater degree than the general education population.

2b. Recommendations

- Additional information and research is needed related to the realistic and necessary time commitments of parents of a student with a disability in full-time virtual and blended settings.
- Regular access to a “Parent Dashboard” as referenced previously could provide timely information to both parents and school/provider personnel to support student learning.

2c. How can parent facility and comfort with digital technologies and other responsibilities (e.g. planning instruction, organizing materials, conducting assessments, reporting grades, monitoring progress, and communicating with the online teacher) be supported?

2c. Discussion

The groups stressed the importance of digital equity and access as a prerequisite for a well-prepared and supported learning coach in the physical presence of the child to ensure appropriate instruction. In the absence of this skill set as a learning coach, the parent or home-based learning coach role would be custodial rather than instructionally supportive. It was generally agreed upon that parents needed to move beyond custodial functionality to embody pedagogy and develop the capacity to emphasize differentiating instruction, engage in ongoing conversations about learning, and show flexibility in scheduling and comfort with technology. For example, online providers need to consider if the technology deployed by the online school is familiar to or compatible with the technology most used by the parent in the home. Parents must also be aware of the importance of academic integrity, and have some skill at interpreting student progress and achievement data—which can provide helpful information related to a student’s capacity for self-regulation and help identify areas where additional parental oversight may be required.

2c. Recommendations

- In online learning settings, It should be clear to all involved—LEAs, online providers, parents and students—that the entity responsible for the delivery of materials and instruction is also responsible for parent training and support.
- Regardless of which entity is identified as responsible for parent training and support, there was general agreement that LEAs should provide culturally relevant parent support resources—universally available 24/7 via website, email, text and telephone that need to be in place. Targeted resources addressing the most often questioned features or procedures should be available, as should intensive, personalized family support.

Question 3: What recommendations can be made for specifying a set of student usage data that could be provided to an LEA by the online learning provider?

3a. What mechanism exist for documenting the use and outcomes of available online features and accommodations (text-to-speech, vocabulary/glossary support, captions, etc.) for students with disabilities?

3a. Discussion

Many discussants agreed that little objective and evidence-based information exists related to documenting the uses and outcomes of available online features and accommodations for students with disabilities. These include text-to-speech technologies, vocabulary/glossary support, and captions for images and video. It was noted that these types of supports were increasingly appearing as embedded features within a number of learning management systems (LMS), where previously they may have only been available as external assistive technology add-ons. Despite the growing availability of these features, there is little empirical evidence of their effectiveness beyond some marketing claims.

A number of conversations focused on how to encourage LMS and other online system developers to equip these learning environments with the capacity to track the use of these features. For example, there is little indication that any LMS has the capacity to recognize or record the use of client-side assistive technologies, and even learning support features like synthetic speech that may be embedded within an LMS as a “native” feature actually record little usage information. Establishing a public/private/research agenda with some large providers of online learning could potentially yield information that benefits all stakeholders. This partnership could conceivably take advantage of and even enhance existing data standardization investments like the Common Education Data Standards (CEDS) initiative. The PAR Student Success Matrix (see <http://www.parframework.org/>) was discussed as offering a potential model for the types of data and associated analyses that have proven effective in other similar investigations. Finally, state leaders could play a definitive role from a policy perspective by eliciting input from knowledgeable practitioners in order to establish a cohesive and uniform approach to data collection associated with the use of learning supports.

3a. Recommendations

- Additional targeted and empirically-based research of the use of both embedded and add-on learning supports is needed. The optimal approach would be a public/private partnership that incorporated existing and related data standards efforts.
- National state-level leadership organizations like NASDSE, CCSO, ASCD, etc. could be encouraged to elicit input from their practitioners as a means of

identifying a uniform data set associated with the use of learning supports available in K-12 online learning systems.

- System developers/vendors and SEA/LEA-level implementers should be encouraged to embrace a consistent process for recording student data—the inter-operability of student achievement and system usage data is an important variable in determining the effectiveness of learning supports on student learning outcomes.

3b. What data is necessary to support teacher decision-making for instructional interventions and supports?

3b. Discussion

While the first part of Question #3 focused on documenting the use and associated outcomes of learning supports available within K-12 online learning systems, another area of discussion is how teacher decision-making processes related to the use of these instructional interventions could be enhanced. Many conversations centered around the possible role of national special education organizations like NASDSE and CASE as entities well placed to lead an awareness and training initiative if funding for such an effort became available. Additional general education stakeholder organizations like iNACOL and SEDTA should be engaged to disseminate relevant information to states, districts and teachers. Additional potential partner organizations might include the National School Board Association, CEC, or NASSP.

There was considerable discussion regarding how information related to student use of learning supports should be conveyed to teachers, acknowledging that unless the information could be presented in a readily usable and easy-to-read form, its potential would not be realized. In addition, most agreed that the best means of enhancing outreach and dissemination included the development of understandable guidelines that detailed how to use student data, including a range of strategies to support teacher decision-making for instructional interventions and support selection.

Remaining critical factors regarding a teacher's active oversight of student progress included access to specific data points that showed the following: student logon/logoff times, the amount of time they spent on the lesson, and where it was completed (home or classroom). Teachers should also be looking to provide assistive technology and other supports in order to understand progress vis-à-vis learning objectives and standards. Overall, the groups stated that a widely-accepted and consistent set of student system usage data points would be helpful to both LEAs and vendors (See Appendix C).

3b. Recommendations

- National special education organizations like NASDSE and CASE can initiate an awareness and training campaign designed to orient teacher decision-making

regarding the use of learning supports (text-to-speech, glossary/dictionary use, captions, etc.) available to online learning systems.

- Should the first item be initiated, dissemination and support efforts should be connected to relevant general education organizations such as iNACOL, SETDA, the National School Board Association, etc.
- Explore the development of more usable and relevant student progress data displays that can provide teachers with timely information related to student use of these tools at the point of instruction. These “dashboards” continue to evolve, and they need to better incorporate and display formative indicators of student learning trajectories, in addition to the summative achievement information that is now common.
- Encourage online system developers/vendors and SEAs/LEAs to embrace a unified set of student system usage data points that could be correlated with IEP and academic outcome data to identify factors associated with student achievement and progress.

3c. What recommendations can be made to support student self-monitoring and self-regulation in online environments?

3c. Discussion

The final issue the groups discussed related to student usage data were methods of supporting student self-monitoring and self-regulation in online environments. Group members suggested that this could be done through software solutions that assist the learners, specifically the development of a student dashboard that allowed targeted feedback to support self-regulating behaviors. Such a dashboard could be customized by teachers and students. Additionally, existing resources available through organizations and technical assistance centers could provide assistance to SEAs and LEAs (and vendors) related to the types of student self-regulation supports that have proven effective for students with disabilities.

Discussants generally agreed that creating opportunities and structures for ongoing communication between the student, parents, and the online school was especially important in full-time virtual settings. Each of these entities was thought to have key information related to supporting student progress, persistence, and planning that when combined, provided a complete overview that would otherwise be unavailable. Finally, timely and relevant progress information can be accumulated by focusing on where time is being spent, feedback about time usage that is associated with outcomes, and reviewing cycles and trends of engagement.

Many group members thought this question should be revisited when students with disabilities enrolled in full-time virtual, blended, or supplemented online learning, since

each of those structures presented differing challenges to student self-regulation. Ideally, resources related to the development of self-regulatory skills would include structure-specific sets of strategies and approaches designed to reinforce independent learning. These could involve embedded self-assessments, regular progress reviews, and self-measurement of factors like interest and understanding.

3c. Recommendations

- Student data dashboards should contain elements related to engagement, persistence, and academic outcomes. Evidence-based models of effective dashboard design should be developed and disseminated.
- All types of online learning materials and delivery systems should include features that promote and positively reinforce independent learning and self-regulation to assist students in identifying successful learning trajectories.
- Embedded prompts within online learning systems should be able to both alert students to pace and progress towards learning targets and remind students, when appropriate, to use the features available to them.

Question 4: What recommendations can be made about research regarding effective or optimal practices for supporting students with disabilities engaged in online learning?

4a. What areas of research of online learning—curriculum design, digital delivery systems, assessment, etc.—should be prioritized relative to students with disabilities?

4a. Discussion

The conversations generated a number of follow-up questions designed to expand the areas of consideration. These questions included the following: What tech tools are associated with improved outcomes for students with disabilities? Does this vary for specific disabilities? What does the effectiveness of special education services look like in an online environment? What is the success rate of students with disabilities in controlled studies in various learning environments (brick-and-mortar, blended, full-time virtual, supplemental)? Are there differing rates of success in supplemental classes as compared to other forms of online learning? What are cost analyses of general education vs. special education? What is the cost of serving a student with a disability in blended, online, and supplemental environments? What are the characteristics used to determine if blended, fully online, or supplemental education is the best fit for a student? What are qualitative and quantitative differences between these manners of instruction?

Most discussants agreed that there was a persisting need for continued fundamental research of these environments—namely, process and outcomes, broad views of

outcomes of interest rather than a narrow view of outcomes, keeping implications and applications of the problems of practice at the forefront of research, considering frameworks of research (e.g. expanding evidence approaches for learning in a digital world), and what constitutes effective instruction in full-time virtual, blended, or supplemental settings.

4a. Recommendations

- Conduct research comparing tools and supports that have proven effective for students with disabilities in face-to-face settings and the extent to which they are appropriate in online (full-time virtual, blended, or supplemental) environments.
- Conduct research that categorizes the strategies, tools, and supports available in online learning settings with a review of the tools and supports provided by various online materials and delivery systems.
- Research is needed on how and to what extent teachers actually use student data generated by online learning systems (progress, achievement, disability type, etc.) to inform day-to-day instruction, including any associated barriers or facilitating factors.
- A continued national landscape scan related to the involvement of students with disabilities in online learning, including using appropriate methodologies for determining success of students with disabilities in full-time virtual, blended, and supplemental learning environments.

4b. What recommendations can be made related to the preparation of educators (teachers, related service personnel, etc.) and state administrative and policy personnel for engaging in online instruction (fully, blended, and supplemental)?

4b. Discussion

This question generated a number of associated questions, including: Who is doing the educating and how effective are they? What additional training is necessary in online teacher preparation/certification/endorsement in blended or supplemental instruction for teachers working with students with disabilities? What makes an effective special education teacher in online environments? Finally, how does parent engagement impact student success for a special education student, and how does that involvement impact teacher responsibilities?

There was general agreement that preparing educators, state administrators, and policy personnel involves a number of factors. They include identifying a set of individual and widely-accepted competencies necessary for facilitating student success in online settings. These competencies can also include knowledge of disability needs, comfort

with remote instruction, facility with different technologies, and an understanding of learning design. Additional discussion centered on how online educators need the ability to map competencies, behaviors, and routines to specific progress benchmarks via data analysis, record keeping, and reporting. In addition, online teachers need to be skilled at developing systems that support routines and initiating and sustaining communication with students and families. Concern was also raised regarding the need for online providers to have timely access to and understanding of evidence-based findings on what is needed to be a successful teacher in these environments.

4b. Recommendations

- Overall, research designed to identify the characteristics of effective online instructional practices that lead to successful outcomes for students with disabilities is needed.
- New frameworks of research should be considered, such as Expanding Evidence Approaches for Learning in a Digital World (SRI), which are focused on digital technology and have broader views of effectiveness, rather than more narrow frameworks of research.
- Researchers and providers (and/or LEAs) should conduct collaborative research related to the preparation of teachers in full-time virtual, blended, and supplemental settings.
- Individual competencies necessary to be a successful teacher in full-time virtual, blended, or supplemental settings should be further explored
- Additional research is necessary on differences and challenges that affect the online instruction of students with disabilities as compared to those in brick-and-mortar settings.
- Determining what student data are essential to the process of online teaching is necessary, along with whether these data needs vary across and within full-time virtual, blended, or supplemental environments.

V. Conclusion

The field of education has clearly changed to include online learning, and those on the frontlines of education for students with disabilities are increasingly cognizant of this change. Given the broad implications of these two days of discussion, additional conversations are necessary across all of the various topic areas considered. Hopefully, the process of addressing the needs of students with disabilities in online learning environments will be enhanced and

advanced by the recommendations elicited from this group of expert stakeholders. Every effort has been made to incorporate the perspectives of state and local special education administrators, teachers, policy experts, vendors, curriculum and digital delivery designers, and parents.

The questions addressed during this forum reflect some of the most compelling issues identified by COLSD during its five-year tenure (2011-2016). Areas of focus included the IDEA mandates for FAPE and LRE; the role of parents in full-time virtual, blended and supplemental online learning; the extent to which existing data systems inform or can be enhanced to better inform; successful online education for students with disabilities; and the continuing need for research in all of these areas. Stakeholders should consider the recommendations that have emerged from these discussions as a starting point for improving practice.

The Center wishes to extend its thanks to all forum participants who so freely gave of their time and expertise, and to the Office of Special Education Programs, United States Department of Education, for its investment in this area of inquiry.

The contents of this report were developed under a grant from the US Department of Education #H327U110011. However, those contents do not necessarily represent the policy of the US Department of Education, and you should not assume endorsement by the Federal Government. Project Officer, Celia Rosenquist.

Appendix A: Forum Participants

The following is a list of participants at the September 2016 forum. Non-COLSD stakeholders are listed first, followed by COLSD researchers and staff. Each of these lists have been organized in alphabetical order:

Sherry D. Bell

Director, Exceptional Children/504 Programs
Instructional Director, Occupational Course of Study Courses
North Carolina Virtual Public School

Jo Marie Bolick

Mathematics Teacher
Online Middle School

Chris Dede

Wirth Professor in Learning Technologies
Harvard Graduate School of Education

John Eisenberg

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Virginia Department of Education
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Julia Freeland Fisher

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Lawrence Public Schools

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Appendix B

Each of the topic questions and sub questions listed below was provided to Forum invitees prior to the face-to-face meeting. The accompanying linked documents were included to provide additional background information related to the focus of the question.

- I. **What are approaches for addressing how special education and related services are provided to students with disabilities [e.g., Free Appropriate Public Education (FAPE); Least Restrictive Environment (LRE); Individualized Education Program (IEP)] in full-time virtual, blended and supplemental online educational settings?**
 - a. What are practices that stakeholders involved in online learning—SEA, LEA, online materials or delivery system providers—should undertake for ensuring the provision of Least Restrictive Environment (LRE) for students with disabilities? (see <http://centeronlinelearning.org/what-state-directors-of-special-education-need-to-support-students-with-disabilities-in-online-education/#more-1835>)
 - b. In online learning environments, what are the best approaches for stakeholders—SEAs, LEAs, vendors—for addressing a student’s IEP? (examples: Utah <http://www.schools.utah.gov/edonline/Students-Parents/FAQs.aspx> and South Carolina <https://virtuallsc.org/myvsc/iep-policy/>)
 - c. What are best practices for ensuring that digital content and delivery systems are designed to be usable by students with disabilities? (see <http://www.inacol.org/wp-content/uploads/2015/02/iNACOL-Access-and-Equity-for-All-Learners-in-Blended-and-Online-Education-Oct2014.pdf>)
 1. What recommended approaches or procedures should SEAs, LEAs and vendors incorporate for increasing awareness, availability and adoption of accessible digital content and delivery systems?
- II. **What recommendations and resources can be provided to parents in supporting their child with a disability in online learning environments (full-time virtual, blended and supplemental)?**
 - a. Provisions needed for supporting the parent, learning coach, or supervising adult’s role in fully online, blended and/or supplemental settings. See <http://www.ncolr.org/jiol/issues/pdf/13.2.4.pdf>
 - b. Parent time commitment for students in full-time virtual versus blended/supplemental online learning. See http://centeronlinelearning.org/wp-content/uploads/SEA_Topic_2_Summary_updated_July_2015.pdf)

- c. Parent facility and comfort with digital technologies and other responsibilities (e.g., planning instruction, organizing materials, conducting assessments, reporting grades, monitoring progress, and communicating with the online teacher. See http://centeronlinelearning.org/wp-content/uploads/Vendor_Topic_2_Summary_February2015.pdf

III. What recommendations can be made for specifying a set of student usage data that could be provided to an LEA by the online learning provider to:

- a. Assist in documenting the use and outcomes of available online features and accommodations (text-to-speech; vocabulary/glossary support, captions, etc.) for students with disabilities (see <http://nces.ed.gov/pubs2016/2016095.pdf>) and *Technology-Enabled Personalized Learning Findings & Recommendations to Accelerate Implementation*, p.7 at http://www.fi.ncsu.edu/wp-content/uploads/2014/02/TEPLS_report-FINAL-051415.pdf
- b. To support teacher decision-making for instructional interventions and supports. See <http://www.edelements.com/blog/five-types-of-digital-content-data-you-can-use-in-personalized-learning-pathways> for dashboard examples, and *Data-Driven Decision Making: Facilitating Teacher Use of Student Data to Inform Classroom Instruction* at <http://www.citejournal.org/wp-content/uploads/2016/04/v14i4science2.pdf>
- c. To support student self-monitoring and self-regulation in online environments. See *The effectiveness of self-regulated learning scaffolds on academic performance in computer-based learning environments: a meta-analysis* at <http://link.springer.com/article/10.1007/s12564-016-9426-9> and *Scaffolding self-regulated learning and metacognition—Implications for the design of computer-based scaffolds* at https://www.researchgate.net/profile/Roger_Azevedo/publication/226552877_Scaffolding_Self-regulated_Learning_and_Metacognition_Implications_for_the_Design_of_Computer-based_Scaffolds/links/0046353702dc405cc1000000.pdf

(See Appendix A for explanation and suggested data detail)

IV. What recommendations can be made about research regarding effective or optimal practices for supporting students with disabilities engaged in online learning?

- a. What areas of research of online learning—curriculum design, digital delivery systems, assessment, etc.—should be prioritized relative to students with disabilities? See *Reviewing a Decade (2004-2014) of Published, Peer-Reviewed Research on Online Learning and Students with Disabilities* in the Handbook of Research on K-12 Online and Blended Learning at <http://press.etc.cmu.edu/content/handbook-research-k-12-online-and-blended-learning-0> and http://centeronlinelearning.org/wp-content/uploads/Vendor_Topic_8_Summary_February2015.pdf

- b. The preparation of educators (teachers, related service personnel, etc.) and state administrative and policy personnel for engaging in online instruction (fully, blended, and supplemental)? See http://www.ccsso.org/Resources/Publications/InTASC_Model_Core_Teaching_Standards_and_Learning_Progressions_for_Teachers_10.html and http://centeronlinelearning.org/wp-content/uploads/Vendor_Topic_4_Summary_February2015.pdf and <https://www.edsurge.com/news/2016-05-17-how-edgenuity-ceo-sari-factor-defines-blended-learning-and-good-implementations>

Appendix C

Description

Students are diverse, and do not follow a single prescribed trajectory through any online course. Instead of asking “what works best?”, it is important to consider the more nuanced research question, “what works best, for whom, and under what conditions?” To answer this question about student learning requires information about 1) individual student characteristics (such as age, disability status, and impact, etc.); 2) how the student navigates the online system and what functions they use to support learning (those native to the learning management system and additional supports such as text-to-speech and links out to third-party content) and 3) student outcomes (grades, formative and summative assessment data, etc.) For authentic analysis, each of these data sets must be examined, not in isolation, but in relation to one another.

Research evidence substantiates that the analysis of large student data sets can yield correlations containing high predictive capabilities that are otherwise unavailable (Baker, 2010; Bienkowski, Feng & Means, 2012; Markauskaite, 2011; Macfadyen & Dawson, 2010; Reshef, et al., 2011). When data sets detailing student use of online learning environments are combined with demographic information (age, grade level, disability category, etc.) and student achievement data (end of year assessments, etc.) profiles emerge that can be associated, with a high degree of accuracy, to learning pathways and decision-making (Zorrilla, García & Álvarez, 2010). This, in turn, can expand 1) the identification of students on failure trajectories and 2) the efficacy of particular instructional design approaches, pedagogical practices, and targeted interventions designed to guide students towards more positive outcomes.

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Learning Management System (LMS) Data Detail

Global Events

- Student Unique Identifier (UID)
- Material resource; publisher
- Provider
- Page ID
- Page section ID (if available)
- Page load timestamp
- Page exit timestamp? (or next page load timestamp as a proxy for that)

Learning Supports (TTS, word prediction, glossary, etc.)

Events

- Student UID
- Teacher UID
- Course ID
- Course category (if applicable)
- Page ID/URL
 - Page readability/Lexile (if available)
- Page section identifier (if any)
- Event ID
 - With a data dictionary that defines each event in human-readable terms - provided offline, not as part of every transaction)
- Event time stamp – start/stop (or start and duration)

Original Notes From the Meeting:

1. What are approaches for addressing how special education and related services are provided to students with disabilities (e.g., Free Appropriate Public Education (FAPE),; Least Restrictive Environment (LRE),; Individualized Education Program (IEP)) in full-time virtual, blended and supplemental online educational settings?

Regarding the first question, **What are approaches for addressing how special education and related services are provided to students with disabilities in full-time virtual, blended, and supplemental online settings?**, the groups offered numerous policy and research prescriptions based on the principles of collecting data to develop accurate learning outcomes while also respecting student privacy.

Orange Group

A) What are practices that stakeholders involved in online learning (— -- SEA, LEA, online materials, or delivery- system providers) — -- should undertake for ensuring the provision of Least Restrictive Environment (LRE) for students with disabilities? (see <http://centerononlinelearning.org/what-state-directors-of-special-education-need-to-support-students-with-disabilities-in-online-education/#more-1835>)

- *LRE Social Interactions (SI)*
 - *Collect data on S.I.: - if and what S.I. are and its /impact*
 - *Students in brick and mortar schools have regular daily access to social interactions with peers and teachers; these interactions are constrained or even eliminated for SWD in full-time virtual settings. Little information exists about the impact of these limits on these students, and a concerted effort to acquire more data about this issue is required to determine under which circumstances and for which students it may be detrimental or beneficial.*
 - *Research “optimal” and “appropriate” S.I.*
 - *Curriculum, including interactive projects and the social learning environment*

- *ACCESS to content*
 - *Access to off-grade-level content*
 - *Parents get training on their expected role*
 - *Content materials/resources required— - not only practice materials*
 - *Flexible pacing to promote progress, and not only access*

- *Use head start's historical/institutional knowledge of working closely with parents and just- in- time supports*
- *Student agency and behavior modeling*

Regarding the topic of proper access to online content, the Orange Group recommended student access to off-grade-level content (as is common in competency-based systems), that their parents receive training on their expected role in their child's education, and that content materials and resources be made easily accessible, not only practice materials. They also prescribed flexible pacing to promote progress and access to online learning. These goals could be accomplished by making use of the Head Start program's historical and institutional knowledge of working closely with parents and offering just-in-time supports.

B) In online learning environments, what are the best approaches for stakeholders (– SEAs, LEAs, vendors) – for addressing a student's IEP? (examples: Utah <http://www.schools.utah.gov/edonline/Students-Parents/FAQs.aspx> and South Carolina <https://virtualsc.org/myvsc/iep-policy/>)

- *Need to balance information transparency with student privacy*
- *All providers need to have information captured in the IEP*
- *All providers should document services provided, environment specs, and responsibilities*
- *IEPs should be reviewed whenever there's a change in placement*

The group then discussed best approaches for stakeholders in online learning environments in order for them to address a student's IEP. They stated optimal approaches must include balancing information with student privacy and that all providers have their information captured in the IEP. Further, all providers should document the services provided, environment specifications, and responsibilities; and that IEPs should be reviewed whenever there is a change in placement.

C) What are best practices for ensuring that digital content and delivery systems are designed to be usable by students with disabilities? (see <http://www.inacol.org/wpcontent/uploads/2015/02/iNACOL-Access-and-Equity-for-All-Learners-in-Blended-and-Online-Education-Oct2014.pdf>)

- *Develop Family-friendly and teacher-friendly checklists/ratings matrices; RE: accessibility across needs). The recommended approach would be to associate access needs with specific disability/learning challenges, to more accurately inform potential users*
- *(Based on principles of UDL and 508 comp.*
- *Re: primary source content*
- *Training in effective use*
- *Need to encourage/demand accessibility*

The final matter the Orange Group discussed in this topic area was best practices for ensuring that digital content and delivery systems are designed to be usable by students with disabilities. They first suggested the following: develop family-friendly and teacher-friendly checklists and ratings matrices. The recommended approach would be to associate access needs with specific disability/learning challenges to more accurately inform potential users. These factors would be based on principles of UDL. The group also recommended reviewing primary source content, training them in effective use, and emphasizing the need to encourage and demand accessibility.

Red Group

- *Identify triggers*
- *Change in the way instruction is delivered*
- *Change in setting of where the instruction is being delivered*

The second group, the Red Group, also assessed approaches for addressing how special education and related services are provided to students with disabilities. They stressed that in these matters triggers must be identified, instructional delivery must be changed, and the settings where the instruction is being delivered should be altered.

A) What are practices that stakeholders involved in online learning (-- SEA, LEA, online materials or delivery system providers) -- should undertake for ensuring the provision of Least Restrictive Environment (LRE) for students with disabilities? (See <http://centeronlinelearning.org/what-state-directors-of-special-education-need-to-support-students-with-disabilities-in-online-education/#more-1835>)

- *Guidance on what key/core components must be in all educational environments*
- *Redefine continuum of settings (“services?”)*
- *Redefine high- quality instruction*
 - *“Possibilities”— - cultural shift setting/time. think this references the emergence of 24/7 learning opportunities available once education goes online and the need to revisit the constraints of time-limited teacher access common to brick & mortar schools.*
 - *Federal level*

The Red Group discussed practices that stakeholders involved in online learning should undertake to ensure the provision of LRE for students with disabilities. They recommended guidance on which core components must be in all educational environments. Additionally, the continuum of instructional services (traditional, blended, credit recovery, supplemental, and fully online) should be redefined according to the nature of online education’s 24/7 availability

and the need to revisit the constraints of time-limited teacher access that is common to brick-and-mortar schools.

B) In online learning environments, what are the best approaches for stakeholders (– SEAs, LEAs, vendors) – for addressing a student’s IEP? (examples: Utah (<http://www.schools.utah.gov/edonline/Students-Parents/FAQs.aspx>) and South Carolina (<https://virtualsc.org/myvsc/iep-policy/>))

- *Change in setting/service prior to moving to online, there must be an IEP with brick- and- mortar and online staff*
- *IEP looks different when the setting or /service changes*
- *Development of guidance document to help practitioners*
- *Identify student needs that includes and /consider the context*

They then discussed best approaches for stakeholders to address a student’s IEP. The Red Group suggested that in order to catalyze a setting or service prior to moving it online, an IEP review is needed with brick-and-mortar and online staff. This review is necessary because the IEP looks different when the setting or service changes. Therefore, guidance documents must be developed to help practitioners and the identification of student needs that includes and considers these contexts.

C) What are best practices for ensuring that digital content and delivery systems are designed to be usable by students with disabilities? (see <http://www.inacol.org/wpcontent/uploads/2015/02/iNACOL-Access-and-Equity-for-All-Learners-in-Blended-and-Online-Education-Oct2014.pdf>)

- *UDL checklist (used that to provide support every student what they need to ensure support equity)*
- *Vendors include key features for development/creation...personalization*

In regards to best practices for ensuring that digital content and delivery systems are designed to be usable by students with disabilities, the Red Group recommended a UDL checklist to support every student in what they needed in order to ensure equity. They also recommended that vendors include key features for development, creation, and personalization of online learning.

Blue Group

A) What are practices that stakeholders involved in online learning (g -- SEA, LEA, online materials or delivery system providers) -- should undertake for ensuring the provision of Least Restrictive Environment (LRE) for students with disabilities? (See <http://centeronlinelearning.org/what-state-directors-of->

[special-education-need-to-support-students-with-disabilities-in-online-education/#more-1835](#)

- *“Follow the money”* This little phrase essentially means that the direct recipient of federal \$ is ultimately the entity responsible for ensuring adequate compliance with the expectations associated with those funds.
- *How to separate good guys from bad guys* This is tied to the need for a process to identify inclusively-designed materials and delivery systems from those that are more rigid (and hence present more barriers for SWD)
 - *Examples needed*
 - *Metrics needed (data)*
- *Need disaggregated data RE: students with disabilities in online placements*
- *Need SES data (as a part of IDEA reporting)* acknowledgement that poverty can be a disabling contextual factor for all learners and reporting SES data within the Federally required reporting structure could provide additional helpful data for determining what works and what doesn't for which types of SWD under what circumstances

The third group, the Blue Group, addressed the same questions regarding which practices stakeholders involved in online learning should undertake to ensure LRE for students with disabilities. They had four recommendations. First, to “follow the money” and determine that the direct recipient of federal money is ultimately the entity responsible for ensuring adequate compliance with the expectations associated with those funds.

Second, to separate “good guys” from “bad guys”—meaning that online learning educators, vendors, and state directors need to prevent each other from neglecting students with disabilities as a population of learners. This is tied to the need for a process to identify inclusively-designed materials and delivery systems from those that are more rigid (and hence present more barriers for SWD). Third, to disaggregate data and review the process of the placement of students with disabilities in online learning environments. Fourth, the need for SES data as part of IDEA reporting. This signals an acknowledgement that poverty can be a disabling contextual factor for all learners and reporting SES data within the Federally required reporting structure could provide additional helpful data for determining what works and what doesn't for which types of SWD under what circumstances.

B) In online learning environments, what are the best approaches for stakeholders (– SEAs, LEAs, vendors) – for addressing a student’s IEP? (examples: Utah (<http://www.schools.utah.gov/edonline/Students-Parents/FAQs.aspx>) and South Carolina (<https://virtualsc.org/myvsc/iep-policy/>))

- *Revisit ASAP when SWD enrolls in full-time virtualF+V, blended, or supplemental learning*

The Blue Group then discussed best approaches for stakeholders to address a student's IEP in online learning environments. They recommended revisiting this question when students with disabilities enrolled in full-time virtual, blended, or supplemented online learning.

C) What are best practices for ensuring that digital content and delivery systems are designed to be usable by students with disabilities? (See <http://www.inacol.org/wpcontent/uploads/2015/02/iNACOL-Access-and-Equity-for-All-Learners-in-Blended-and-Online-Education-Oct2014.pdf>)

- *Usability/Accessibility*
- *ED/OSEP: National Resource/TA Center*
- *508 Refresh*
 - *UDS in ESSA— - UDL certification/credential initiative*
- *Accreditation— - schools and teacher prep*

Finally, the Blue Group discussed best practices for ensuring that digital content and delivery systems are designed to be most usable by students with disabilities. They settled on four factors: Usability/accessibility, ED/OSEP (the National Resources/TA Center), a 508 refresh (UDS in ESSA—that is to say, a UDL certification/credential initial), and accreditation for schools and teacher preparation.

Green Group

A) What are practices that stakeholders involved in online learning (-- SEA, LEA, online materials or delivery system providers) -- should undertake for ensuring the provision of Least Restrictive Environment (LRE) for students with disabilities? (See <http://centeronlinelearning.org/what-state-directors-of-special-education-need-to-support-students-with-disabilities-in-online-education/#more-1835>)

- *LEA special-ed administration*
 - *Recommend key usage*
 - *Features*
 - *Elements*
 - *State require*
 - *RFPs written— - key features*
 - *Correlate usage data with outcome and achievement*
 - *Performance data*

The fourth group at the forum, the Green Group, also addressed practices that stakeholders involved in online learning should undertake for ensuring the provision of LRE for students with disabilities. They recommended LEA special-education administration with key-usage features

and elements. In regards to state-level requirements, these administrative features should include written RFPs, in order to correlate usage data with outcomes and achievement, and performance data.

B) In online learning environments, what are the best approaches for stakeholders – (SEAs, LEAs, vendors) – for addressing a student’s IEP? (examples: Utah (<http://www.schools.utah.gov/edonline/Students-Parents/FAQs.aspx>) and South Carolina (<https://virtualsc.org/myvsc/iep-policy/>))

- *Self regulation*
- *Common set of tools*
- *Reinforce independent learning*
- *Promote learning to mastery*
- *Reinforce self-regulation*
 - *Executive functions*
- *Embedded prompts— - encourage*

Next, they discussed best approaches for stakeholders in order to address a student’s IEP. The Green Group recommended the following: a focus on students’ development of Self-regulatory skills, a common set of tools, reinforcing independent learning, promoting learning total mastery, reinforcing self-regulation (particularly executive functions), and encouraging embedded prompts.

2. What recommendations and resources can be provided to parents in supporting their child with a disability in online learning environments (full-time virtual, blended, and supplemental), including:

Orange Group

A) Provisions needed for supporting the parent, learning coach or supervising adult’s role in fully online, blended, and/& or supplemental settings. (See <http://www.ncolr.org/jiol/issues/pdf/13.2.4.pdf>)

- *Parent Dashboard*
 - *Where student is*
 - *How are they are doing*
 - *Where are they are going*
 - *Hyper awareness of strengths*
 - *Optimal Learning Time*
 - *Optimal learning*
 - *How is the SWD is doing*
 - *Target next steps*
 - *Teacher support*

- *Mechanism-communicate data*
- *In-person tutor*

The Orange Group first discussed the matter of which provisions are necessary for supporting the parent, learning coach, or supervising adult in their role of helping the student with disabilities who is learning in the fully online, blended, and/or supplemental setting. They recommend the creation of a Parent Dashboard that contains the following academic benchmarks: where the student is, how they are doing, where they are going, hyper-awareness of strengths, optimal learning time, optimal learning, how the student with disabilities is doing, targeting next steps, teacher supports, mechanism-communicated data, and the in-person tutor.

They also examined parent time commitments for students in full-time online learning versus blended and supplemental online learning. Primary considerations included parent preparation, expectations specific to the student’s disability, a community of practice, a parent feedback loop, an examination of parent commitments before and during student learning, and other factors that would affect their time commitments.

B) Parent time commitment for students in full-time virtual versus blended/supplemental online learning. (See http://centeronlinelearning.org/wpcontent/uploads/SEA_Topic_2_Summary_updated_July_2015.pdf)

- *Parent preparation*
- *Expectations specific to disability*
- *Community of practice*
- *Parent feedback loop*
- *Before + during*
- *Time commitment*

C) Parent facility and comfort with digital technologies and other responsibilities (e.g., planning instruction, organizing materials, conducting assessments, reporting grades, monitoring progress, and communicating with the online teacher). See http://centeronlinelearning.org/wpcontent/uploads/Vendor_Topic_2_Summary_February2015.pdf)

- *Equity*
- *Digital access*
- *Appropriate learning coach*
- *Physical presence (age)*
- *Custodial vs instructional* Parents need to be acclimated to the Learning Coach role as supporting instruction rather than simply serving in a custodial capacity

Third, the Orange Group addressed matters of parent facility and comfort with digital technologies, along with their other responsibilities, such as planning instruction, organizing materials, conducting assessments, reporting grades, monitoring progress, and communicating with the online teacher. They focused on equity, digital access, the need for a well-prepared and supported learning coach in the physical presence of the child, and appropriate instruction. The physical presence of the parent was an important matter, along with determining whether their role was custodial or instructional, meaning that parents need to be acclimated to the learning coach role as supporting instruction rather than simply serving in a custodial capacity.

Blue Group

A) Provisions needed for supporting the parent, learning coach, or supervising adult's role in fully online, blended and/& or supplemental settings. (See <http://www.ncolr.org/jiol/issues/pdf/13.2.4.pdf>)

- *Fundamental alterations*
- *Subsidizing learner coaches*
- *Identifying LC for various*
 - *Grade levels*
 - *Environments*
- *What should be done when the OLE is best, but the parent can't be the LC? What provisions can be made if it is determined that a full-time virtual setting is best for a SWD but there is no responsible adult or learning coach available in the home?*
- *Parent understanding of*
 - *Hardware*
 - *Software*
 - *Connection*

The second group, the Blue Group, then discussed necessary provisions for supporting the parent, learning coach, or supervising adult educating students with disabilities in different online settings. They agreed that fundamental alterations were necessary, along with financially supporting learner coaches and identifying them for various grade levels and environments. When discussing what should be done when the Online Learning Environment (OLE) is the ideal but the parent cannot be the learning coach, they followed up with clarifying questions: What provisions can be made if it is determined that a full-time virtual setting is best for a SWD but there is no responsible adult or learning coach available in the home? The group also stressed the need for parents to properly understand hardware, software, and have a good Internet connection in order to contribute to successful online education.

B) Parent time commitment for students in full-time virtual versus blended/supplemental online learning. (See http://centerononlinelearning.org/wpcontent/uploads/SEA_Topic_2_Summary_updated_July_2015.pdf)

- *Advising*
- *Monitoring*
- *Evaluating— - roles for parents in a different learning environment*
- *Transparent— - who supplies?*
 - *Why? When? How?*
 - *Range of ways to access*
 - *Amplifies existing networks*

They then discussed parent time commitments for online students. Critical issues were advising, monitoring, and evaluating these parents regarding their different roles in various learning environments. Transparency was also identified as a necessary element, particularly in questions of who supplies them educational materials, when, how, why, and the ranges of ways for them to access these materials and how to amplify existing networks.

C) Parent facility and comfort with digital technologies and other responsibilities (e.g., planning instruction, organizing materials, conducting assessments, reporting grades, monitoring progress, and communicating with the online teacher). See

http://centeronlinelearning.org/wpcontent/uploads/Vendor_Topic_2_Summary_February2015.pdf)

- *From beyond functionality to pedagogy*
- *Differentiate orientation*
- *Ongoing conversation*
- *Flexibility in scheduling for parents*
- *Access to nativetech of the parent* Is the technology deployed by the online school familiar to or compatible with the technology most familiar to the parent in the home?
- *Academic integrity*
- *Interpreting data*
 - *Self-regulation*
 - *Feedback— - parents, students, LEA*

The Blue Group's third discussion matter was parent facility with digital technologies and other responsibilities in regards to their child's online education. They stressed that parents must move beyond functionality to pedagogy and focus on differentiating orientations, ongoing conversations, flexibility in scheduling, and accessibility to native technology—specifically, determining if the technology deployed by the online school familiar to or compatible with the technology most familiar to the parent in the home. Parents must also focus on academic integrity, and interpreting data—which provide for self-regulation and feedback from the parents, the students, and the LEA.

Green Group

More research needed on components of parent involvement!

A) Provisions needed for supporting the parent, learning coach or supervising adult's role in fully online, blended and/or & or supplemental settings. (See <http://www.ncolr.org/jiol/issues/pdf/13.2.4.pdf>)

- *Parent-teacher communication*
- *Individualized to parent need*
- *Regular on a sliding basis tied to student need*
- *LEA/school-provided infrastructure to support family-teacher communication*

The next group, the Green Group, addressed the issues of providing support for parents of students with disabilities in learning online by above all stressing that more research was needed on the components of parent involvement. They first discussed necessary provisions for supporting parents, learning coaches, and/or the supervising adult in online learning. The group recommended parent-teacher communication, support that is individualized to a parent's need, regular support that is offered on a sliding scale on the basis of a student's need, and LEA/school-provided infrastructure to support family-teacher communication.

B) Parent time commitment for students in full-time virtual versus blended/supplemental online learning. (See http://centeronlinelearning.org/wpcontent/uploads/SEA_Topic_2_Summary_updated_July_2015.pdf)

- *Changes based on model*
- *Tied to student needs to master content*
- *Tied/individualized based on student needs; re: motor, learning, executive functioning, social/emotional*
- *Different based on who has provided the recommendation or made the choice*

Next, they examined the issue of parent time commitment for students in full-time virtual learning versus blended and supplement forms of online instruction. The group agreed these commitments change based on the model and depended on student needs to master the learning content. Parent time commitments were also tied to individualized student needs, such as motor skills, learning styles, executive functioning, and their social and emotional states. Finally, they were based on who had provided the recommendation or made the choice for their student to engage in online instruction.

C) Parent facility and comfort with digital technologies and other responsibilities (e.g., planning instruction, organizing materials, conducting assessments,

reporting grades, monitoring progress, and communicating with the online teacher). See

http://centeronlinelearning.org/wpcontent/uploads/Vendor_Topic_2_Summary_February2015.pdf)

- *Believe that the current model needs to change*
- *Based on current model: determine who is responsible for the student: they're responsible for parent training/support*
- *Parent resources*
- *Utility of a parent resource center (may have policy implications; definitely financial\$ implications)*
- *Need to be culturally, ethnically, (other) relevant*
- *Need to acknowledge wide differences in parent education, language facility, technical literacy*
- *Include just-in-time support*
- *Help parents understand pedagogy/approach of the online program (pertinent option)*
- *Include understanding of metrics apart from grades*

The third topic of discussion for the Green Group was parent facility and comfort with digital technologies and other teaching responsibilities—namely, planning instruction, organizing materials, conducting assessments, reporting grades, monitoring progress, and communicating with the online teacher. The group made several assessments and recommendations. They believed that the current model needed to change by first determining who is responsible for the student under the current model, as this person was responsible for parent training and support. They furthermore stressed the importance of parent resources, the utility of a parent resource center—which may have policy implications, particularly financial implications—and the need to be culturally and ethnically relevant. A new model must acknowledge wide differences in parent education, language facility, and technical literacy, as well as include just-in-time support, assist parents in understanding pedagogy/approaches of the online program, and include understandings of learning metrics apart from grades.

Red Group

A) Provisions needed for supporting the parent, learning coach or other supervising adult's role in fully online, blended, and/& or supplemental settings. (See <http://www.ncolr.org/jiol/issues/pdf/13.2.4.pdf>)

- *Parents should be provided guidance for expectations (time commitments; their role; provision of special need services and how it will appear/look before regardless of vendor/SEA/LEA*
- *SEA must provide training to LEA; there are different service delivery methods across the state*

- *Parent and SEA work with Parent-Teacher Initiatives (PTI); online provider, and; LEA on how to be a learning coach* Parent Training Centers (PTIs) are chartered to work with schools and families to enhance parent skills related to increasing parent capacity to support student learning - Are PTIs equipped to support parent involvement in online learning?
- *SEA provide public report card to encourage informed choice*
- *Annual Parent Perspectives (PP); Service Provider Perspectives (SPP) (online provider account)* I think this is referring to the need for annual (or otherwise regular & timely) publications specifically targeting the different stakeholder groups involved in supporting SWD in online learning
 - *OSEP requires SEA to separate online students*
 - *Autonomous entity level*

The Red Group then tackled these questions of provisions needed to support parents, learning coaches, or other supervising adults in online education. They emphasized that parents should be provided guidance on expectations of them: time commitments, their role as education assistants, and specifically the special needs services and how it will appear to vendors, SEAs, and LEAs. They recommended SEAs provide training to LEAs, as there are different service delivery methods across a state. Further, the parent SEA should work with Parent-Teacher Initiatives, an online provider, and an LEA on how to provide instruction on being an effective learning coach. PTIs are chartered to work with schools and families to enhance parent skills related to increasing parent capacity to support student learning. The group noted that it must be determined if PTIs equipped to support parent involvement in online learning.

Additionally, SEAs should provide a public report card to encourage informed choices on online learning. Assessing quality can happen through an Annual Parent Perspectives or Service Provider Perspectives (online provider account). This refers to the need for annual (or otherwise regular and timely) publications specifically targeting the different stakeholder groups involved in supporting SWD in online learning. Ultimately, OSEP will require the SEA to separate online students and be granted flexibility as an autonomous entity.

B) Parent time commitment for students in full-time virtual versus blended/supplemental online learning. (See http://centeronlinelearning.org/wpcontent/uploads/SEA_Topic_2_Summary_updated_July_2015.pdf)

- *Funding for continued research on the realistic time commitment on parents of SWD - in online settings*
 - *Review all online learning environments*
 - *Adult supervision*
- *Analytics Report cards provide analytics*
 - *Time on task*

- *Daily performance*
- *Progress on content*

They then analyzed the matter of parent time commitment for their child’s education in full-time virtual versus blended and supplement online learning. First, they noted the need for funding of continued research on the realistic time commitments of parents of a student with a disability in online settings. This research would review all online learning environments and inquire into the subject of adult supervision of child learning. Second, they noted the need of proposed tools that could aid parental supervision of online students. These included “report cards” that provide analytics of student learning (specifically, the amount of time that students spent on a task), their daily performance, and their progress through learning content.

C) Parent facility and comfort with digital technologies and other responsibilities (e.g., planning instruction, organizing materials, conducting assessments, reporting grades, monitoring progress, and communicating with the online teacher). See

http://centeronlinelearning.org/wpcontent/uploads/Vendor_Topic_2_Summary_February2015.pdf)

- LEAs provide a service specifically designated to address parent concerns,; needs,; and problems

In regards to parent facility and comfort with disability technologies and other responsibilities—planning instruction, organizing materials, conducting assessments, reporting grades, monitoring progress, and communicating with the online teacher, the Red Group recommended that LEAs provide a service specifically designated to address parent concerns, needs, and problems.

3. What recommendations can be made for specifying a set of student usage data that could be provided to an LEA by the online learning provider to: (see Appendix A for explanation and suggested data detail)

Orange Group

The four groups then addressed the third question in the forum meeting: **What recommendations can be made for specifying a set of student usage data that could be provided to an LEA by the online learning provider?** The first part of this question concerned assisting in documenting the uses and outcomes of available online features and accommodations for students with disabilities. These included text-to-speech technologies, vocabulary/glossary support, and captions.

A) Assist in documenting the use and outcomes of available online features and accommodations (text-to-speech,; vocabulary/glossary support, captions, etc.) for students with disabilities. (see <http://nces.ed.gov/pubs2016/2016095.pdf>)

and *Technology-Enabled Personalized Learning Findings & Recommendations to Accelerate Implementation*, pP.7 at http://www.fi.ncsu.edu/wpcontent/uploads/2014/02/TEPLS_report-FINAL-051415.pdf)

- Government funded research (targeted) questions about student use and /outcomes of online instructional systems
- There must be a standardization of the comparability of data frameworks (e.g. CEDS)

The Orange Group first recommended ways to support these applications. They suggested government funded targeted research, which would pose questions about student use and outcomes of online instructional systems. They also suggested establishing standardization of the comparability of data frameworks, such as Common Education Data Standards (CEDS).

B) To support teacher decision-making for instructional interventions and supports, (see <http://www.edelements.com/blog/five-types-of-digital-content-data-you-can-use-inpersonalized-learning-pathways>) for dashboard examples, and *Data-Driven Decision Making: Facilitating Teacher Use of Student Data to Inform Classroom Instruction* at <http://www.citejournal.org/wp-content/uploads/2016/04/v14i4science2.pdf>)

- NASDSE initiative to help train and keep states abreast of online activity etc.
 - Work/Collaborate with CASE
- Specific outcome of A.I. must be a way (s) to display teacher data that is useful and has a usability factor
- iNACOL/SEDA - Identify organization that can push out an understanding to LEAs (teachers) centering around data usage and online ed for all kids (e.g. National School Board Association; CASE CEC NASSP)

Second, they discussed how to support teacher decision making for instructional interventions and supports. (See *Data-Driven Decision Making: Facilitating Teacher Use of Student Data to Inform Classroom Instruction*). To achieve this goal they suggested a NASDSE initiative to help train and keep states informed of online activity. This could mean working or collaborating with CASE. The successful outcome of AI must also include the displaying of teacher data that useful and has a usability factor. Regarding iNACOL and SEDA, organizations should be identified that can push an understand to LEAs, particularly teachers, that center around data usage and online education for all students. Such organizations include the National School Board Association, CASE, CEC, or NASSP.

C) To support student self-monitoring and self-regulation in online environments, (see *The effectiveness of self-regulated learning scaffolds on academic performance in computer-based learning environments: a meta-*

analysis at <http://link.springer.com/article/10.1007/s12564-016-9426-9> and *Scaffolding self-regulated learning and metacognition—Implications for the design of computer-based scaffolds* at https://www.researchgate.net/profile/Roger_Azevedo/publication/226552877_Scaffolding_Selfregulated_Learning_and_Metacognition_Implications_for_the_Design_of_Computerbased_Scaffolds/links/0046353702dc405cc1000000.pdf

- A.I. AL.z. - Development of student dashboard that allows specific feedback, etc., to support self-regulation behaviors (dashboard allows for customization by teacher and students)
- OSEP provide TA in online SWD to SEA and LEA vendors
 - Associated elements

Third, the Orange Group recommended addressing methods of supporting student self-monitoring and self-regulation in online environments. (See *scaffolding self-regulated learning and metacognition—Implications for the design of computer-based scaffolds*) This could be done through software solutions that assist the learners, specifically the development of a student dashboard that allowed targeted feedback to support self-regulating behaviors. Such a dashboard could be customized by teachers and students. Additionally, OSPE could provide teaching assistance to SEA and LEA vendors for their online students with disabilities.

Red Group

A) Assist in documenting the use and outcomes of available online features and accommodations (text-to-speech,, vocabulary/glossary support, captions, etc.) for students with disabilities (see <http://nces.ed.gov/pubs2016/2016095.pdf>). and *Technology-Enabled Personalized Learning Findings & Recommendations to Accelerate Implementation*, pP.7 at http://www.fi.ncsu.edu/wpcontent/uploads/2014/02/TEPLS_report-FINAL-051415.pdf)

- Framework of data:
 - Macro-course completion, GPA...
 - Impacts policy
 - Meso-teacher interventions
 - Planning and implementation
 - Micro-event usage, evidence
 - Practice of metacognitive strategy use

The Red Group then took up the question of how to specify a set of student usage data that could be provided to an LEA by the online learning provider. They first discussed assisting in documenting the use and outcomes of available online features and accommodations for students with disabilities. The group suggested multiple means of accomplishing this goal. The means varied in approach but all centered around a proper framework of data, which is comprised of macro-course completion and GPAA, the impact on policy, meso-teacher

interventions, planning and implementation, micro-event usage and evidence, and the practice of metacognitive strategy use.

B) To support teacher decision-making for instructional interventions and supports, (see <http://www.edelements.com/blog/five-types-of-digital-content-data-you-can-use-inpersonalized-learning-pathways>.) For dashboard examples, see and *Data-Driven Decision Making: Facilitating Teacher Use of Student Data to Inform Classroom Instruction* at <http://www.citejournal.org/wp-content/uploads/2016/04/v14i4science2.pdf>)

- Use data to produce guidelines, as (guidelines need to reflect how to use data)
- Recognize variability of stakeholders
- Tag data better at the micro- level

The group then discussed methods of supporting of teacher decision making for instructional interventions and supports. (See *Data-Driven Decision Making: Facilitating Teacher Use of Student Data to Inform Classroom Instruction*). They agreed that the best means of accomplishing this included the use of data to produce guidelines, as guidelines need to reflect how to use data, recognizing variability among stakeholders, and better tagging of data at the micro level.

C) To support student self-monitoring and self-regulation in online environments, (see *The effectiveness of self-regulated learning scaffolds on academic performance in computer-based learning environments: A meta-analysis* at <http://link.springer.com/article/10.1007/s12564-016-9426-9> and *Scaffolding self-regulated learning and metacognition—Implications for the design of computer-based scaffolds* at https://www.researchgate.net/profile/Roger_Azevedo/publication/226552877_Scaffolding_Selfregulated_Learning_and_Metacognition_Implications_for_the_Design_of_Computerbased_Scaffolds/links/0046353702dc405cc1000000.pdf

- Create opportunities/structures for ongoing communication (e.g., collaboration among LEAs, vendors, other stakeholders) (confirm placement of information). Needs to be connected to the need for ongoing communication among stakeholders relative to student engagement and progress--alert indicators if student is flagging, etc.

The Red Group then analyzed the issue of supporting student self-monitoring and self-regulation in online environments. They agreed an effective method of doing so involved creating opportunities and structures for ongoing communication. This consists primarily of collaboration among LEAs, vendors, and other stakeholders.

Green Group

A) Assist in documenting the use and outcomes of available online features and accommodations (text-to-speech,; vocabulary/glossary support, captions, etc.) for students with disabilities. S (see <http://nces.ed.gov/pubs2016/2016095.pdf>) and *Technology-Enabled Personalized Learning Findings & Recommendations to Accelerate Implementation*, pP.7 at http://www.fi.ncsu.edu/wpcontent/uploads/2014/02/TEPLS_report-FINAL-051415.pdf)

- Win if integrated providers provide this data -can support the identification of these supports in other systems
- Cannot track supports not integrated into LMS/CMS system

The Green Group then took up the question of which sets of student usage data online learning providers can provide to an LEA. Ideally, they noted, integrated provides can provide this data and support the identification of these supports in other systems. This factor is necessitated because they cannot track supports that are not integrated into an LMS/CMS system.

B) To support teacher decision-making for instructional interventions and supports, (see <http://www.edelements.com/blog/five-types-of-digital-content-data-you-can-use-inpersonalized-learning-pathways>.) For dashboard examples, see, and *Data-Driven Decision Making: Facilitating Teacher Use of Student Data to Inform Classroom Instruction* at <http://www.citejournal.org/wp-content/uploads/2016/04/v14i4science2.pdf>)

- List of data points viewed as helpful to both LEAs and vendors
 - Necessary
 - Nice to have

Regarding the support of teacher decision-making for instructional interventions and supports, the group state that a list of data points would be helpful to LEAs and vendors. It is both necessary and good to have.

C) To support student self-monitoring and self-regulation in online environments, (see *The effectiveness of self-regulated learning scaffolds on academic performance in computer-based learning environments: a meta-analysis* at <http://link.springer.com/article/10.1007/s12564-016-9426-9> and *Scaffolding self-regulated learning and metacognition—Implications for the design of computer-based scaffolds* at https://www.researchgate.net/profile/Roger_Azevedo/publication/226552877_Scaffolding_Selfregulated_Learning_and_Metacognition_Implications_for_the_Design_of_Computerbased_Scaffolds/links/0046353702dc405cc1000000.pdf)

Blue Group

A) Assist in documenting the use and outcomes of available online features and accommodations (text-to-speech,; vocabulary/glossary support, captions, etc.) for students with disabilities (see <http://nces.ed.gov/pubs2016/2016095.pdf>). and *Technology-Enabled Personalized Learning Findings & Recommendations to Accelerate Implementation*, pP.7 at http://www.fi.ncsu.edu/wpcontent/uploads/2014/02/TEPLS_report-FINAL-051415.pdf)

- Teacher
 - Ask if/when student is logging on
 - Current student contact info
 - Duration/location
 - Assistive tech use/supports
 - Progress against learning objectives/standards

The Blue Group was the fourth group to discuss the question of specifying a set of student usage data that could be provided to an LEA by the online learning provider. Regarding the matter of assisting in documenting the use and outcomes of available online features and accommodations for students with disabilities—such as text-to-speech, vocabulary/glossary support, and captions they identified a number of critical factors regarding the teacher’s active oversight of progress the student is making in online learning. Data points include whether the student is logging on, their current contact info, the amount of time they spent on the lesson, and where it was completed (home or classroom). Teachers should also be looking to provide assistive technology and other supports in order to understand progress against learning objectives and standards.

B) To support teacher decision -making for instructional interventions and supports, (see <http://www.edelements.com/blog/five-types-of-digital-content-data-you-can-use-in-personalized-learning-pathways>.) For dashboard examples, see, and *Data-Driven Decision Making: Facilitating Teacher Use of Student Data to Inform Classroom Instruction* at <http://www.citejournal.org/wp-content/uploads/2016/04/v14i4science2.pdf>)

C) To support student self-monitoring and self-regulation in online environments, (see *The effectiveness of self-regulated learning scaffolds on academic performance in computer-based learning environments: a meta-analysis* at <http://link.springer.com/article/10.1007/s12564-016-9426-9> and *Scaffolding self-regulated learning and metacognition—Implications for the design of computer-based scaffolds* at https://www.researchgate.net/profile/Roger_Azevedo/publication/226552877_Scaffolding_Selfregulated_Learning_and_Metacognition_Implications_for_the_Design_of_Computerbased_Scaffolds/links/0046353702dc405cc1000000.pdf)

- Insight into where time is being spent
- Feedback about time usage associated with outcomes
- Looking at cycles and trends of engagement

4. What recommendations can be made about research regarding effective or optimal practices for supporting students with disabilities engaged in online learning, including:

The fourth and final topic of the forum concerned the following question: **What recommendations can be made about research regarding effective or optimal practices for supporting students with disabilities engaged in online learning?** The Orange Group was the first to address this topic area, and they did so by breaking it down into two smaller issues.

Orange Group

A) What areas of research of online learning (– curriculum design, digital delivery systems, assessment, etc.) – should be prioritized relative to students with disabilities? (see *Reviewing a Decade (2004-2014) of Published, Peer-Reviewed Research on Online Learning and Students with Disabilities* in the Handbook of Research on K-12 Online and Blended Learning at <http://press.etc.cmu.edu/content/handbook-research-k-12-onlineand-blended-learning-0> and http://centerononlinelearning.org/wpcontent/uploads/Vendor_Topic_8_Summary_February2015.pdf).

- What are the effective tech tools correlated to support specific disabilities?
- What does effective special ed services look like in an online environment?
- What is the success rate of SWD in control study (brick- and- mortar, blended, F + V, supplemental)?
- Are there differences in success rate in
 - Supplemental class comparison
- Cost analysis for gen eEd versus special ed
- What is the cost of serving a SWD in blended, online, or supplemental environments?
- What are the characteristics to determine if blended, fully online, or supplemental is the best fit for the student?
- Qualitative/quantitative about different educational manner of instruction

First, they discussed which areas of research of online learning—including curriculum design, digital delivery systems, and assessment—should be prioritized relative to students with

disabilities. (For more information, see *Reviewing a Decade (2004-2014) of Published, Peer-Reviewed Research on Online Learning and Students with Disabilities* in the Handbook of Research on K-12 Online and Blended Learning). They listed a number of follow-up questions to bring more perspective to the matter. These questions included: What are effective tech tools correlated to support specific disabilities? What does effectiveness of special education services look like in an online environment? What is the success rate of students with disabilities in controlled studies in various learning environments (brick-and-mortar, blended, full-time virtual, supplemental)? Are there differing rates of success in supplemental classes as compared to other forms of online learning? What are cost analyses of general education vs. special education? What is the cost of serving an SWD in blended, online, and supplemental environments? What are the characteristics used to determine if blended, fully online, or supplement education is the best fit for a student? What are qualitative and quantitative differences between these manners of instruction?

B) The preparation of educators (teachers, related service personnel, etc.) and state administrative and policy personnel for engaging in online instruction (fully, blended, and supplemental).? (see http://www.ccsso.org/Resources/Publications/InTASC_Model_Core_Teaching_Standards_and_Learning_Progressions_for_Teachers_10.html and http://centeronlinelearning.org/wpcontent/uploads/Vendor_Topic_4_Summary_February2015.pdf and <https://www.edsurge.com/news/2016-05-17-how-edgenuity-ceo-sari-factor-definesblended-learning-and-good-implementations>.)

- Who's doing it and /how effective are they?
- What additional training is necessary in online teacher training/certification/endorsement in blended or supplemental instruction for teachers working with SWD?
- What makes an effective special ed teacher?
- How does parent engagement impacts student success of a special ed student?

The Orange Group then discussed effective preparation of educators—teachers, related service personnel—and state administrative and policy personnel for engaging in different forms of online instruction. They also listed a number of follow-up questions to delve more deeply into this matter. Questions included the following: Who is doing the educating, and how effective are they? What additional training is necessary in online teacher training/certification/endorsement in blended or supplemental instruction for teachers working with students with disabilities? What makes an effective special education teacher? Finally, how does parent engagement impact student success for a special education student?

Green Group

The Green Group then discussed which areas of research of online learning should be prioritized regarding students with disabilities. They provided three recommendations. First, research is needed that compares tools and supports that identify support for students in face-to-face settings versus online settings. Second, strategies, tools, and supports should be identified, and a review of how many tools and supports each vendor provides should be conducted. Third, there is a need for stand-alone research of how many teachers should use data to inform instruction.

A) What areas of research of online learning (– curriculum design, digital delivery systems, assessment, etc.) – should be prioritized relative to students with disabilities? (see *Reviewing a Decade (2004-2014) of Published, Peer-Reviewed Research on Online Learning and Students with Disabilities* in the Handbook of Research on K-1 Online and Blended Learning at <http://press.etc.cmu.edu/content/handbook-research-k-12-onlineand-blended-learning-0> and http://centeronlinelearning.org/wpcontent/uploads/Vendor_Topic_8_Summary_February2015.pdf)

- Research is needed that compares tools and supports that identifies the strategies that support students with disabilities in face-to-face settings versus online settings
- Identify strategies/tools/supports
 - Conduct a review of how many tools/supports each vendor provides
- Stand alone research on how teachers should use data to inform instruction

The group then addressed the preparation of educators and state administrative and policy personnel for engaging in online instruction. The Green Group offered four research pathways to analyze this matter: research characteristics of effective online teachers and their successful online students, nuances of pedagogy, pathways to/through/out of online teaching, and using research to inform social justice—in particular, asking who benefits and why?

B) The preparation of educators (teachers, related service personnel, etc.) and state administrative and policy personnel for engaging in online instruction (fully, blended, and supplemental). (see http://www.ccsso.org/Resources/Publications/InTASC_Model_Core_Teaching_Standards_and_Learning_Progressions_for_Teachers_10.html and http://centeronlinelearning.org/wpcontent/uploads/Vendor_Topic_4_Summary_February2015.pdf and <https://www.edsurge.com/news/2016-05-17-how-edgenuity-ceo-sari-factor-definesblended-learning-and-good-implementations.>)

- Research characteristics of effective online teachers and their successful online students
- Nuances of pedagogy
- Pathways to/through/out of online teaching
- Using research to inform social justice:- who benefits and why?

Blue Group

A) What areas of research of online learning (– curriculum design, digital delivery systems, assessment, etc.) –should be prioritized relative to students with disabilities? (see *Reviewing a Decade (2004-2014) of Published, Peer-Reviewed Research on Online Learning and Students with Disabilities* in the Handbook of Research on K-12 Online and Blended Learning at <http://press.etc.cmu.edu/content/handbook-research-k-12-onlineand-blended-learning-0> and http://centeronlinelearning.org/wpcontent/uploads/Vendor_Topic_8_Summary_February2015.pdf)

- Fundamental research on the measurement of these environments (e.g. process, outcomes)
- Broad view of outcomes of interest other than narrow view of outcomes (e.g. test)
- To keep implications and applications of the problems of practice at the forefront of research
- Consider frameworks of research (e.g. expanding evidence approaches for learning in a digital world)
- Effective instruction

The Blue Group then analyzed the question of which areas of research of online learning should be prioritized regarding students with disabilities. They put forward these suggestions: Fundamental research on the measurement of these environments—namely, process and outcomes; broad views of outcomes of interest other than a narrow view of outcomes; keeping implications and applications of the problems of practice at the forefront of research; considering frameworks of research (e.g. expanding evidence approaches for learning in a digital world); and effective instruction.

B) The preparation of educators (teachers, related service personnel, etc.) and state administrative and policy personnel for engaging in online instruction (fully, blended, and supplemental). (see http://www.ccsso.org/Resources/Publications/InTASC_Model_Core_Teaching_Standards_and_Learning_Progressions_for_Teachers_10.html and http://centeronlinelearning.org/wpcontent/uploads/Vendor_Topic_4_Summary_February2015.pdf and <https://www.edsurge.com/news/2016-05-17-how-edgenuity-ceo-sari-factor-definesblended-learning-and-good-implementations>)

- Identify individual competency that is needed
- Map competencies, behaviors, routines to micro credentiality
- Develop systems to support routines
- Teachers need to know how learning occurs
- Providers and researchers conduct research on teachers of what is needed to be successful in these environments
- OSEP raises awareness and increases demand

The Blue Group then discussed the issue of preparing educators and state administrative and policy personnel for engaging in online instruction. They recommended these six approaches. First, identify individual competency that is needed. Second, map competencies, behaviors, and routines to micro-credentialing. Third, develop systems to support routines. Fourth, emphasize that teachers need to know how learning occurs. Fifth, providers and researchers should conduct research on teachers of what is needed to be successful in these environments; and sixth, OSEP raises awareness and increases demand.

Red Group

A) What areas of research of online learning (– curriculum design, digital delivery systems, assessment, etc.) –should be prioritized relative to students with disabilities? (See *Reviewing a Decade (2004-2014) of Published, Peer-Reviewed Research on Online Learning and Students with Disabilities* in the Handbook of Research on K-12 Online and Blended Learning at <http://press.etc.cmu.edu/content/handbook-research-k-12-onlineand-blended-learning-0> and http://centeronlinelearning.org/wpcontent/uploads/Vendor_Topic_8_Summary_February2015.pdf)

- Landscape
- How do we define success for SWD online?
- What are the innovative research issues?
- What are the effective assessment strategies for SWD in online and blended learning environments?

The final group to consider which areas of research of online learning should be prioritized regarding students with disabilities was the Red Group. They first considered which areas of research of online learning should be prioritized regarding students with disabilities. Four areas of inquiry stood out to this group. They were landscape, the method of defining success for the student with disabilities, determining innovative research issues, and settling on effective assessment strategies for students with disabilities in online and blended learning environments.

B) The preparation of educators (teachers, related service personnel, etc.) and state administrative and policy personnel for engaging in online instruction (fully, blended, and supplemental) (see

[http://www.ccsso.org/Resources/Publications/InTASC Model Core Teaching Standards and Learning Progressions for Teachers 10.html](http://www.ccsso.org/Resources/Publications/InTASC_Model_Core_Teaching_Standards_and_Learning_Progressions_for_Teachers_10.html) and
[http://centerononlinelearning.org/wpcontent/uploads/Vendor Topic 4 Summary February2015.pdf](http://centerononlinelearning.org/wpcontent/uploads/Vendor_Topic_4_Summary_February2015.pdf) and
<https://www.edsurge.com/news/2016-05-17-how-edgenuity-ceo-sari-factor-definesblended-learning-and-good-implementations>)