# Teaching with Sustainability

*A course offered during IAP, January 2022*

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## Overview of Topics

### Week 1- What is sustainability education?

- ❏ Defining sustainability using the Brundtland Report & sustainability education ([link](link))
- ❏ Brief timeline of education to accomplish sustainability initiatives ([link](link))
- ❏ Explanation of a Jigsaw Activity ([link](link))
- ❏ Jigsaw activity of foundational sustainability documents ([link](link))

### Week 2- What is effective teaching?

- ❏ Effective teaching is complex
- ❏ Learning theories provide a framework for how people learn
- ❏ Theoretical perspectives used in sustainability education
- ❏ Sustainability Learning Approaches
- ❏ Positivism vs Postpositivism
- ❏ Positivism and Postpositivism Activity
- ❏ Practicality of Sustainability Education

### Week 3- How do we teach sustainably?

- ❏ Asset vs Deficit Approaches ([link](link))
- ❏ Criticism of US Education ([link](link))
- ❏ Bloom's Taxonomy ([link](link))
- ❏ Sustainability education looks to paradigm shifts ([link](link))
- ❏ Levels of implementing sustainability ([link](link))
- ❏ Level 1, Level 2, Level ([link](link))
- ❏ Transitioning through Sustainability Levels ([link](link))

### Week 4- What does this look like for me?

- ❏ Explanation of Categories of Sustainability Literacy Competencies ([link](link))
- ❏ Explanation of Sustainable Instructional Approaches ([link](link))
- ❏ Overview of Understand by Design (UbD) ([link](link))
- ❏ Modified UbD template ([link](link))
- ❏ Sticking Points ([link](link))

# What is effective teaching?

# Week 2

# Learning Objectives for Today

- Participants will be exposed to different education learning theories
- Participants will begin to identify what types of learning activities support sustainability education

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## Opening Activity

Take a moment and reflect on a happy classroom memory for you.

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Share this moment on the class different methods, include a Jamboard, padlet, a Google Doc or even generating comments on board.

What do you think is the value in having an opening activity?

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## Effective Teaching

Many practitioners view education as a pendulum; stick around long enough and you'll be back to what you were doing when you started.

- One of these continuums is content knowledge vs skill knowledge
  - Current trend in education is to stress the building of skills over content knowledge
  - Yes, students do need content. Do they need it all?

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# Effective Teaching

Similar to *sustainability,*
**effective teaching** is complex &nuanced.

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# Effective Teaching

- Instructors, at any grade/age level need to consider:
  - Standards
  - Curriculum
  - Behavior
  - Learning Goals for Students
  - Institutional Expectations
  - Stakeholders

- In addition instructors also need to consider:
  - Students' prior knowledge
  - How students think
  - How students process new information
  - How students are motivated

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## Effective Teaching - Learning Theories

- Learning theories address the complex nature of how people learn.

- The following are often cited in education literature:
  - Constructivist Learning Theory (Piaget)
  - Social Learning Theory (Vygotsky)
  - Transformative Learning Theory (Mezirow)
  - Behavioral Learning Theory (Skinner and Pavlov)

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# Learning Theories

## Constructivist Learning Theory

Learners construct their learning based on their own personal understandings experiences

Role of instructor is to guide and assist students in equilibrating new information with old ideas

## Social Learning Theory

Learners engage with new understandings of concepts through interactions with society

Role of instructor is to provide students with opportunities to socially interact with new information

## Transformative Learning Theory

Learners critically reflect and change viewpoints based on a disorienting dilemma

Role of of instructor is to serve as a facilitator in providing experiences where students can be conscious of their assumptions, beliefs and perspectives through exposure to new view points
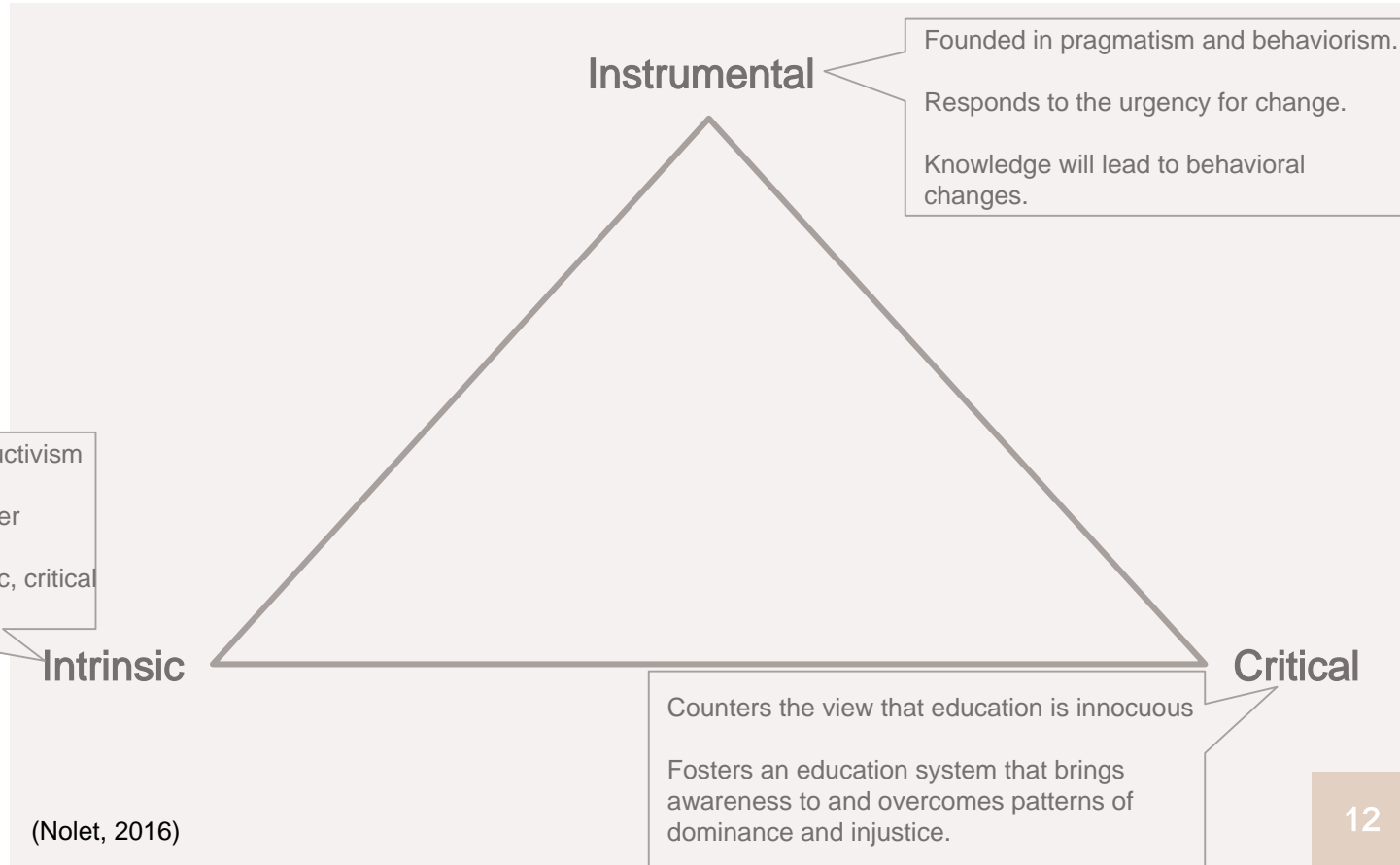
## Scaffolding

Many of these learning theories require the instructor to scaffold students from concrete concepts to abstract understandings

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# Learning Theories

- Behavioral Learning Theory is often viewed as a mor[e] passive way for students to acquire knowledge

- In behavioral learning theory students' behaviors can be shaped based on the stimulus they receive

- There is a place for behavioral learning theory in the classroom and is often used in the setting of routines and expectations for students

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# Sustainability Education

Instrumental

Founded in pragmatism and behaviorism.

Responds to the urgency for change.

Knowledge will lead to behavioral changes.

Founded in idealism and social constructivism

Looks toward the process for the learner

Learner is encouraged to be a systemic, critical thinker

Intrinsic

Critical

Counters the view that education is innocuous

Fosters an education system that brings awareness to and overcomes patterns of dominance and injustice.

(Nolet, 2016)

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## Reflection

In the chat, please take a moment or two and share, generally speaking, how you were taught when you were a student.

Not the awesome field trip or the cool chemistry lab you were in but how 80% or more of your time in class was spent.

# Sustainability Education

Sustainability education looks at ways to **transform systems of thinking and learning** .

Juxtaposed with that idea is that most people teach the way that they were taught.

# Brainstorm

Let's generate a list of different types of classroom activities that students could participate in throughout a course.

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1. Take a few minutes and brainstorm some ideas, stretch, move around
2. Share your ideas with a small group through Jamboard
3. Preview each other's ideas

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# Sustainability Education

Sustainability education looks at ways to **transform systems of thinking and learning** .

Juxtaposed with that idea is that most people teach the way that they were taught.

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Education of a different kind

# Sustainability Education

Teaching for Sustainability encourages the following types of learning:

- Active
- Participatory
- Experiential
- Engaging head, heart, and hands
- Interdisciplinary approaches
- Holistic and critical thinking
- Place-based Learning

# Sustainability Education

Thinking of education like this, in many cases, is a shift from what we know, what we've experience, and what is expected from our students, and our colleagues.

Let's dive a little deeper into the differences between Positivism & Postpositivsm

Christie, B. A., Miller, K. K., Cooke, R., & White, J. G. (2013). Environmental sustainability in higher education: how do academics teach? *Environmental Education Research, 19*(3), 385–414. https://doi.org/10.1080/13504622.2012.698598

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# Sustainability Education -

## Assumptions

**Positivist Approaches to Education:**

*Objective, value free, truth, which can be measured, defined and taught to students (Littledyke and Manolas 2010)*

**Postpositivist Approaches to Education:**

*Subjective, value laden, tentative knowledge which is recognised as subject to change due to context, constructivist knowledge (Littledyke and Manolas 2010)*

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# Sustainability Education -

# Ideological Influences

**Positivist Approaches to Education:**

- *Instrumental ideology encourages learning for economic gain*

**Postpositivist Approaches to Education:**

- *Reconstructive ideology emphasizes social change with a focus on the future*

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# Sustainability Education -

## Associated Pedagogies

**Positivist Approaches to Education:**

- *Knowledge-centered*
- *Discipline specific*
- *Prescribed by curriculum and assessment requirements*

**Postpositivist Approaches to Education:**

- *Student-centered*
- *Multidisciplinary*
- *Connected to real world application, focused on shared learning experiences and active learning*

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# Sustainability Education -

## Roles of teacher and student

**Positivist Approaches to Education:**

- *Teachers are directors and vessels of knowledge who transmit knowledge to students*

**Postpositivist Approaches to Education:**

- *Teachers are facilitators who support students' investigations*

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# Sustainability Education -

## Types of Activities

Positivist Approaches to Education:

Postpositivist Approaches to Education:

Let's revisit the list of activities that we compiled earlier

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# What Type of Activities?

1. Find your group's Google Slides ([Link](#))
   a. Move things around by clicking and dragging
   b. You can reference this list of activities ([Link](#))
2. Determine which activities are more positivistic in nature, which are more postpositivistic in nature and which activities you're not sure about
3. If time permits…Answer the questions for the group

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# Practicality

- Teaching is all about choices.

- As much as we want to do everything perfectly all the time, we can't

- Weigh different factors and make the best decision possible with the various pieces of information

- If change isn't possible this time, take a small step and promise yourself you'll address it next time.

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# Sticking Points

- You're changing the norm for:
  - Students
    - *Students are familiar with the status quo and they become more familiar the older they get. If you shake it up on them there is some inherent push back because they know the system and you're changing the system.*
  - Colleagues
    - *Colleagues may bristle at you teaching differently than you have in the past.*
  - You
    - *Not everything you try will be a success the first time. That doesn't mean you should give up!*

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# Pause for Pedagogy

## Discussion 1: Let's dissect the brainstorming activity

1. What was unique about this brainstorming activity?
2. What are ways that you can respond to students to be more inclusive during a brainstorming session?

## Discussion 2: A lot of class was a lecture…

1. Why do you think I made the decision to provide information to you in a lecture format?
2. How did I engage you throughout the lecture?
3. What are some ways you could have learned this material that wasn't a lecture?

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## Going Further

Articles that address topics from class today:

- Christie, B. A., Miller, K. K., Cooke, R., & White, J. G. (2013). Environmental sustainability in higher education: how do academics teach? *Environmental Education Research, 19*(3), 385–414. https://doi.org/10.1080/13504622.2012.698598

- Armstrong, C. M. (2011). Implementing education for sustainable development: The potential use of time-honored pedagogical practice for the progressive era of education. *Journal of Sustainability Education, 2*

- Evans, N., Ferreira, J. (2020). What does the research evidence base tell us about the use and impact of sustainability pedagogies in initial teacher education? *Environmental Education Research, 26*(1), 27-42. https://doi.org/10.1080/13504622.2019.1703908

# Preview of Next Week

- Next week we'll dive more deeply into Education *about* sustainability, *for* sustainability and education *as* sustainability
- We'll also work to identify our goals for students and how to tie our goals to our instruction

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# Review of Learning Objectives

- Participants will be exposed to different education learning theories
- Participants will begin to identify what types of learning activities support sustainability education

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1. What did you learn today?
2. How will people you interact with know and benefit?

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