



*Center on Online Learning
and Students with Disabilities*

Quarterly Report



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Center Overview

The Challenge

To date, online learning reaches millions of K-12 learners, with its continued growth inevitably leading to dramatic changes in the educational landscape. While online learning holds great promise, there is a paucity of research addressing the pedagogical implications for students with disabilities. Researchers urgently need to conduct investigations that demonstrate how online instruction should be designed and delivered to improve student outcomes.

The challenge of the Center is to address learner variability by conducting research to make online learning more accessible, engaging, and effective for students with disabilities, for whom traditional forms of education have been only moderately successful and the precipitous growth in online instruction threatens to exclude. To address these issues, the Center will assume a leadership role in conducting research and building a network of research collaborators representing a wide array of disciplines whose expertise impacts learner outcomes.

Our Mission

To research 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.

Our Goals

- Identify and verify trends and issues related to the participation of students with disabilities in K-12 online learning in a range of forms and contexts (e.g., virtual schools, online courses, expository, interactive, etc.). Research topics will include accessibility and delivery of content, patterns of student participation, learning needs and supports, and emerging forms of online learning and their potential impact on accessibility and outcomes for students with disabilities.

- Identify and describe major potential positive outcomes and negative consequences of participation in online learning for students with disabilities, and analyze the available evidence on these outcomes and consequences. Positive outcomes may include a range of academic, social, career, and functional achievements associated with college- and career-readiness. Negative consequences may include reduced access to social or extra-curricular activities, a narrowed curriculum, a reduced alignment of instruction with academic standards, or the failure of instructional designs to be responsive to learner attributes.

- Identify and develop promising approaches for increasing the accessibility and potential effectiveness of online learning for students with disabilities. These approaches may involve designing accessibility and support features for online learning, providing supplementary off-line resources, individualizing online learning, identifying and addressing student learning problems as soon as possible, and training students, teachers, tutors, parents, and others involved in online learning on ways to support student learning.

- Test the feasibility, usability, and potential effectiveness (or promise) of one or more key approaches using appropriate research designs such as quasi-experimental, single-subject, qualitative, and experimental research. This research will involve actually trying the approach(es) with the intended populations in authentic settings. The research will produce detailed descriptions of the approaches and their key components, evidence that the approaches can be successfully implemented in authentic settings, and evidence of the promise of the approaches for achieving their intended outcomes for students with disabilities.

Our Activities

1. Carrying out high-quality research and development that will result in validated practices that inform the design and development of new approaches and innovations.

2. Establishing principles for the design, development, and validation of online instruction effective for all students, including K-12 learners with disabilities, via the application of learning analytics that take advantage of the inherent capabilities of online learning technologies to provide faster, more accurate, more informative assessment and progress monitoring, and impact learner outcomes.

3. Highlighting and amplifying existing resources that have been validated as promising and developing new online learning solutions that support K-12 learners with disabilities.

4. Developing a dynamic network of online learning stakeholders including but not limited to education agencies, business and industry, innovators, researchers, and parents for the purposes of validating and implementing online learning solutions that are appropriate and effective for K-12 learners with disabilities.

5. Informing stakeholders (SEAs, LEAs, developers, and others) on how to identify and implement high-quality online learning solutions that are effective for K-12 learners with disabilities.

6. Disseminating research findings and evidence-based principles for guiding the design, development, and use of online learning resources that address the needs of K-12 learners with disabilities.

January 2015

Major Activities and Accomplishments

RESEARCH STUDIES

STUDY: Social Skills

- Three virtual coaches were trained to follow a specific script. Upon inter-coaching agreement, each coach was assigned a group of students (divided into two) with the third virtual coach serving as a substitute for one of the coaches who had scheduling conflicts during portion of the week.
- Researchers completed the Control, Treatment 1, and Treatment 2 components of the study. This study included 45 students across 4 different districts and 7 different buildings. A total of 16 teachers were engaged in the study.

STUDY: MW1

- Researchers conducted a number of observations (between 2-4 per room) in 4th grade classrooms most aligned with the self-regulatory design features. Met with each teacher team at least once to discuss level of implementation and concerns/barriers to this implementation.

STUDY: MI2

- MI2 agreed to fund teacher involvement in COLSD research activities; Site-based project coordinator agreed to capture classroom videos for Observation form validation purposes; Blended Learning Observation Form (BLOF) finalized.
- Revised all S-R/GRIT surveys (Pre, EL K-2; EL 3-5, MS; HS) for next deployment.
- MI2 provided COLSD with logins to the MI2 Edivation teacher support portal for build out of Community of Practice resources.

- Follow up continued with three of four MI2 school sites:
 - Site 1 - Met with Staff 1/15 to review the S-R/GRIT initiative with respect to that program's re-design; teaching staff & admin coordinator instituting a flipped classroom model with associated increase in demand for student self-direction. Program is instituting 3-week instructional cycles; staff agreed to incorporate S-R strategies into targeted instruction areas. Weekly phone calls with site coordinator now to include admin.
 - Site 2 - Met with staff; teaching staff involvement increased from 2 to 5 personnel. Foundation for February S-R orientation with full MS staff created
 - Site 3 - Met with new Principal to review S-R/Grit project & obtain permissions & buy-in: permission acquired; buy-in and engagement offered pending capacity to accommodate within existing initiatives
 - Site 4 - This school undergoing major admin re-design; COLSD staff providing classroom management & re-structuring resources to admin personnel

STUDY: Audio-Supported Reading (ASR)

- Researchers continued development of Morae/observation coding structure, compiled coding for all subjects, viewed videos and coded, marked data sets in Morae tool, and compiled all data sets collected in Morae.

STUDY: Discipline-Specific Graphic Organizers (DSGOs)

- All data collection activities were completed. Data were collected on 15 students with disabilities who were in grades 7, 8, and/or 9.
- The data collection consisted of three phases (each phase took place on three separate consecutive days for about 45 minutes each day): (1) Pretest - Students were individually asked to read an online passage of approximately 1200 words on a geography-related passage about a fictitious island called Persido Island. When they completed the reading, they were asked 12 questions (multiple choice and short answer) over the main ideas, details, and inferred elements of the reading passage. Students dictated their answers to the researcher so written expression was not a requirement of this task. (2) Instruction - Students listened to five short instructional video clips in which they were taught how to use a Discipline Specific Graphic Organizer (DSGO) in learning geography content. Specifically, they were taught how to recognize features that attracted or caused people to leave a particular area. As the various features were identified, they were placed onto a DSGO designed to depict Attract/Leave information. This instruction described, modeled, and provided multiple examples of how to use a DSGO while reading and processing online textual material. (3) Posttest - Students read a parallel passage to the pretest (same length and reading difficulty) over another geographical topic (a passage about a fictitious country -- Toriland). This passage was different than the pretest in that DSGOs were imbedded in the passage to facilitate learning and remembering. When students completed the passage, they were administered a posttest that was structured in the same way that the pretest was structured. They were also asked a series of social validity questions about the DSGOs and how they help/hindered their comprehension.
- Researchers conducted preliminary analysis of the data which indicated encouraging results. Namely, on the multiple choice questions, during the Pretest students scored an average of 17/45; on the posttest, they scored an average of 30/45...nearly double.
- The teacher of the students involved in the study was also interviewed to determine her analysis of the DSGO tool and the associated instruction. Her recommendations for improvement and refinement of the tool and instructional protocol were solicited.

STUDY: Stakeholder Forums

- Forum #1 – State Education Agencies
 - Researchers worked to finalize draft report for Topic 1 of the state staff forum almost ready for OSEP and participant review.
 - Worked on manuscript for Topics 2,3, 4, and 5 of the state staff forum.
- Forum #2 – Superintendents
 - Researchers developed a list of possible invitees for the school superintendent forum to be held in March and began drafting the agenda and topics.

STUDY: HECSE Survey (Teacher Education)

- Center researchers requested and received permission from the president of HECSE to have a member of the Center invite those attending the 2015 HECSE annual meeting to complete an online survey about teacher education.
- Those attendees agreeing to participate were sent a link to the online survey. As part of the survey, we also asked for permission to conduct a follow-up telephone interview, and to ask the participants' colleagues to complete the survey.

STUDY: Vocabulary

- Researchers began work on this exploratory study to determine the characteristics and learning patterns of students with disabilities relative to vocabulary learning in online environments.
- Researchers met with partners at TextHelp to further define the project.
- Researcher reached out to existing contacts to explore partnering with recommended TextHelp-using School District(s).
- Researchers continued efforts in retrospective analysis of vocabulary usage, data dumps and filtering getting established with event usage logs.

STUDY: SE2 Accommodations

- Center researchers continued data analysis and write-up of results.

EXTERNAL RESEARCH PARTNERSHIPS

VENDOR: EdTech

- Researchers finished drafting the NE1 final report.
- Researchers worked on finalizing first draft of EdTech (NE2) final report.

VENDOR: Project Inspiration

- Student surveys on motivation, reading self-efficacy, engagement, locus of control, and perceptions of class organization were completed.
- Researchers started data coding of student survey data.
- A pilot test of the classroom observation application was conducted, and results were used to make improvements to the application and bug fixes.
- MAP was administered for the second time.

VENDOR: LearningCo

- Worked with LearningCo leadership to identify teachers for the interviews. Shared questions and schedules with teachers, and the process we hope to follow in order to complete interviews. This information was provided to LearningCo and researchers are awaiting scheduling directions to confirm appointments and schedule the interviews.

OUTPUT

PUBLICATIONS

- The Center's article "K-12 online lesson alignment to the principles of Universal Design for Learning: the Khan Academy" was published in *Open Learning: The Journal of Open, Distance and e-Learning*.
- The Center published the blog post "Enrollment, Persistence, Progress, Achievement... Oh My!" on its website.

February 2015

Major Activities and Accomplishments

RESEARCH STUDIES

STUDY: Social Skills

- Researchers completed all remaining data collection. Interviews of select students and teachers across the three conditions (Control, Treatment 1, and Treatment 2) were conducted, and researchers began transcription of interviews.

STUDY: MW1

- Researchers continued with the observation of blended learning classrooms of the MW1 district. The second of the observation tools (Long Form) was used exclusively this month for gathering data around the team's indicators of blended learning. The effectiveness of the long form observation tool has been discussed with members of the research team. Changes to this form are underway to strengthen the tool. These changes include the tool accounting for multiple adults in the room that are engaged with students (Paraprofessionals, related service providers, student teachers), as well as language that further hones in on what researchers are to be observing.
- Researchers continue to develop the intervention package to support students with disabilities in the blended classroom. Researchers met with teachers weekly at the beginning of the month. These meetings took place at the school of the teachers, which provided a time for the teacher teams and researchers to discuss successes as well as emerging concerns. These meetings were also used to generate talking points to be discussed during the monthly staff development meeting that brings all the teams together. For our monthly meeting two of the three teacher teams were represented. The teachers and researchers used the first half of this meeting to describe what was working in the respective teams' schools and what they saw as challenges moving forward. This space allowed

for the teams to collaborate on concerns they shared and use their strengths to generate solutions to these concerns. An example of this was the communication around how teachers used transparent target trackers in the classroom. Each teacher has freedom as to how they use transparent trackers in their classroom. In this instance the discussion between the two teams lead to collaboration amongst the teams to strengthen the visuals being used. Also, teachers discussed how to efficiently modify these visuals to provide students with an up to date set of expectations that will lead to more ownership in the classroom. Another example of the progress emerging from this collaborative space was the teams working together to generate live documents that collect student data efficiently and accurately. One team discussed platforms they use to generate and archive student data, while the second team found great value in the process. The two teams spent time generating these live documents which were implemented by the team the next day. To clarify this point further, all teams were collecting data and using this data to guide academic decisions for the students, these new forms streamlined the process and are reducing teacher workload.

STUDY: MI2

- Center researchers conducted a site visit to MI2 (2/18 & 2/19).
- The Blended Learning Observation Form (BLOF) was finalized, and researchers received classroom video from onsite contact for BLOF validation review.
- Student S-R/GRIT survey descriptive analysis was initiated.
- Student demographics/achievement data analysis was initiated.

STUDY: Audio-Supported Reading (ASR) - Readspeaker

- Center researchers created an initial work scope for the ASR-ReadSpeaker study/proposal (building on NE1 / EdTech descriptive studies to investigate the relationship between usage of audio assisted reading and learning outcomes for students with disabilities in an online learning environment).
- Coordinated with research partners to define and scope the work each would do in the research, plus budget, time, and resources needed (as input for OSEP proposal). Also identified MOUs that need to be created for the ASR study between the different partners.
- Researchers began drafting an IRB application for the study, as well as a list of proposed measures.

STUDY: Audio-Supported Reading (ASR) - Texthelp

- Researchers updated analysis software, set up project within analysis software, and met with intern to begin organizing the data analysis.
- Submitted research proposal for TextHelp & Westwood Public Schools for internal review.

STUDY: Discipline-Specific Graphic Organizers (DSGOs)

- Researchers reviewed the data from the January findings.
- Student interview data was transcribed.

STUDY: Stakeholder Forums

- Forum #1 - State Education Agencies
 - Researchers finalized draft of the Topic 1 report, distributed to forum participants for feedback/corrections, and incorporated edits.
 - Researchers drafted the Topic 5 report, and conducted internal review.
- Forum #2 - Superintendents
 - The list of invitees for the superintendent forum was finalized.
 - The agenda topics and issue questions were revised.

STUDY: SE2 Accommodations

- Center researchers continued write-up of results, and made preparations to share results at the 2015 AERA Annual Meeting in April.

EXTERNAL RESEARCH PARTNERSHIPS

VENDOR: EdTech

- Researchers further refined the draft of NE1 and key findings document, and circulated to COLSD staff for internal review.
- The first draft of EdTech (NE2) study report was completed, and circulated to a limited set of readers for critical feedback.

VENDOR: Project Inspiration

- Researchers met with programmer regarding tablet application for collecting classroom observation data.
- Revisions were made to student surveys, finalizing format and item wording.
- Researchers worked on the data set of MAP scores, including trying to figure out the apparent large number of cases with missing MAP values (n = 170).
- Coding and data entry continued for student survey data. Most of LMS data was entered.

VENDOR: LearningCo

- Study activities were put on hold while the Center and LearningCo work to determine a mutually agreeable plan of action.

OUTPUT

CONFERENCES/PRESENTATIONS

- Planning began for a virtual meeting with the Center's Technical Work Group to be held in March.

PUBLICATIONS

- The Center published the blog post "Canaries in the Data Mine: Who are they, where are they, and what are they doing there?" on its website.

March 2015

Major Activities and Accomplishments

RESEARCH STUDIES

STUDY: Social Skills

- Researchers developed a series of questions for follow-up interviews with students and teachers. A group of teachers and students were selected and the interviews were conducted.

STUDY: MW1

- The research team met with teachers for the monthly development meeting. This meeting was followed by independent team meetings to address the questions that teachers had from the staff development meeting as well as issues that teachers encountered in their practice.
- The team also made site visits to assist with technical challenges teams were encountering as well as to assist teachers with generating new digital data collection systems. The teams explored platforms from which to build these data collection systems. Teachers used these systems to collect student data on factors such as student effort, and student comprehension while students engage in learning tasks.
- The team revisited the long form observation tool to increase what the observation can capture in learning environments.
- Researchers finalized a weekly teacher survey that can be used to measure fidelity of implementation.

STUDY: MI2

- The team met with the MI2 onsite support person to review the most recent site visit and plan next steps.
- The team met (remotely) with HS staff to map out Self-Regulation (S-R) strategies; Populated Google Groups hub with S-R, engagement & assessment resources for both the HS & MS teams.
- Planned for and conducted site visits to MS & HS sites

on 3/18 & 3/19. Concretized S-R/GRIT intervention for both sites & data collection strategies.

- Completed initial data summary from self-regulation/GRIT surveys & student demographic information disambiguating IEP from non-IEP students system wide. Awaiting update demographic data from MI2 to validate existing results.
- Research team members presented MI2 findings as part of a presentation at the 2015 UDL-IRN Summit in Gulfport, MS.

STUDY: Audio-Supported Reading (ASR) - ReadSpeaker

- The Center team met with NE1 and ReadSpeaker to consider logistics, research design, and measures for the proposed study.
- Researchers worked on writing the study proposal, including looking at technical work involved in getting unified student record.

STUDY: Audio-Supported Reading (ASR) - TextHelp

- Preliminary trial of survey (5% of Read&Write4Google surveyed) by TextHelp is complete and we are analyzing that data together. Surveys are being sent by TextHelp to remaining participating teachers.
- Exploratory study data entry complete and preliminary coding started. Demographic data now complete for both sites.

STUDY: Discipline-Specific Graphic Organizers (DSGOs)

- Researchers transcribed student interviews, and began identifying themes for the data. An initial review of the quantitative scores was initiated. An overview of these preliminary findings was presented to the cooperating school district on 3/26.

STUDY: Stakeholder Forums

- Forum #1 - State Education Agencies
 - The Topic 1 report was revised based on OSEP feedback.
 - Researchers continued writing and revisions of drafts for Topics 3, 7, and 8.
- Forum #2 - Superintendents
 - Invitations were sent to the nominated participants.
 - Agenda and background reading materials were finalized and sent to participants.
 - The Center hosted the 2-day forum in Alexandria, VA, beginning 3/31. Five of the six invited participants attended.
 - Researchers compiled and reviewed forum notes for distribution to participants for feedback/corrections.

STUDY: Vocabulary

- Researchers reviewed each program (Strategic Reader and ICON) to create definitions of supports, analyzing for common and unique feature sets.
- Analysis features to be determined and initial data crunch to begin in this retrospective analysis of usage patterns.

STUDY: SE2 Accommodations

- Center researchers finalized preparations to share results at the 2015 AERA Annual Meeting in April.

EXTERNAL RESEARCH PARTNERSHIPS

VENDOR: EdTech

- The research team worked on revisions to the NE1 white paper, and began drafting NE1 research paper for publication.
- The team continued EdTech (NE2) analysis, writing, member check, and revisions based on feedback.

VENDOR: Project Inspiration

- Data collection in the middle schools continued with CLASS and tablet observation.
- Researchers worked on constructing data file specification for CLASS scores, tablet observation data.
- Lengthy discussion and training were conducted on using the Tablet for classroom observation. Worked on revisions to the Tablet coding definitions.
- The research team conducted data analysis on the 43 item student surveys, and worked on defining factors for computing subscores.

VENDOR: LearningCo

- Study activities remained on hold while the Center and LearningCo continue working to determine a mutually agreeable plan of action.

OUTPUT

CONFERENCES/PRESENTATIONS

- Center researchers conducted a session titled “9 Key Elements of Personalization - Wait, Isn’t That UDL?” at the 2015 UDL-IRN Summit in Gulfport, MS.
- Center staff conducted a webinar and conference call with the Center’s Technical Work Group members to provide an update on the Center’s activities, and followed up with TWG members regarding involvement on specific research activities.