

# THE DIGITAL DIVIDE

**Online Learning  
for Students with Disabilities**



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"As we start a new school year, Mr. Smith,  
I just want you to know that I'm an Abstract-  
Sequential learner and trust that  
you'll conduct yourself accordingly!"

*Browning*

# BACKGROUND

- Online Learning Option
  - MN Statute 124D.095
- Online Learning programs in MN
  - MN Virtual High School
  - MN Connections Academy
  - Wolf Creek Online High School
  - BlueSky Charter School
  - Minnesota Online High School
  - All programs: <https://education.mn.gov/MDE/dse/online/004409>



*“Learning is not strictly a cognitive process;  
it is a profoundly socially and culturally mediated one.”  
- M. Gauvain*



# ONLINE LEARNING STATISTICS

## *Students with Disabilities*

- Students with disabilities increasingly choose to participate in online courses at a higher rate than non-disabled students (Cavanaugh et al., 2013; Alamri & Tyler-Wood, 2013)
- Post-secondary: no significant difference in learning and achievement between students with disabilities and non-disabled students (Allday and Allday 2011)
- Almost half of virtual schools characterized the majority of students served as “high risk” ... in 2011 (Stalker, iNACOL)
- 38 states don’t have clear OLL policies for students with disabilities (Equity Matters, 2016)



# WHY ONLINE?

- Path, pace, time & place
- Greater sense of control and academic self-efficacy
  - Flexibility
  - Less stress managing disability and education
  - Reduced stigma and rejection
- The hope of experiencing education without barriers
- Personalized programming
- Bullying

# WHY ONLINE?

- The hope of experiencing education without barriers
- Personalized programming
- Bullying

# THE BEGINNING

- PowerPoint with narration
- Documents converted in to online text
- Graphics, photos and videos
- Assessment tool makeovers
- Asynchronous learning



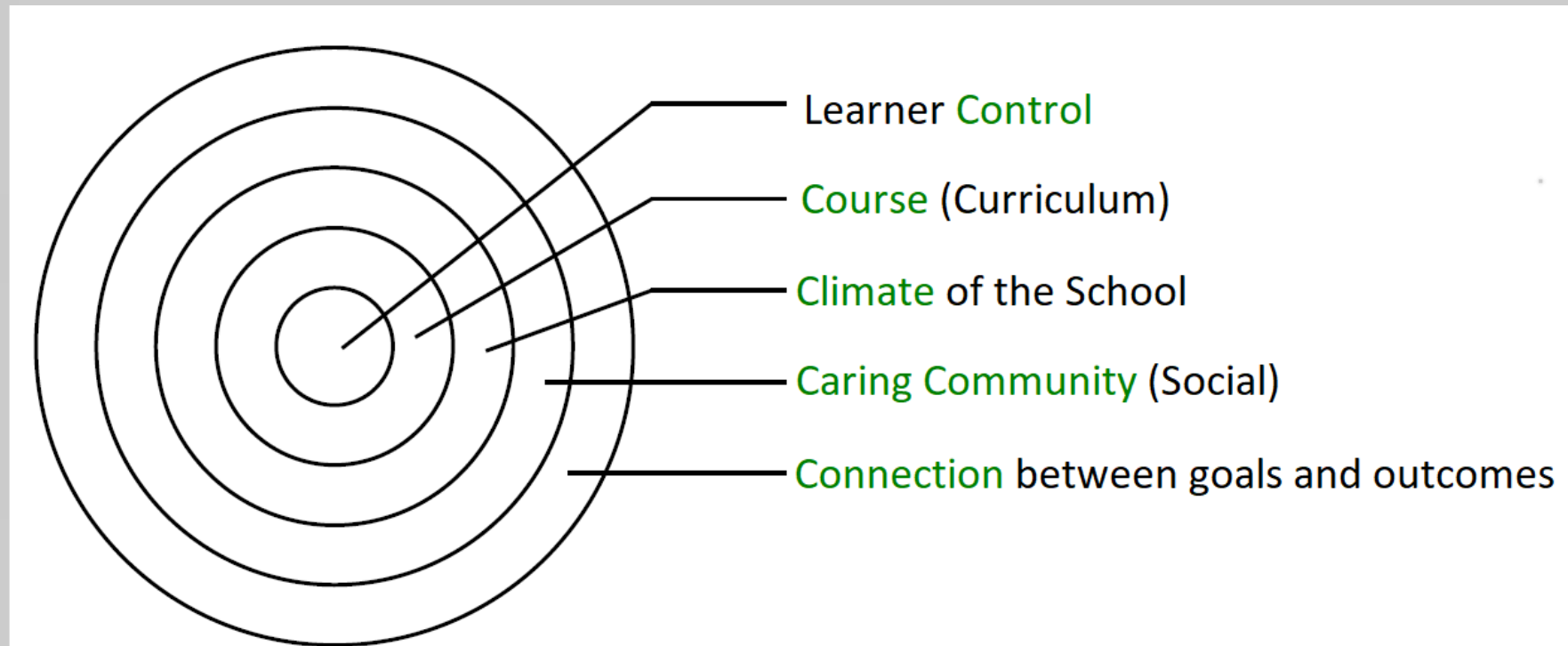
# ONLINE LEARNING BEST PRACTICES

## *EL and Disability*

- 5 C's of Engagement
- Foundations:
  - Student satisfaction
  - Student success
  - Design from the beginning
  - Competency based

# 5 C'S OF STUDENT ENGAGEMENT

## School



*Repetto et al., 2010*

# ONLINE LEARNER SATISFACTION

- One of five factors considered to determine online effectiveness
  - Learning effectiveness, access, faculty satisfaction, school cost-effectiveness, student satisfaction
- Equal satisfaction between modalities (Yen, Lo, Lee & Enriquez, 2018)
  - Online, face to face, blended
- Community of Inquiry Framework

# ONLINE LEARNER SATISFACTION

## *Community of Inquiry*

- **Cognitive presence**
  - Students construct and assign meaning through reflection and problem solving
- **Teaching presence**
  - Structure
    - Course design
    - Facilitation: being present and guiding students through learning activities

# ONLINE LEARNER SATISFACTION

## *Community of Inquiry*

- **Social presence**
  - The degree to which students feel connected to each other
  - Creates a social space: collaborative community that supports interaction (relationship), engagement, & active learning – reducing isolation
  - Teacher and peer relationships needed to build knowledge and improve self-regulation

# ONLINE LEARNER SATISFACTION

## *Social Presence*

- Identifying with a learning community – group identity and collaboration
- Trusting environment >> open communication >> positive learning environment and risk-free expression

# ONLINE LEARNER SATISFACTION

## *Social Presence*

- Build long term bonds with students and teachers
- Positive correlation with student satisfaction
- Development of relationships >> expression of emotions and meaningful interactions



# ONLINE LEARNER SATISFACTION

## *Relationships*

- Impacts learning and motivation
- Student-content interactions
  - Predictable
  - Multiple means of representation, expression, and engagement with content

# ONLINE LEARNER SATISFACTION

## *Relationships*

- Student-teacher interactions
  - Millennial online learners more dependent on relationship with online instructor
  - Student/family-teacher relationships + explicit direct instruction = increased achievement (Equity Matters, 2016)
- Student-student interactions
  - GenZ learners want more collaborative learning interactions

# ONLINE LEARNER SUCCESS

## *Student*

- Related to six areas:
  - The online environment
  - School and home/personal supports
  - Inner strength and resiliency
  - Self-determination (transition)
  - Motivation to succeed
  - Goal commitment (self-driven IEPs)
  
- Persistence

# ONLINE LEARNER SUCCESS

## *School*

- Communication and relationship with the teacher
  - Effectiveness v. efficiency
- Course organization
  - Structure
  - Student input

# ONLINE LEARNER SUCCESS

## *School*

- Information presentation
- Opportunities to work together and interact
- Timely and meaningful feedback

# ONLINE LEARNER SUCCESS

## *School*

- Communication and relationship with the teacher
- Course organization
- Information presentation
- Opportunities to work together and interact
- Timely and meaningful feedback
- Student to student interaction

= ENGAGEMENT

# ISSUES

- Basic skills
  - Focus on increasing content knowledge
  - Forget about teaching the learning process – process knowledge
  - Social learning is missing
- Structural Accessibility
  - Sensory Based and Physical Accessibility
  - Equipment, bandwidth, teacher knowledge
- Cognitive Accessibility
  - Online programs assume students navigate the content and structure their learning environment
  - Scaffolding to support cognitive load demand



# PROGRAM DEVELOPMENT

## *Process Knowledge*

- The skills students learned from instruction or an activity
- Habits of work
  - Communication
  - Collaboration
- Barriers:
  - Cognitive accessibility
  - Cognitive load
  - Executive functioning awareness level

# BEST PRACTICE

## *The Teacher Factor*

- The online teacher plays one of the biggest roles in student success
  - Asset based learning
  - Connecting content to skills your students see as necessary
  - Facilitating student interests and learning
- Looping
  - Social presence and the long term bond
  - Monitor and adjust

# BEST PRACTICE

## *The Teacher Factor*

### Know the technology

- AT goes unused because teachers can't use it or support it
- Problem solve access issues to accommodate
- Scaffolding throughout the course
- Give students the power

# STAFFING

- Teacher: due process, curriculum development, service coordination
- Academic coaches: student attendance tracking / coursework completion
- Paraprofessional staff
- Social Work
- Work Experience / Transition Coordinator
- Related services
  - In person
  - Teletherapy
  - Consultation

# WORKLOAD CONSIDERATIONS

- Direct time
- Indirect time
  - Facilitating the online class
  - Course development
  - Accommodation/modification
  - Creating and maintaining the team connection
- Building relationships
- Due process
- Model
- Rate of student turn over
- Related service providers (e.g. social work)

# BEST PRACTICE

## *Course Design*

- Consistent
  - Perceptibility: can perceive the design, regardless of sensory abilities
  - Operability: student can use the design, regardless of physical ability
- Support language, literacy, executive function
  - Multiple forms of resources: video & audio paired with text
  - Academic language: vocabulary instruction & supports
  - Scaffolding

# BEST PRACTICE

## *Course Design*

- Activities that provide
  - Concrete experience
  - Metacognition
  - Application
  - Active Experimentation (Kolb, Experiential Learning Theory)
  - Consistent, built in supports throughout
  - Student design



# UNIVERSAL DESIGN FOR LEARNING

- Asset Based
- Authentic Learning
  - Multiple sources and modalities
    - Collaborative learning
    - Metacognition
    - Interdisciplinary thinking
  - Multiple expression
  - Engaging
    - Real world problems
    - Personalized

# COGNITIVE ACCESSIBILITY

- When the usability of an activity or tool bumps in to ability (language acquisition, disability)
- Barriers: attention, executive functioning, knowledge, language, literacy, memory, perception and reasoning
- Reduced when cognitive load is impacted by a barrier
- Consider stage, not age

# UNIVERSAL DESIGN FOR LEARNING

- Accessibility Tips:
  - Videos and audio: Closed Caption & transcripts with timing
  - Use RTF (Avoid PDFs)
  - Multimedia with words and pictures with consistent design
  - Text-only alternative pages with descriptions of images (or image alt. text)

# UNIVERSAL DESIGN FOR LEARNING

- Accessibility Tips:
  - High contrast between background color and font color; consist use of font and color
    - Increases visibility & decreases cognitive load
    - Heading structure (Word)
  - UDL Wheel: <https://www.theudlproject.com/udl-tools---all-grades.html>
  - Read&Write Google, SnapVerter – built in tools

# UDL SCAN TOOL

- Examine the alignment of online content student cognitive and learning needs
- UDL Scan Tool:
  - <http://www.centerononlinelearning.res.ku.edu/>
  - Google Form & Analysis Template
  - How to videos

# VOLUNTARY PRODUCT ACCESSIBILITY TEMPLATE

- Analysis of K-12 online learning technologies on company websites
- Uses Section 508 standards for physical and sensory accessibility
- Example:
  - Desire2Learn
  - Garage Band
  - Soft Chalk
  - Edmentum
- VPAT website:  
<http://www.centerononlinelearning.res.ku.edu/vpat/>

# BEST PRACTICE

## *Competency Based Instruction*

- Focus on stage, not age
- Student driven goals and instruction
- Fuzzy situations
- Collaborative
- Asset based

# THE FUN STUFF

## *Collaborative Programming*

- Charter / Resident District
- Online / PSEO
- Transition / CTE / Work Experience



# OTHER RESOURCES

- Center for Online Learning and Students with Disabilities
  - <http://www.centeronlinelearning.res.ku.edu/>
- VPAT – access based focus on text, color, mark-up language and web features

# OTHER RESOURCES

- IRIS Module: UDL introduction
  - <https://iris.peabody.vanderbilt.edu/module/udl/>
- Tech 15
  - YouTube Channel demonstration apps and tech used in teaching

# ADDITIONAL SOURCES

- Alamri & Tyler-Wood (2017). Factors Affecting Learners with Disabilities – Instruction Interaction in Online Learning.
- Baharin, Lateh, Hurhudzaifah mohd Nawai & Nathan (2014). Evaluation of Satisfaction Using Online Learning with Interactivity.
- Basham, Smith & Satter (2016). Universal Design for Learning: Scanning for Alignment in K-12 Blended and Fully Online Learning Materials.
- Barbera, Clara & Linder-Vanberschot (2013). Factors Influencing Student Satisfaction and Perceived Learning in Online Courses.
- Britt (2015). How to better engage online students with online strategies.

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- CompetencyWorks (2018). Meetings Students Where They Are.
- Evergreen Education Group (2016). Keeping Pace with K-12 Online Learning.
- Harvey, Parahoo & Santally (2017). Should Gender Differences be Considered When Assessing Student Satisfaction in Online Learning Environment for Millennials?
- Hashey & Stahl (2014). Making Online Learning Accessible for Students with Disabilities.

# ADDITIONAL SOURCES

- Ke & Kwak (2013). Online learning across ethnicity and age: A student on learning participation, perception, and learning satisfaction.
- Kurucay & Inan (2017). Examining the effects of learner-learner interactions on satisfaction and learning in an online graduate course.
- Serianni & Coy. Doing the Math: (2014). Supporting Students With Disabilities in Online Courses.
- Stokes, Gillan & Braden (2016). Establishing the link between usability and student satisfaction in online learning.
- Straub & Vasquez. (2015). Effects of Synchronous Online Writing Instruction for Students with Learning Disabilities.

# ADDITIONAL SOURCES

- Varonis (2015). From barriers to bridges: approaching accessibility in course design.
- Verdinelli & Kutner (2016). Persistence Factors Among Graduate Students With Disabilities.
- Weidlich & Bastiaens (2017). Explaining social presence and quality of online learning with the SIPS model.
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- Zhan & Mei (2013). Academic self-concept and social presence in face-to-face and online learning.



**QUESTIONS?**



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