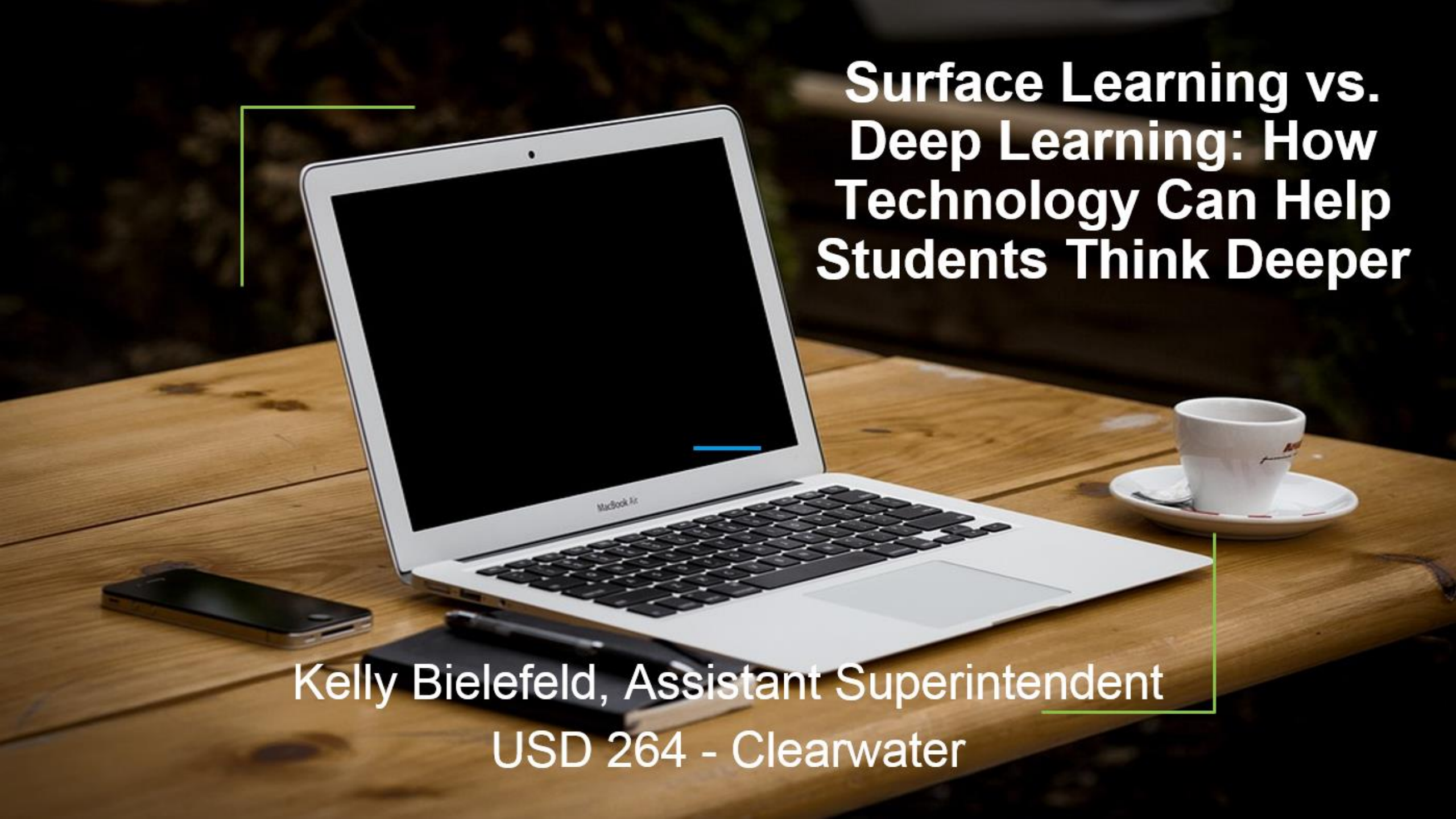

# Surface Learning vs. Deep Learning: How Technology Can Help Students Think Deeper

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# How can technology support student learning?

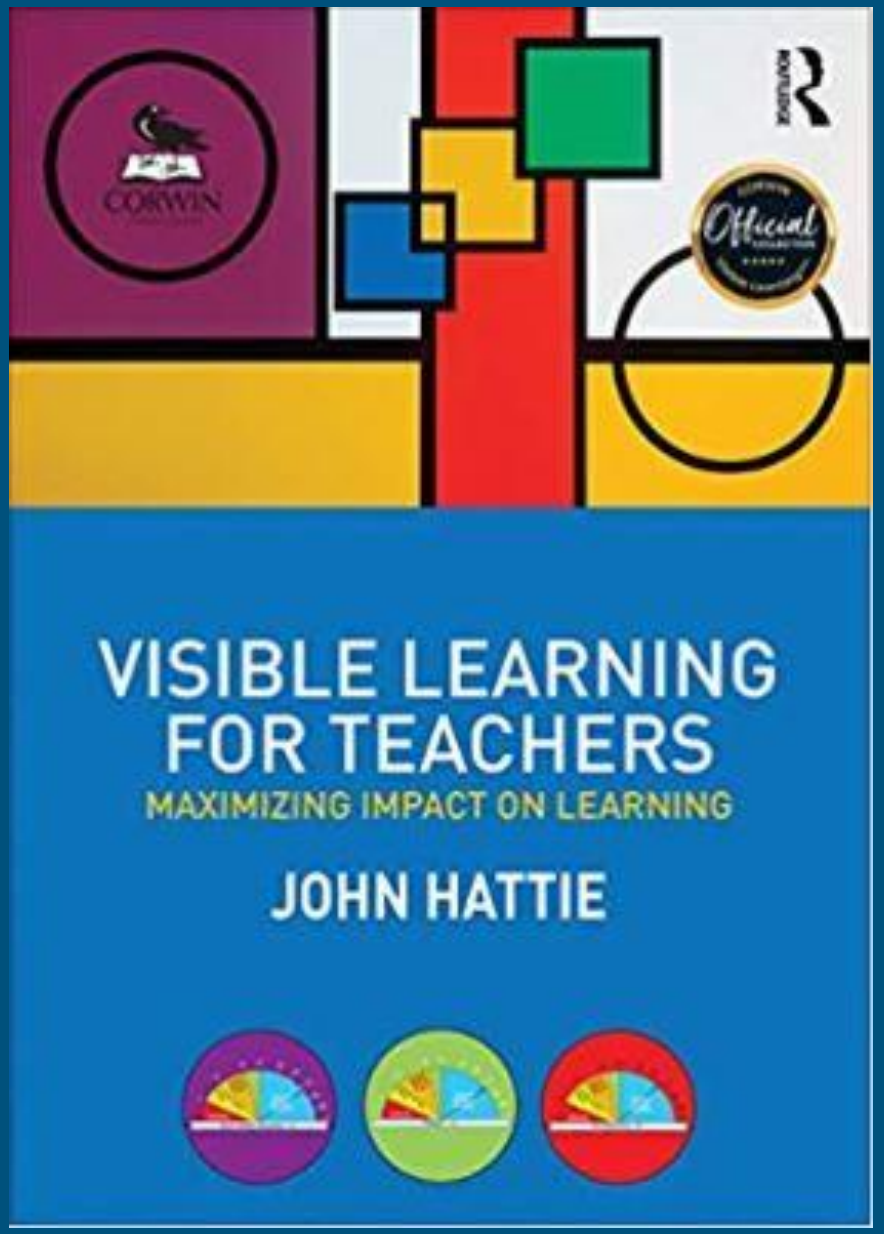
- Is it best for students…does it increase?
  - Engagement
  - Efficiency
  - Deep Learning

# Deep Learning

Why do we value deep levels of learning?

# Surface v. Deep Learning

- Visible Learning Research (Hattie, 2015)
  - The need for surface learning…
  - Then transfer of learning…
  - In order to create deep learning



# Surface Learning

- Surface level learner - or “lower level” learning - is the first two levels on Bloom’s taxonomy
  - Acquiring knowledge or receiving knowledge
  - Demonstrating comprehension or Understanding
- This is critical to learning

# Deep Learning

- High levels of Bloom's Taxonomy
  - Analysis
  - Synthesis
  - Creating/Evaluating
  - These are all examples of students taking their surface level knowledge and putting it into practice in more complex situations.

# Transfer of Learning

- The application phase or as students begin to “own” the knowledge or skill.  They must work with it enough to feel comfortable to move to the deeper levels.
- Students transfer learning from Surface to Deeper Levels.
- This takes practice and time.

# Technology can Support All of These

- Surface
- Transfer
- Deep Learning

# We can also think of it in terms of an Instructional Model

- Anita Archer
  - “I do”
  - “We do”
  - “You do”
- Opportunities to respond and practice must be imbedded
- Formative Assessment Tools can increase engagement

# Surface

- Delivering Instruction
  - Using the Boxlight Interactive Flat Panel Display for instruction to the class
  - Providing Definitions
  - Tutorials on how to use tools
  - Basic understanding of concepts
- Without this framework, students don’t have the ability to transfer knowledge
- ...But we also need to ENGAGE

# Transfer

- The tools, terms, and skill become “practicable” by the students
- Knowledge can be used to solve multiple problems
- The students begin to “own” the skill
- Technology:
  - Support multiple practice opportunities
  - Ability to provide corrective feedback
  - Level and challenge on a particular concept

# Deep Learning

- Students fully own the skill and can solve new, complex problems with the skill that they have.
- Complexity is manageable.
- Real evidence of critical thinking.
- Technology:
  - Projects that use tools as evidence of learning
  - Analysis of differences – comparing and contrasting
  - Researching (surface) into meaningful context about a topic

# Coding Example

- What surface knowledge do students need to code?
- How do we allow them to transfer knowledge?
- What does deep knowledge look like?

- Coding in Action – Mimio MyBot Solution

# Process the Knowledge

- As a participant, you have learned new, “surface level” knowledge about teaching and learning…
- How can you transfer this knowledge into practice tomorrow?
- What does it look like to move to a deep level of learning about this topic?

# Boxlight Webinar Series

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