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# Learning Analytics: Practical Guidance and Lessons Learned

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# Presentation Overview

- Learning Analytics Definition.
- Significance of Learning Analytics to Online Learning.
- Learning Analytics Case Studies.
- Learning Analytics Framework.
- Discussion.

# Learning Analytics Definition

*“The measurement, collection, analysis, and reporting of data about learners and their contexts, for the purpose of understanding and optimizing learning and the environments in which it occurs”* - George Siemens, Society for Learning Analytics Research (SoLAR)

# Significance of Learning Analytics to Online Learning

- Greater volumes of data, particularly from the LMS.
- Maturing data retrieval tools and methods for data analysis.
- Effective use of analytics can lead to insights and effective practices to help drive student success.
- A change in emphasis from access to quality.

# Case Studies

# **CSU CHICO ACADEMY E-LEARNING PROGRAM**

# CSU Chico Academy e-Learning Program: Background

- Academy e-Learning program connects faculty with instructional designers with the goal of increasing student success in online courses.
- Previous to the LA initiative, there was limited understanding of the program's impact.
- College-wide course redesign efforts resulted in higher final course grades - but also a higher rate of drops, withdrawals, and failing grades.



# CSU Chico Academy e-Learning Program: Research Questions

Four key questions:

- What types of LMS activities are students participating in during the course?
- How is that activity related to student grade achievement?
- Does the activity–grade relationship vary by student characteristics?
- Do at-risk students have the same outcomes from using the LMS as students whose background predicts course success?

# CSU Chico Academy e-Learning Program: Analytics Tools

- Native LMS and off-the-shelf tools were insufficient in responding to RQ's.
- Customized data warehousing, reporting, visualization, and statistical analysis tools were necessary.

# CSU Chico Academy e-Learning Program: Operational Challenges

- Wide support for the project among administration, IR, faculty, and student affairs.
- FERPA and campus information security policies.
- Strategic and technical stakeholder availability.
- Big data and data solos.

# CSU Chico Academy e-Learning Program: Project Findings

- Direct positive relationship between LMS usage and student final grade.
- Low SES students spend more time in the LMS.
- Lower “efficiency” of time on task for low-income students.

# Reflection Question

Is the CSU Chico example geared more towards a practical or educational research application?

# **THE UNIVERSITY OF SYDNEY STUDENT RELATIONSHIP ENGAGEMENT SYSTEM (SRES)**

# SRES: Using Meaningful Data

- Data can be imported and combined from a variety of sources including the LMS, third-party services, and teacher-created data fields.
- Custom views of students can be created based on teacher preference.
- Teachers select the most relevant data for their context and identify groups or individuals for personalized teacher/student communications.
- Custom data dashboards and visualizations.

# SRES: Design Principles

- Teacher-centered.
- Humanistic.
- Customizable, flexible, and scalable.
- Actionable = Adoptable.
- Ethical and secure.



# Reflection Question

Considering the SRES and CSU Chico examples, which of the two are more impactful to teaching and learning?

**CALIFORNIA VIRTUAL CAMPUS – ONLINE  
EDUCATION INITIATIVE (CVC-OEI)  
ONLINE LEARNER READINESS ANALYTICS  
PROJECT**

# Online Learner Readiness Analytics Project: Background

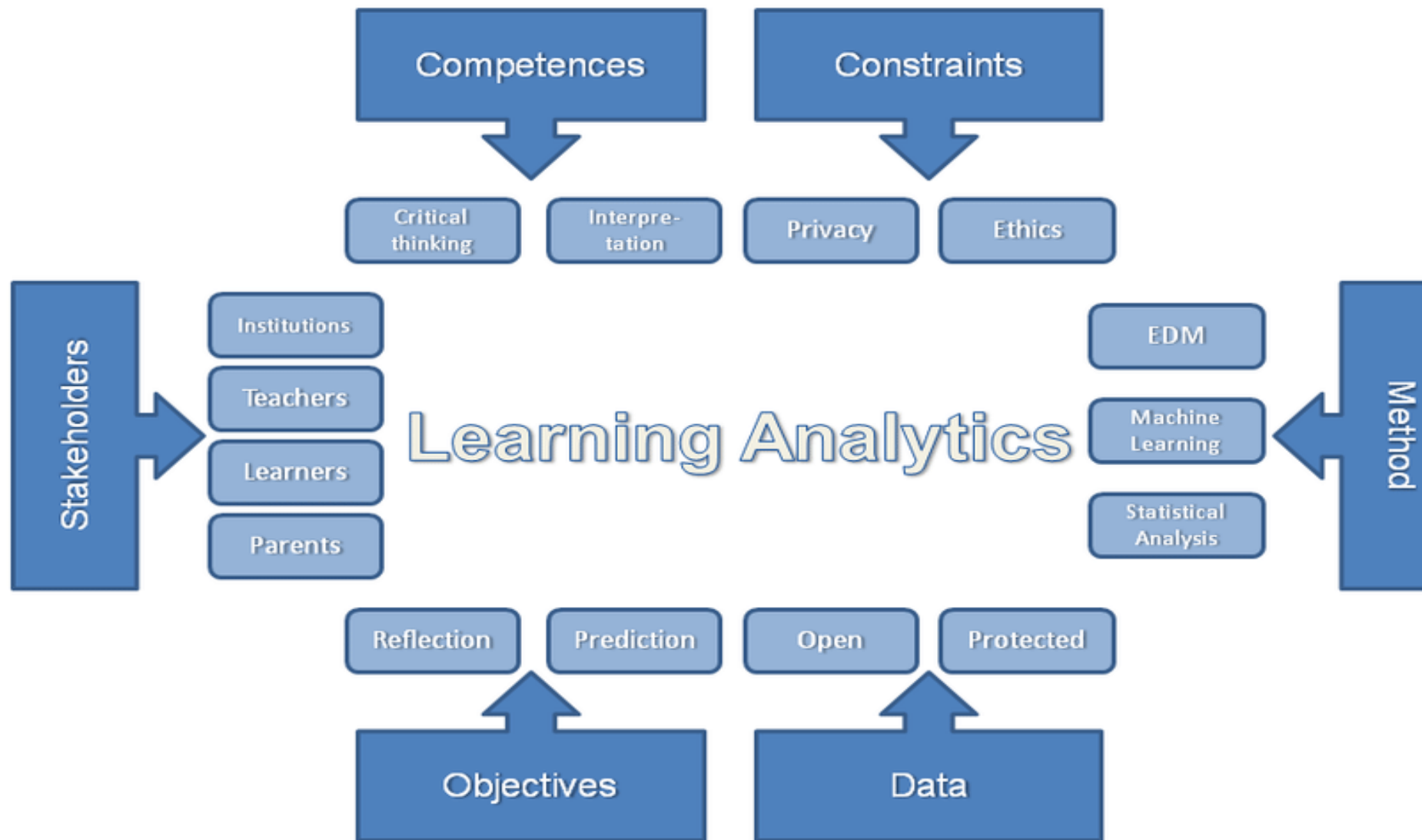
- Quest for Success is a custom Canvas course program designed to prepare students for online learning environments.
- In 2017, the CVC-OEI commenced a pilot program to apply analytics to Quest program in order to measure student engagement.
- In 2018, the presenter (Murray) conducted dissertation research to study the impacts of learning analytics, virtual teamwork, and ethics.

# Online Learner Readiness Analytics Project: Dissertation Research Findings

- Student privacy is a central ethical consideration for any learning analytics program.
- Selection of data measures, interpretation of data, validity of constructs and instruments, and student risk categories in learning analytics initiatives are ethical issues that affect students.

# Online Learner Readiness Analytics Project: Dissertation Research Findings

- Student privacy is a central ethical consideration for any learning analytics program.
- Unequal power relationships between students and institution.
- Selection of data measures, interpretation of data, validity of constructs and instruments, and student risk categories in learning analytics initiatives are ethical issues that affect students.



# Discussion Prompts

Given availability of tools to understand more about our students - and the potential to improve teaching and learning as a result - do we have an obligation to pursue analytics at our institutions?

What ways might you envision that learning analytics might support teaching and learning at your college?

What concerns do you have about learning analytics?

# Presentation Resources

and works, presentation materials, and additional findings can be found at [www.bit.ly/otclearninganalytics](http://www.bit.ly/otclearninganalytics)

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