Creating Presentations and Handouts for Elevated Student Usability to Reduce Cognitive Load

QM – Research Online Conference

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KENT STATE UNIVERSITY

Ambassador Crawford College
of Business and Entrepreneurship

Introductions – Team BAT

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Outcomes

1. Identify challenges with creating online presentations

2. Discuss strategies to elevate the usability of materials by managing cognitive load while integrating principles of UDL.

3. Facilitate a discussion on best practices for creating usable materials

Engagement and Attention

(Hrastinski, 2019; Mayer et al. 2001; Means et al., 2013)

Cognitive Load Management

(Mayer, 2005; Sweller, 1994, 2011)
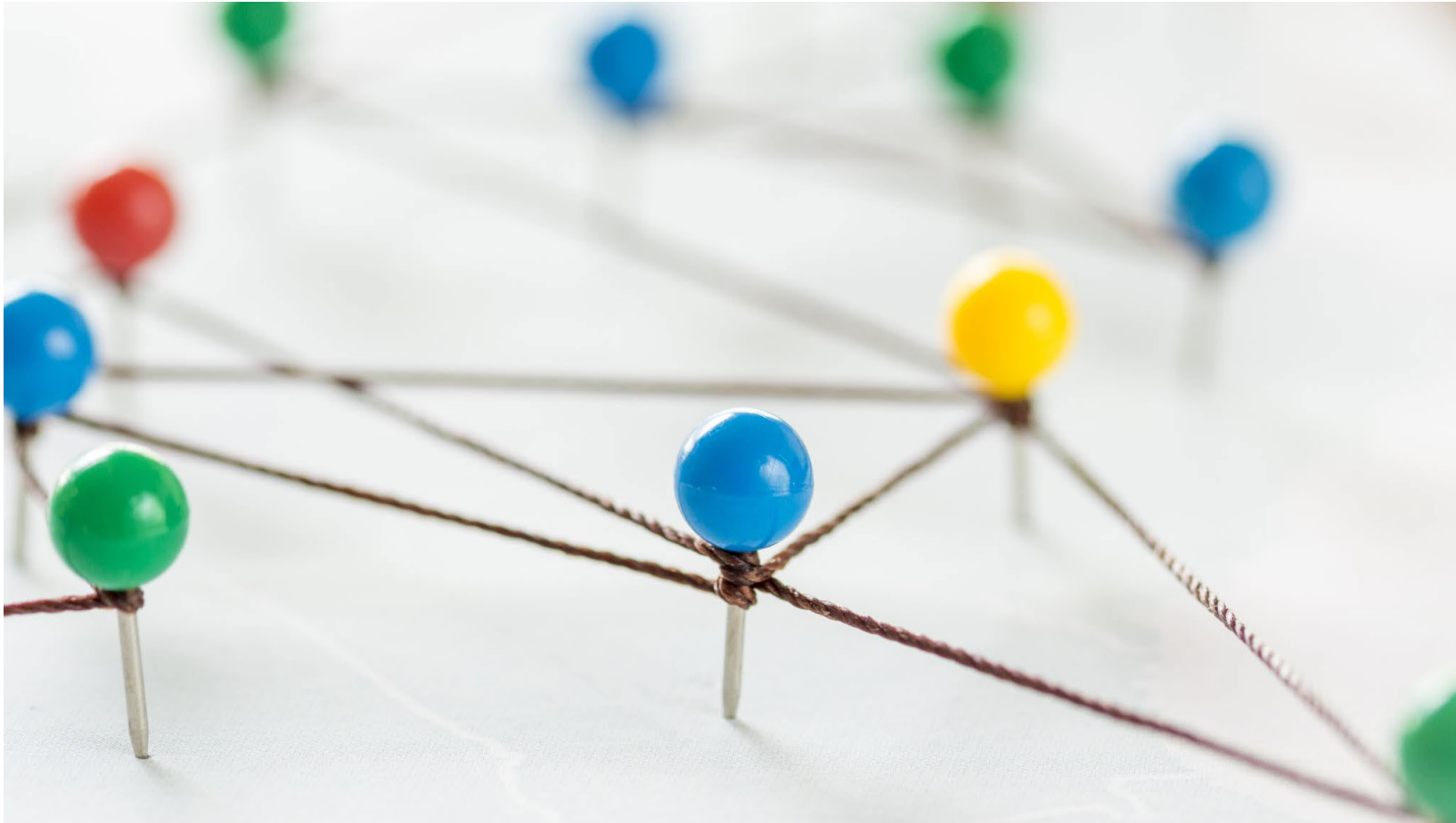
Accessibility and Inclusivity

(Burgstahler & Cory, 2008; Hargittai & Walejko, 2008)

Technological Constraints

(Lew & Schmidt, 2011; Seok et al, 2015)

(Hone & El Said, 2016)

Connection between UDL and Cognitive Load

Supporting Research

Universal Design for Learning (UDL)

- equitable use
- flexibility in use
- simple and intuitive use
- perceptible information
- tolerance for error
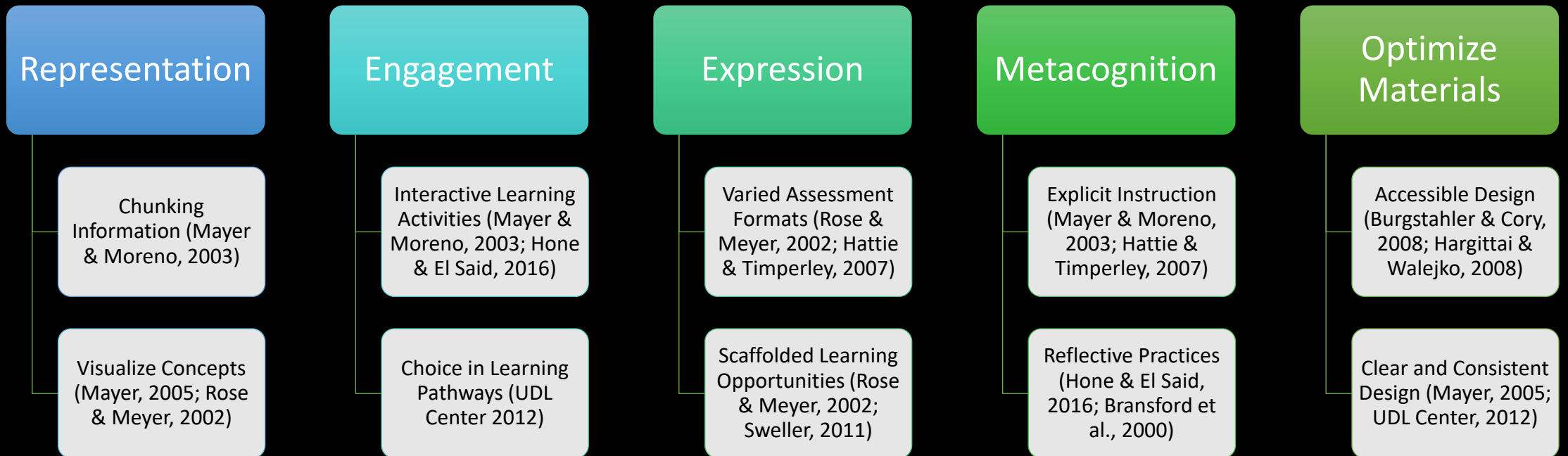
Does accessibility = usability?
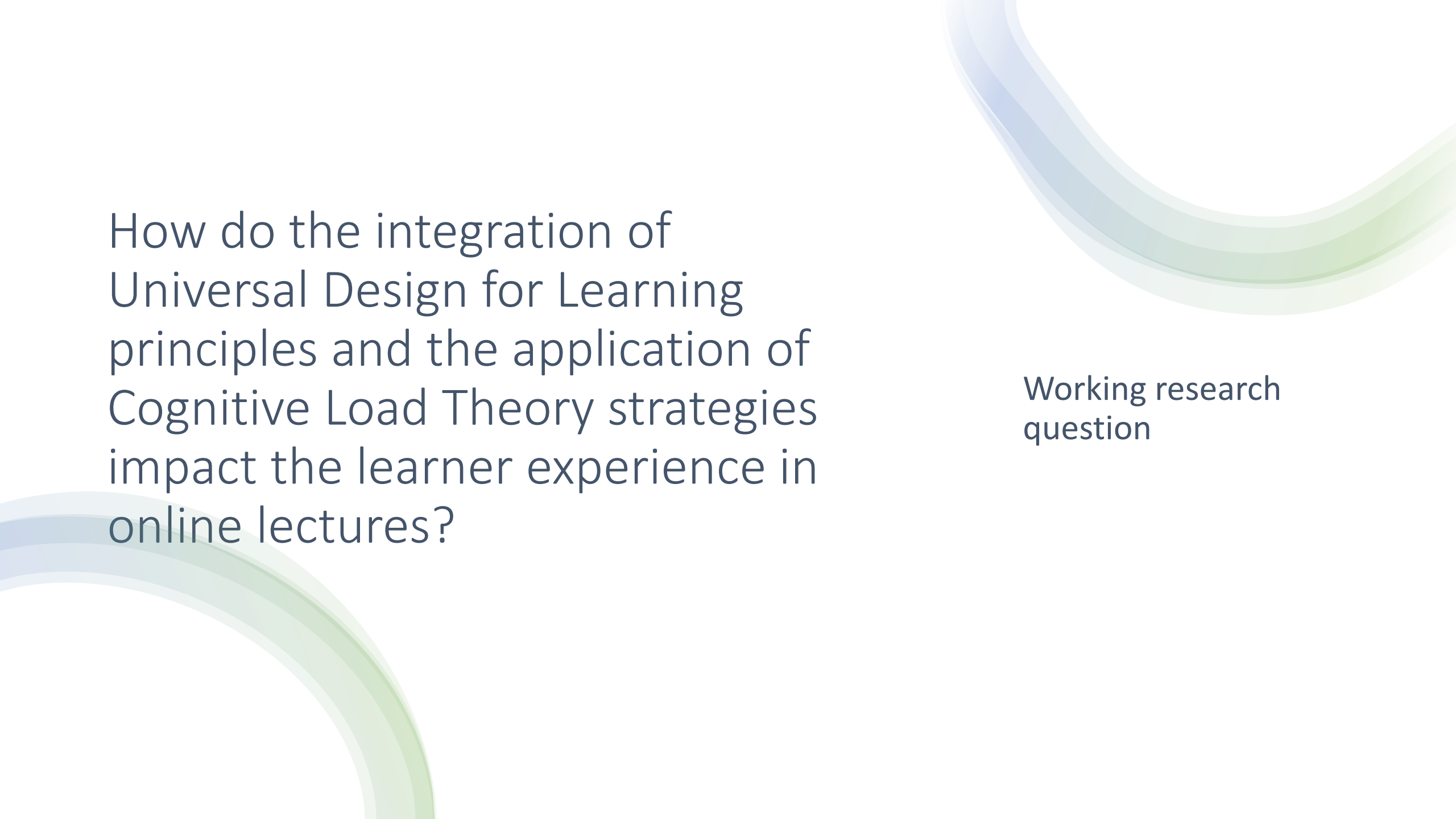
Cognitive Load

- Constraints of human cognitive architecture (Amadieu et al., 2011; Pink & Newton, 2020; Rey, et al., 2019)

- increases intrinsic cognitive load (Leahy & Sweller, 2016)

- Splitting Attention (Costley, at al., 2018)

Connections

Representation	Engagement	Expression	Metacognition	Optimize Materials
Chunking Information (Mayer & Moreno, 2003)	Interactive Learning Activities (Mayer & Moreno, 2003; Hone & El Said, 2016)	Varied Assessment Formats (Rose & Meyer, 2002; Hattie & Timperley, 2007)	Explicit Instruction (Mayer & Moreno, 2003; Hattie & Timperley, 2007)	Accessible Design (Burgstahler & Cory, 2008; Hargittai & Walejko, 2008)
Visualize Concepts (Mayer, 2005; Rose & Meyer, 2002)	Choice in Learning Pathways (UDL Center 2012)	Scaffolded Learning Opportunities (Rose & Meyer, 2002; Sweller, 2011)	Reflective Practices (Hone & El Said, 2016; Bransford et al., 2000)	Clear and Consistent Design (Mayer, 2005; UDL Center, 2012)

How can materials be more user friendly?

NEW Research

How do the integration of Universal Design for Learning principles and the application of Cognitive Load Theory strategies impact the learner experience in online lectures?

Working research question

Step 1: Rubric

1. Organization and Clarity
2. Content Density and Complexity
3. Readability
4. Visual Design Layout

Step 2 – Assess Narrated Presentations

ACCBE Courses that meet college design standard 6 (combines SRS 8.3, 8.4, and 8.5)

Multiple means of representation

Step 3 – Learner Experience

Survey students

Reflections & Questions

Thank you!