

Advancing Accessibility in Higher Education: **Promoting Equity, Inclusion and Innovative Learning**



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2023 Final Capstone Presentation

Overview & Importance to Major



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- A scholarly paper analyzing existing research on accessibility will provide understanding of the **technical** and **legal** requisites that hold significance in this field, with the end goal of designing instructional experiences that are inclusive to all students.
- Accessibility in higher education is an important topic that addresses issues of **social justice**, **legal compliance**, and **technological advancements**, potentially benefiting students, educators, and institutions.

Research Questions

- What is the impact of accessibility on cognitive learning outcomes in higher education instructional design?
- What are the best design practices and financial implications for ensuring accessibility in Learning Management Systems for students with disabilities in higher education?
- What are the key factors contributing to engagement and success for students with disabilities in higher education, and how can accessibility accommodations enhance these factors?

Definition of Key Terms

- **Cognitive Theory** - cognitive structures evolved through assimilation and accommodation, where learners interpret events using their existing cognitive structure and then adapt to construct meaning (Jean Piaget)
- **Cognitive Load Theory** - Proposes that learning is optimized when conditions align with the human cognitive architecture (John Sweller).
- **Schema Theory** - examines how visual grouping impacts human perception (Kohler, Koffka, and Wertheimer)
- **Nine Events of Instruction** - the role of the instructor in presenting appropriate stimuli that would produce an effectual student output through instructional design (Robert Gagne)
- **Accessibility** - makes resources and opportunities easy to approach, reach, enter, use, or understand.

Laws & Guidelines

- **Section 508**

- law holds federal agencies responsible for providing people with disabilities access to electronic and information technology as a prerequisite to secure federal funds.
- Computers, software, printers, kiosks, telecommunications machines, office equipment, and electronic documents

- **Web Content Accessibility Guidelines (WCAG)**

- While Section 508 is a federal law, WCAG is a set of guidelines recognized around the world as providing equity concerning websites, applications, content, web authoring tools, and electronic information. The W3C has published WCAG 1.0, 2.0, 2.1, with a 2.2 release expected in the summer of 2023 (Initiative, n.d.).
- alternative text, closed captions, audio descriptions for multimedia, information structure including semantic markups for headings, special text, tabular data, use of color, and keyboard interface support

Themes of Literature Review

- Accessibility in higher education LMS course design is a legal requirement, but it also drives enrollment and promotes equity for all learners.
- While there are resources to guide best practices in accessibility course design, progressive learning transformation requires cultural conversion and tools to hold higher education institutions accountable
- Equitable instructional design focuses on human variation when creating course content for ease of use, quality, visual design, system navigation, and assessment.
- Accessible design should be innovative and engaging and create a sense of belonging to be equitable.

Methods

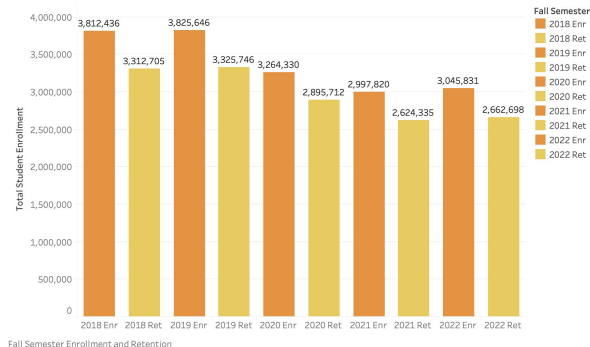
- Review of the most popular LMS platforms for implementing design best practices and accessibility in higher education using software review websites
- A published dissertation on faculty LMS preferences revealed the importance of the California Community College (CCC) Online Education Initiative (OEI)
- Study the impact of the OEI in creating a common course management system (CCMS) system
- Collect enrollment, student success and faculty data from California Community College Chancellor's Office (CCCCO) Data Mart website
- Examines data from the Web Accessibility In Mind (WebAIM) website to understand who a typical web accessibility practitioner is by population and organization
- Explore resources on the Canvas Infrastructure website including the release of the accessibility checker Pope Tech, web browsers plugins from WebAIM and ranking results for web accessibility checks in higher education institutions across the country

Findings

Saturday			
Sunday			
Monday			
Tuesday			8.00
Wednesday	8.00	1.00	
Thursday	8.00	1.00	

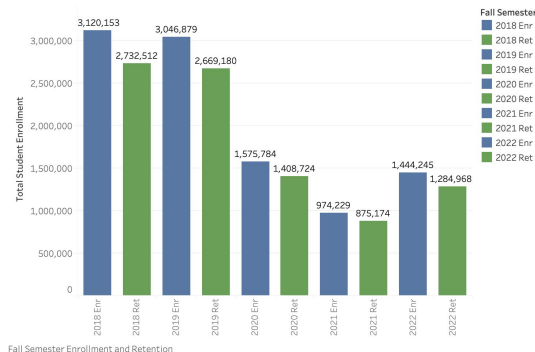
Comparing Statewide Enrollment & Retention

Statewide Enrollment & Retention - Fall Semester



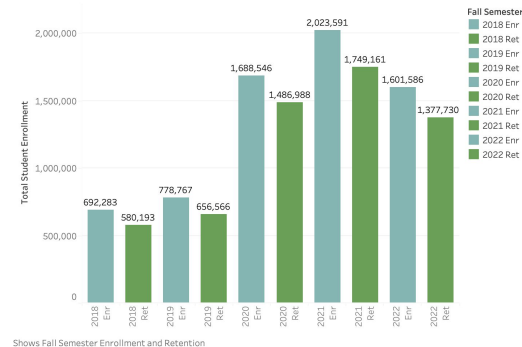
All Enrollment

Statewide In-Person Enrollment & Retention - Fall Semester



In-Person Enrollment

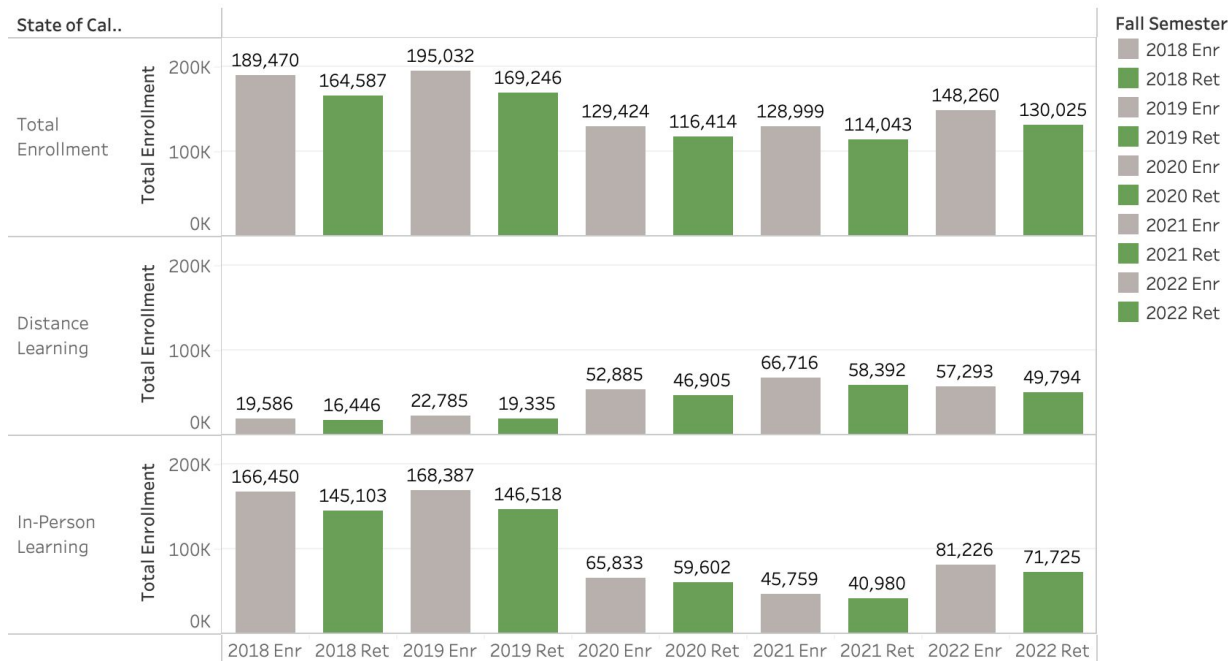
Statewide Distance Learning Enrollment & Retention - Fall Semester



Distance Enrollment

DSPS Enrollment & Retention

Disabled Students Total Enrollment & Retention - Fall Semester

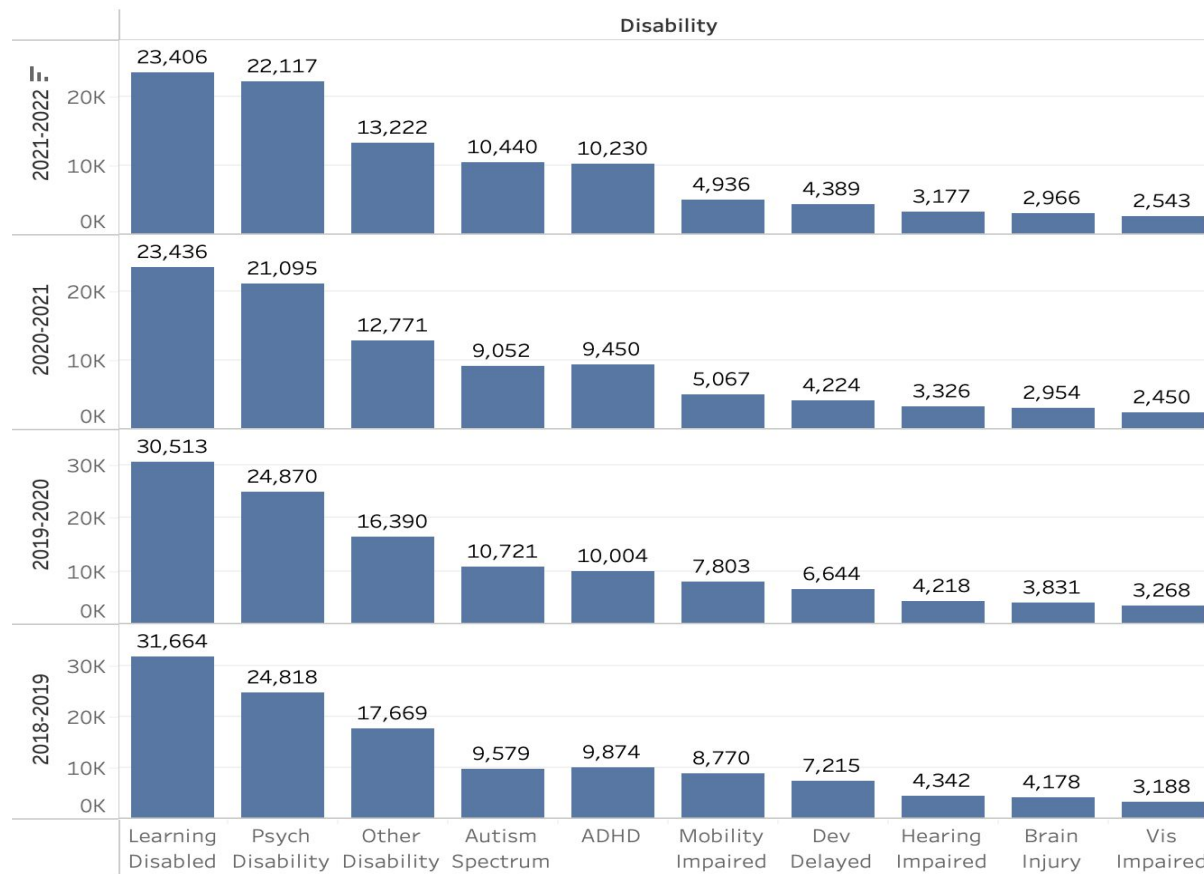


Fall Enrollment and Retention of DSPS Students

DSPS Self Reported Disabilities

What accounts
for the lag in
enrollment for
DSPS Students?

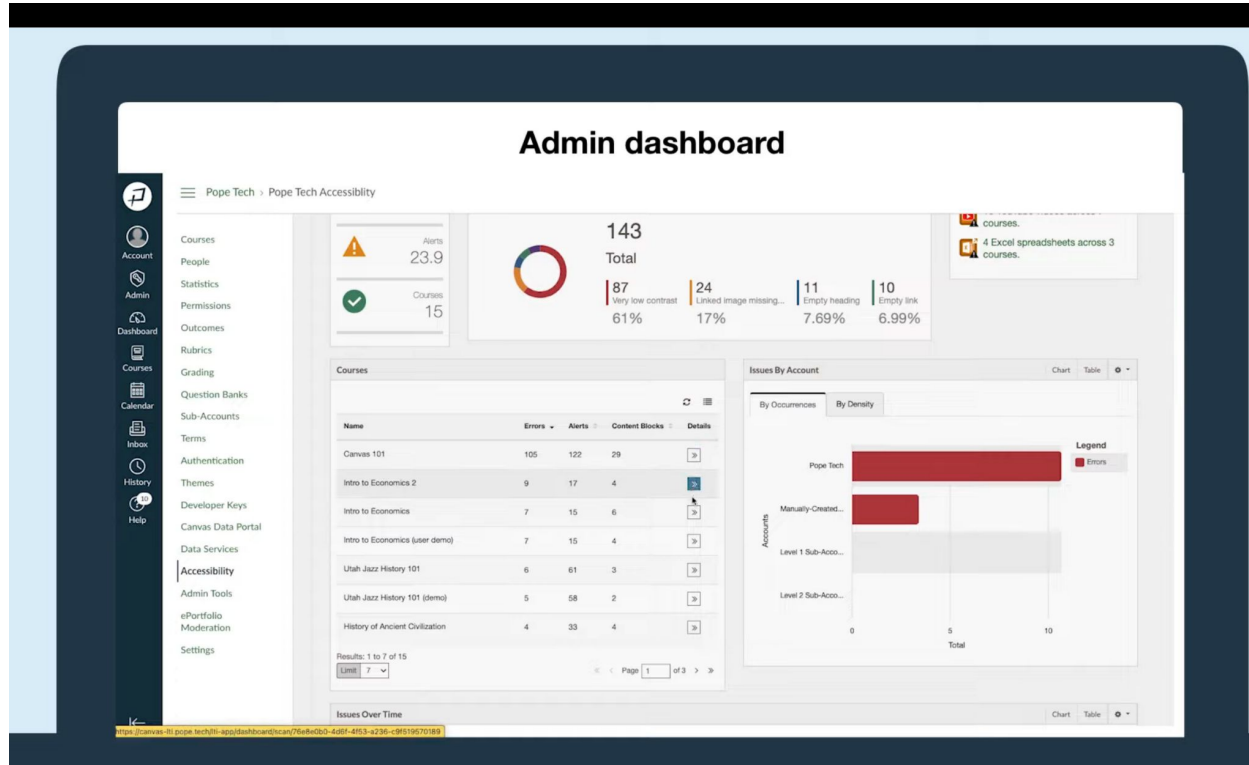
Disability Student Population by Year



Findings

- California ranks 40 out of 58 after a review of 417 higher education LMS websites (*State Rankings - Higher Ed in 4k*, n.d.).
- Instructors in higher education settings are pivotal in the creation of a curriculum and content that is accessible. Data Mart shares (California, n.d.) that the mean age for tenured track and adjunct professors is 50.3.
- Only 18% of organizations are educational, and only 2% of web accessibility practitioners identify as educators (*WebAIM: Survey of Web Accessibility Practitioners Results*, 2014).

The Pope Tech Dashboard in Canvas



Analysis

- Question: What is the impact of accessibility on cognitive learning outcomes in higher education instructional design?
 - Without complete accessibility checks, our understanding of the impact of accessibility on cognitive learning outcomes is incomplete.
- Question: What are the best design practices and financial implications for ensuring accessibility in Learning Management Systems for students with disabilities in higher education?
 - Best practices include using the WCAG guidelines to design content that is 1) perceivable,
 - 2) operable, 3) understandable, and 3) robust (Initiative, n.d.).
 - Instructional designers should consider the layers of navigation one must maneuver to complete a task and what accommodative features or tools a student may employ.
 - DSPS students may have motor disabilities and may use screen readers, mouth sticks, hand wands, or adaptive keyboards.
 - Multimedia content, popular with students of all abilities, remains the most reliably accessible source and may be responsible for the statewide enrollment gain.
 - CCMS adoptions rapid due to those higher education institutions having the ability to draw on public funds to build infrastructure. Administrators are rewarded for this.

Analysis

- Question: What are the key factors contributing to engagement and success for students with disabilities in higher education, and how can accessibility accommodations enhance these factors?
 - Accessibility is a legal requirement, and per this study, incorporating accessibility features into every page of an LMS is essential to accountability as they will eventually be evaluated with products such as Pope Tech or internet browser extensions.
 - Creating a sense of community is a crucial factor in contributing to all students' engagement and success.
 - As one can see in the data, abled students are in distance learning classes, and disabled students are in in-person classrooms. A
 - s higher education institutions look to move from being “diversity committed” to actively engaged in cultural change, they seek to deliver interventions online and in a blended way.

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