

“Through Renovated Eyes”:  
Tales from a three-year  
journey of interdisciplinary  
exploration

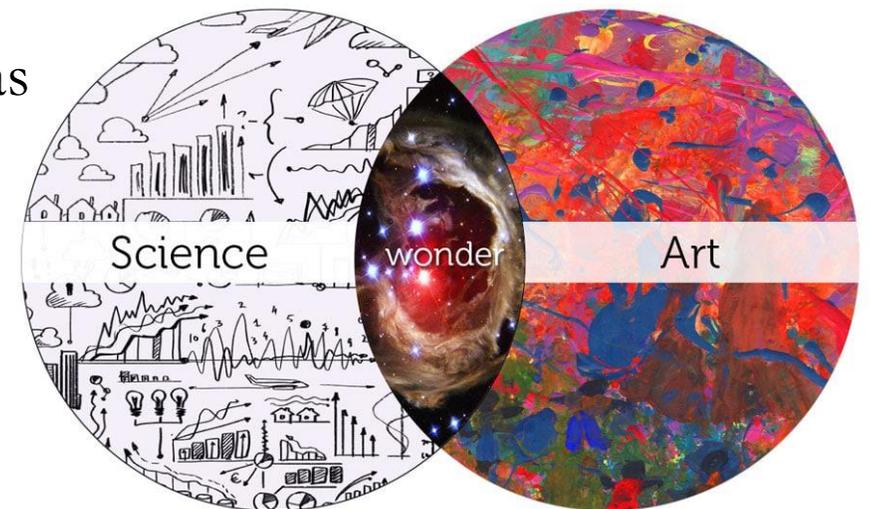
Aimee Knupsky, Allegheny College

M. Soledad Caballero, Allegheny College

Sarah L. Bunnell, Amherst College

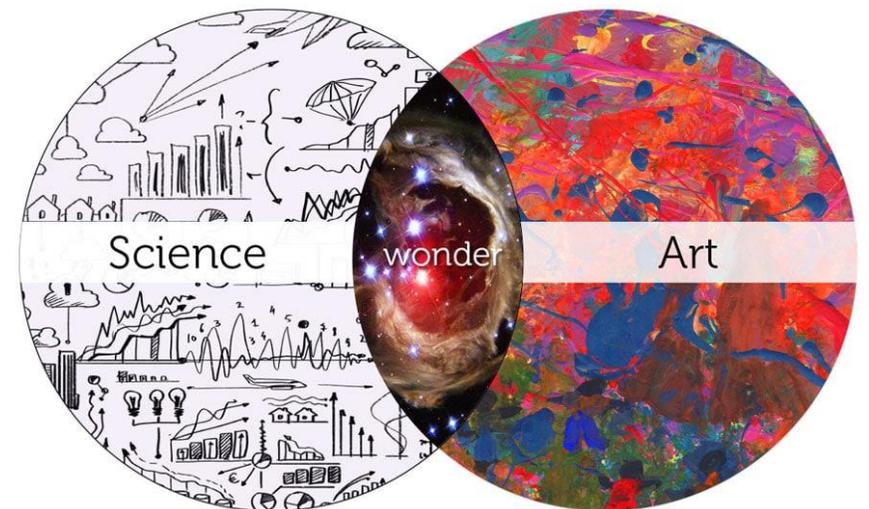
# Vision: Collaborative Interdisciplinarity

- “The world has problems, universities have disciplines.” (Tuana, 2013)
- “The notion of wonder seems to be something that once united them, and can still do so.” (Holmes, 2010)
- Approaching disciplines ethically—equal footing
- The importance of bi-directionality—exchange ideas
- Integration and collaboration—working together



# Opportunity: Great Lakes Colleges Association Expanding Collaborations Initiative

- Three year, Mellon Foundation grant funded project, 2015-2018
- Four institutions: Allegheny College, Denison University, Kenyon College, Ohio Wesleyan University
- Ten interdisciplinary, team-taught courses



# Preparation and Implementation

- Generating Interest: Campus visits with presentations by experienced teaching teams
- Scaffolding: Readings, Summer Planning Workshop, Mentor teams on each campus
- Assessment Requirements:
  - Surveys of student & faculty experiences (pre, mid-semester, post, 6 month follow-up)
    - Perceptions of interdisciplinarity, benefits and challenges of team-teaching
  - Synthesis assignments (AAC&U Creativity and Critical Thinking VALUE rubrics)

# Courses Offered

- **The Immigrant as Subject: Literary and Anthropological Perspectives**
  - Drs. Rehenuma Asmi and Aline Lo, Allegheny College
- **Exploring Emotion: Interdisciplinary Explorations of Passion and Affect**
  - Drs. M. Soledad Caballero and Aimee Knupsky, Allegheny College
- **Sex and Health**
  - Drs. Becky Dawson and Barbara Shaw, Allegheny College
- **Yoga: Mind and Body in a Global Setting**
  - Drs. John Cort and Barbara Fultner, Denison University
- **Shakespeare by the Sword 3.0: Rapiers and Rapier Wit!**
  - Drs. Peter Grandbois and Cheryl McFarren, Denison University

# Courses Offered cont.

- **Math in the Studio**
  - Drs. Judy Holdener and Karen Snouffer, Kenyon College
- **Seeing the World: Voyages of Scientific Exploration**
  - Drs. Harry Itagaki and Stephen Volz, Kenyon College
- **Neuroscience of Film, Space, and Play**
  - Drs. Hewlet McFarlane and Joel Richeimer, Kenyon College
- **Seeing Nature Through Diverse Lenses**
  - Drs. Laurie Anderson and Karen Poremski, Ohio Wesleyan University
- **Motivation: The Development of Motivation in Children and Ourselves**
  - Drs. Sarah Bunnell and Paula White, Ohio Wesleyan University

# Shakespeare by the Sword

## Peter Grandbois and Cheryl McFarren, Denison



“We believe that only by approaching Shakespeare through the body can you speak, perform, and understand his plays. We will train as athletes and actors, learning to fence and applying that fencing to stage combat, learning the importance of body and breath in understanding Shakespeare’s words, and finally, in performing his plays. “

# Seeing Nature Through Diverse Lenses

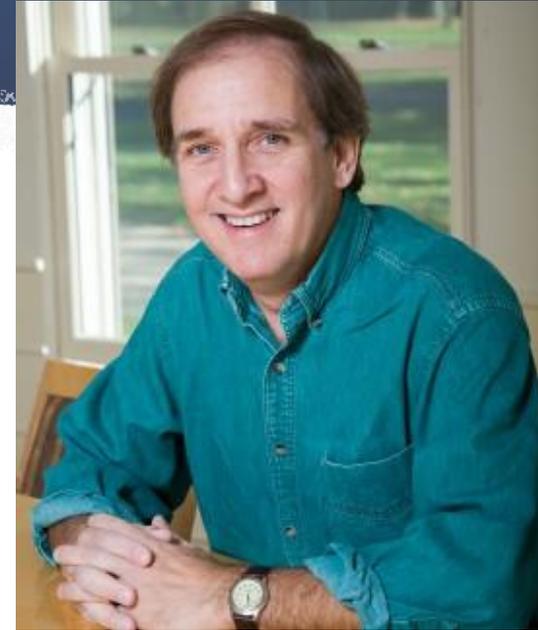
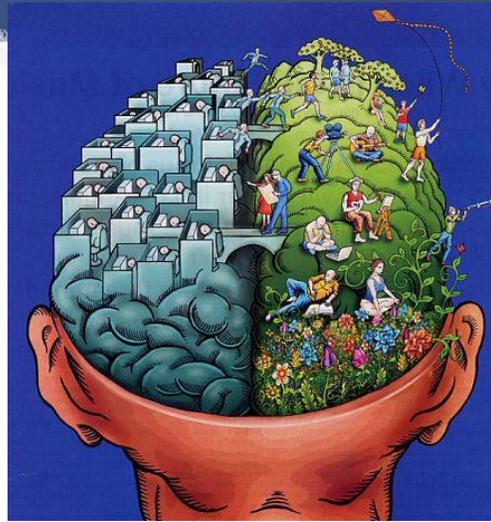
## Karen Poremski and Laurie Anderson, Ohio Wesleyan



“We believe that prioritizing one way of knowing over another leads to a human culture more capable of environmental destruction, and that different ways of knowing are vital to environmental preservation. We believe that partnerships must be forged across the sciences and humanities in order to bring relief to degraded landscapes, endangered species, and threatened cultures in a sustainable and ethical way. “

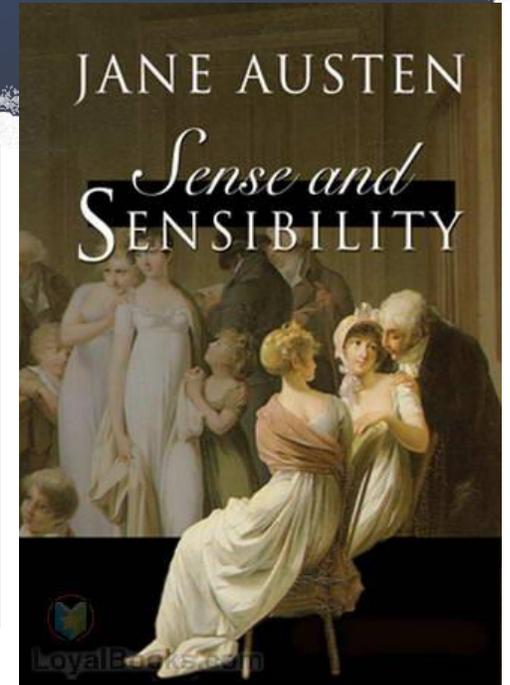
# Neuroscience of Film, Space, and Play

## Hewlet McFarlane and Joel Richeimer, Kenyon

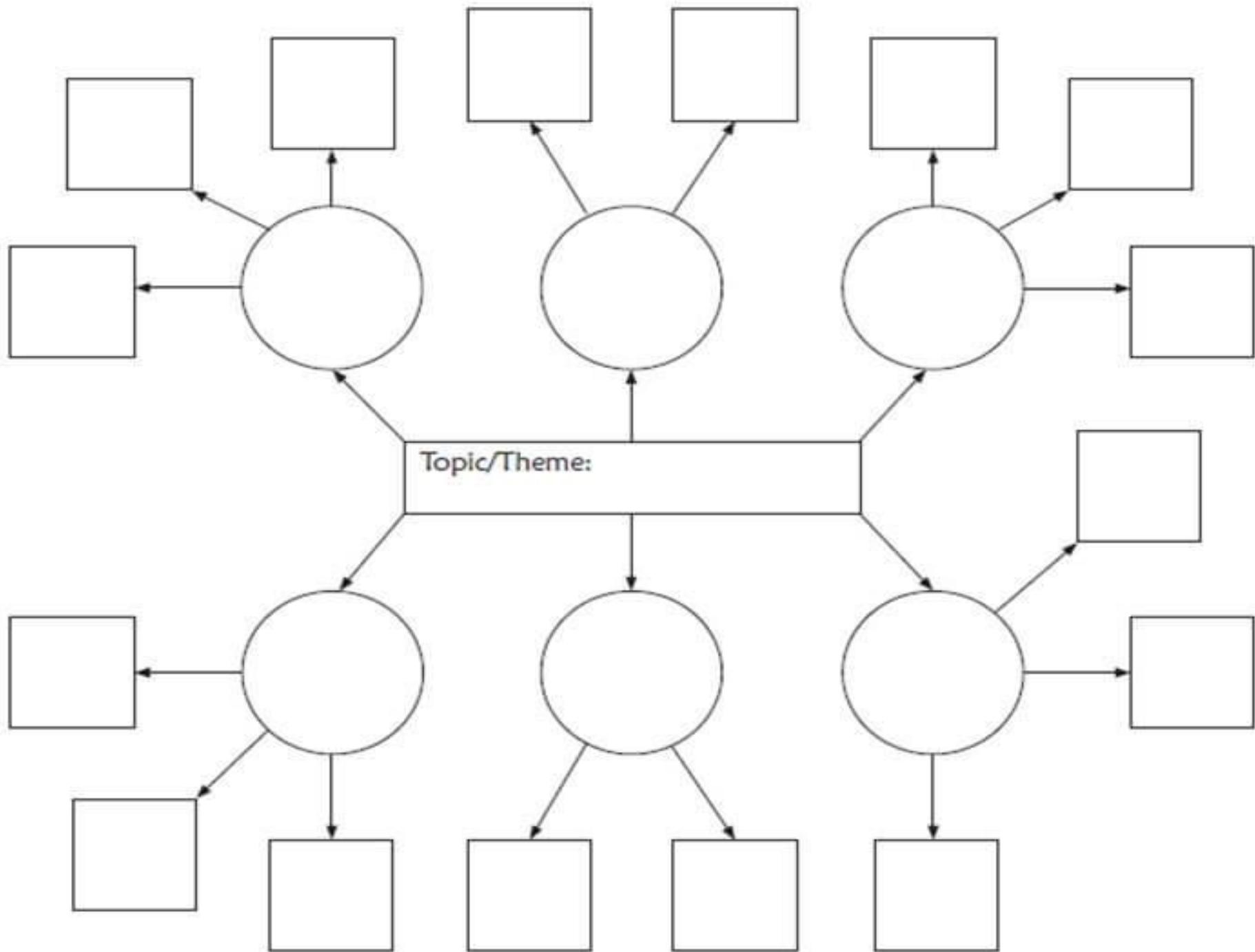


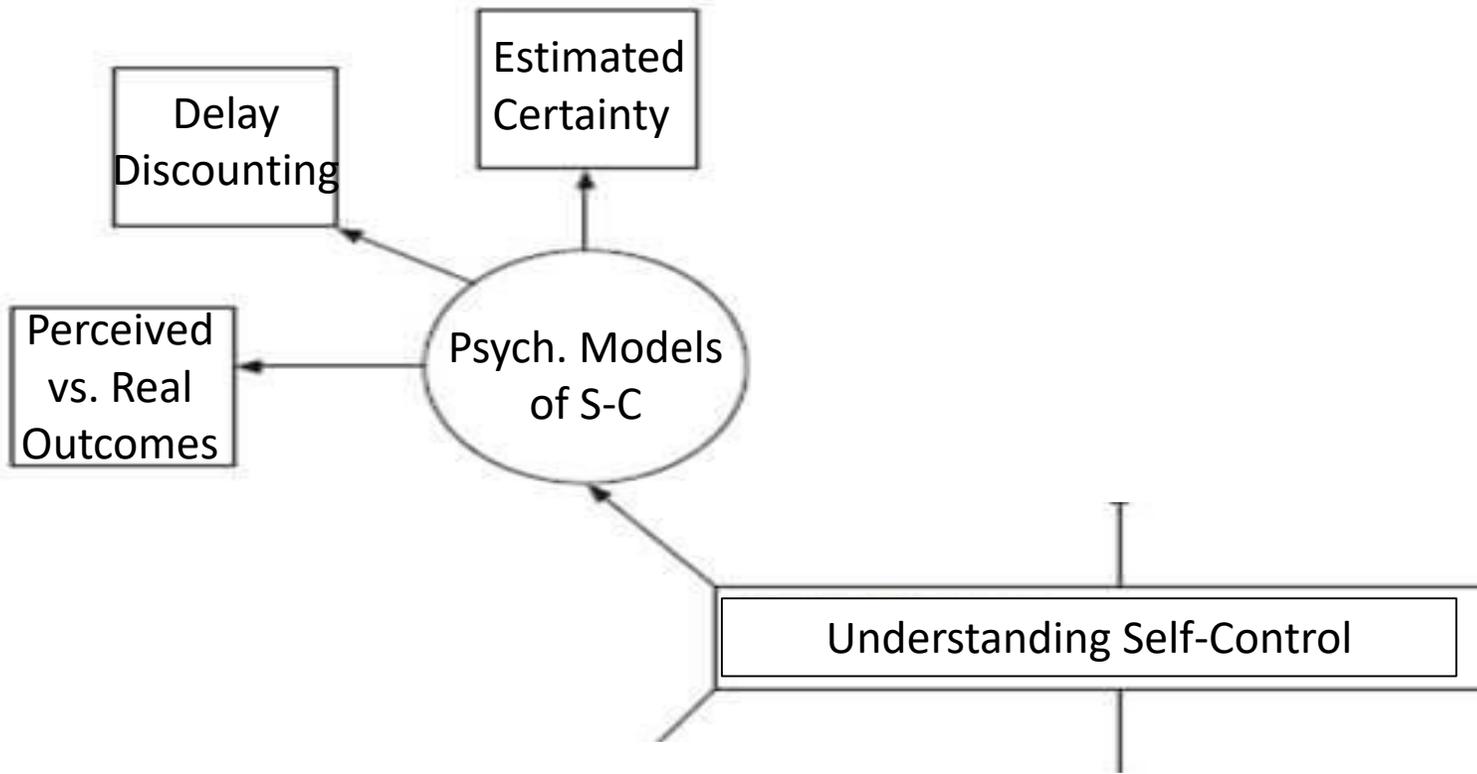
“This course is going to look at neuroscience from the point of view of the humanities and the humanities from the point of view of neuroscience... We are going to argue, engage in a public discussion, expose where there is ignorance in our respective disciplines, and learn from each other. Science is a public discourse guided by evidence, experimentation, reason and imagination. It is a community activity that relies on feedback and interaction. We are going to attempt to replicate that in the classroom. ... We plan to treat the humanities and sciences as partners working together on the same problems.”

# Cognitive Humanities: Interdisciplinary Explorations of Passion and Affect



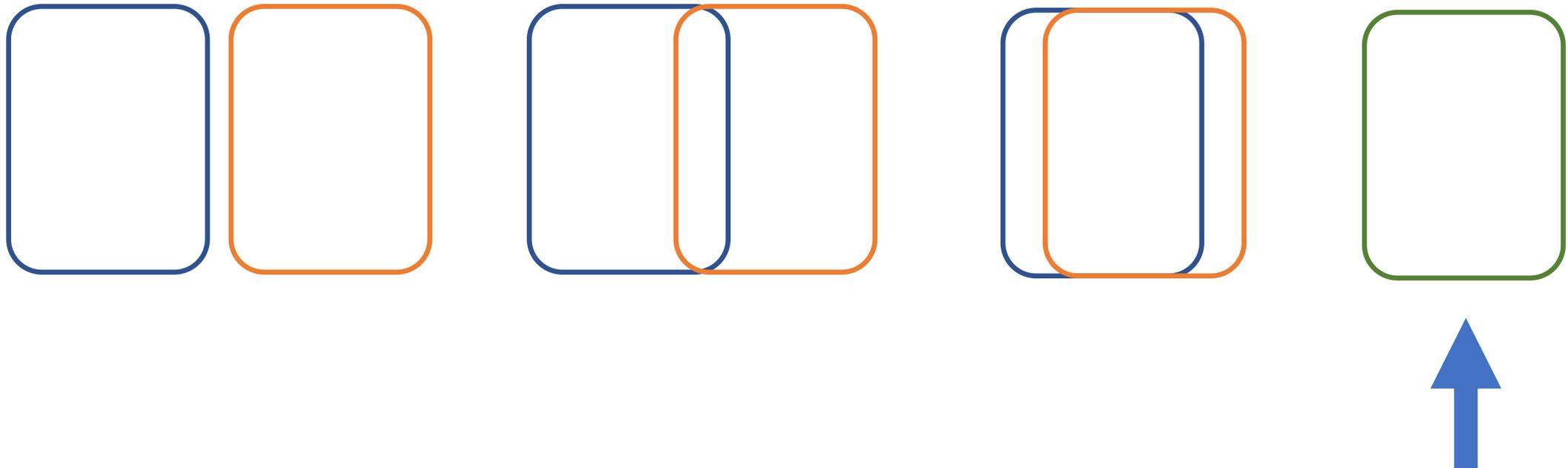
“We will ask you to think across disciplines and to consider how to productively integrate them. By interdisciplinarity, we do not mean knowing something about another discipline. We mean weaving these ways of knowing together to create something new. This will be hard and uncomfortable at times. It will force us to question our own disciplinary lenses and to appreciate the practices of different fields.”





# Team Teaching:

All courses used fully interactive team teaching model



# Recommendations for Successful Partnerships

## Identify an invested and collaborative partner

- Shared commitment to exploring topic and/or pedagogical approaches

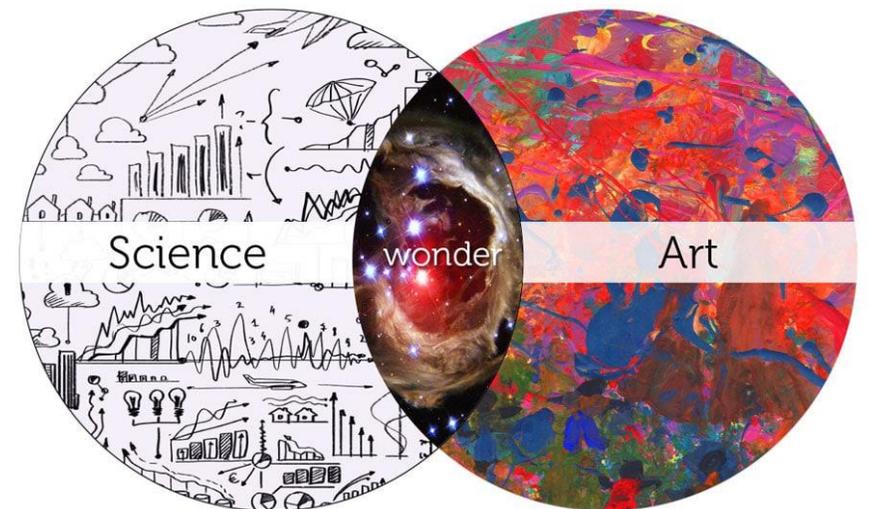
## Proactively create structures to support partnership and navigate power dynamics

- Act as shared decision makers (e.g., grading, student emails, shared office hours)
- Agree on how you will be addressed by students
- Discuss how you plan to contribute/disagree/interrupt in class
- Identify ways to ensure that both perspectives receive equal weight in discussion

# Defining Interdisciplinarity: Students

- **Multiple Perspectives**
- Synthesizing
- Impact on Learning
- Application to Real World
- Big Picture
- Creativity
- Complexity

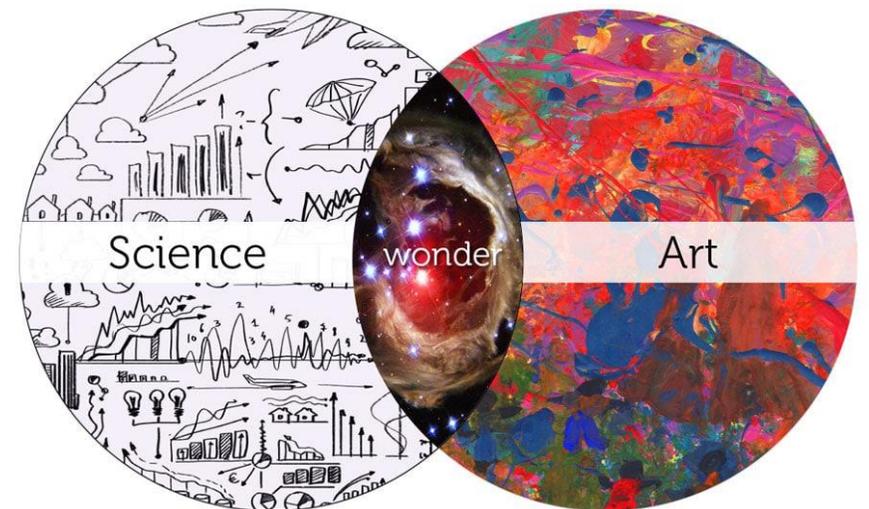
*“Thinking in an interdisciplinary way means to look at questions through multiple lenses at the same time, where one lens might be physics and another might be music, and the question might be the stars.”*



# Defining Interdisciplinarity: Students

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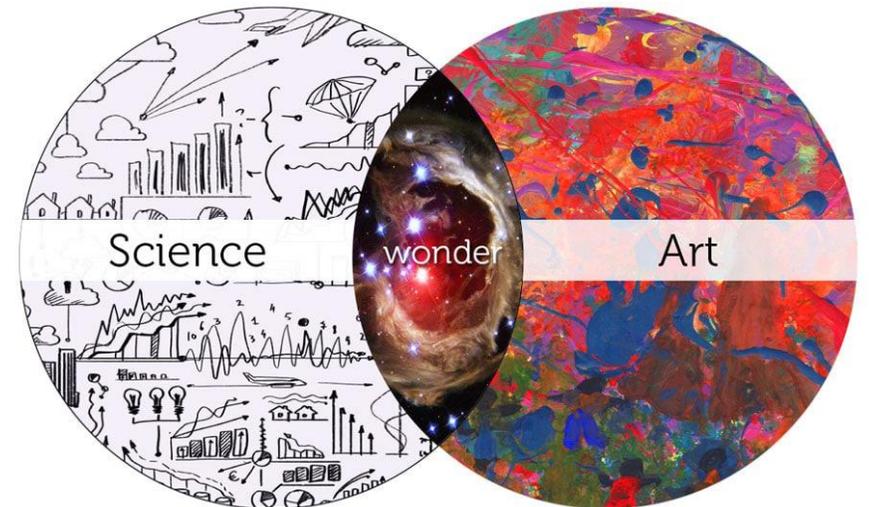
*“The world is complex...people are complex...these topics are complex. If we only address it from one perspective, there will not be collaboration or having to step outside of your comfort zone.”*



# Defining Interdisciplinarity: Students

- Multiple Perspectives
- **Synthesizing**
- Complexity
- Impact on Learning
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- Creativity

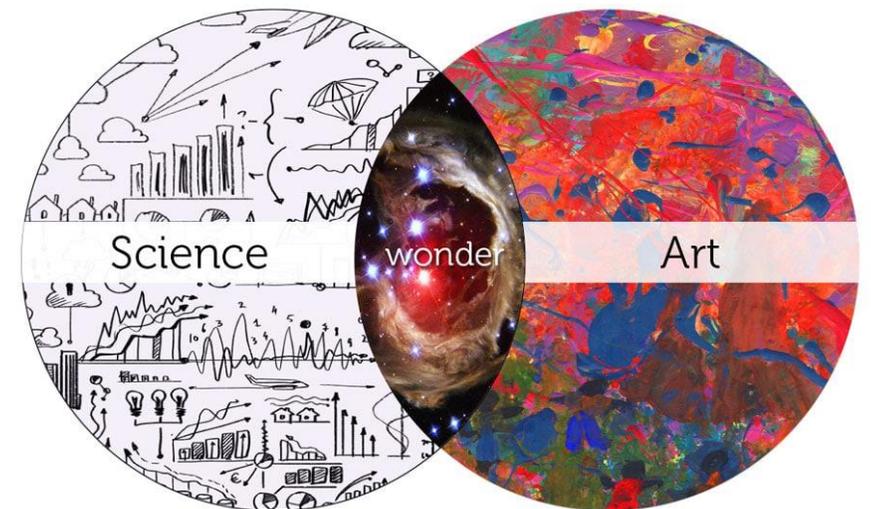
*“An interdisciplinary approach requires synthesis of ideas for application of the class material. To draw connections between the two disciplines is so important because the world is not broken up into convenient little boxes we call disciplines.”*



# Defining Interdisciplinarity: Students

- Multiple Perspectives
- Synthesizing
- Complexity
- **Impact on Learning**
- Application to Real World
- Big Picture
- Creativity

*“A liberal arts education that is not interdisciplinary is not a liberal arts education.”*



# Defining Interdisciplinarity: Faculty – Students Shared Themes

- The **true goal of the liberal arts**

*“I always believed that a well-rounded education, and thinking across disciplines, was important to learning, but I was able to see it happen in front of me... I became convinced, along with the students, that we need a variety of disciplinary lenses to tackle the problems we face in the world.”*

- A critical **process of synthesis**; A demonstration of **how two fields can work together**

*“I think it means that you have to bring different "brains" to a given topic to look at it from as many angles as you can, though some approaches are more productive than the others.”*

# Defining Interdisciplinarity: Faculty – Students Shared Themes cont.

- **Holistic** – it elucidates multiple layers of interactions and a more **complex** answer

*“Interdisciplinarity is deeply interested in interconnections of thought/ approach in order to produce new ways of asking questions and new ways of seeing. I think this work is critical in order for us to approach intractable issues and maybe inch toward social change...”*

# Defining Interdisciplinarity: Faculty-Specific Themes

- **An undervalued process**

*“I think we both encounter others' in our fields, our own home fields, who do not understand or really get what we are trying to do. And what we are trying to do is really break down the sense that any one field or discipline can really be the sole enforcer or maker of knowledge.”*

- A **loss of expert status**; an **emotional** process

*“I also find interdisciplinary thinking to be more vulnerable making, not in a negative way, but in sense that I am as much a student as I am a field expert. Sometimes, that can be hard because I already feel like even within my own discipline I have so much to read and think about and adding another set of issues is even more daunting!”*

# Student Perceptions of Team Teaching

Built academic **community**

Made **connections** more transparent (highlights curricular coherence)

Sense of improvement of **analytical skills**

Improved **student-faculty relationships**

- But challenging if faculty partners were not well-aligned/in conflict

# Faculty Perceptions of the Experience of Team Teaching

## **An Emotional Experience**

- Positive (excitement, reinvigoration)
- Negative (vulnerability, teaching insecurities, attack of ideas vs attack of self as disciplinary representative in the room)

## **A Pedagogical Development Opportunity**

- Ongoing collaboration, mentorship, shared responsibility

## **An Enhancement of Perspective Taking**

- On self, on discipline, and on students as learners

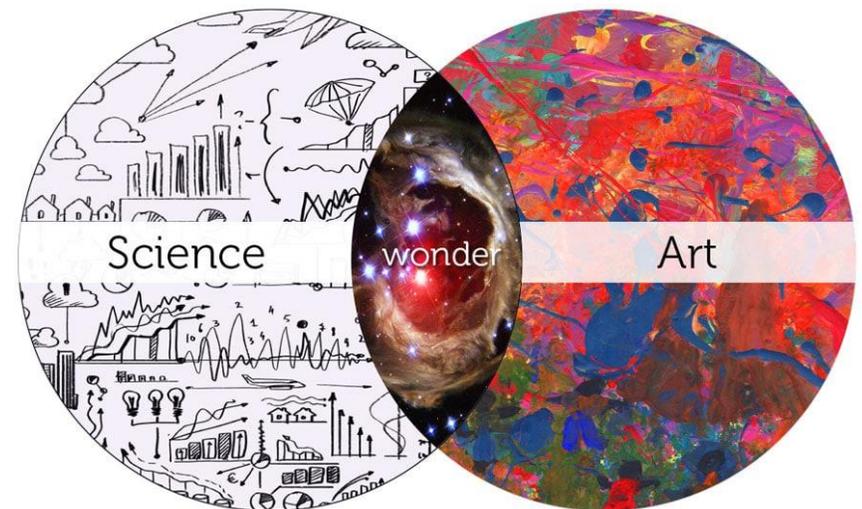
# AAC&U Creative & Critical Thinking VALUE Rubrics

## Creative Thinking

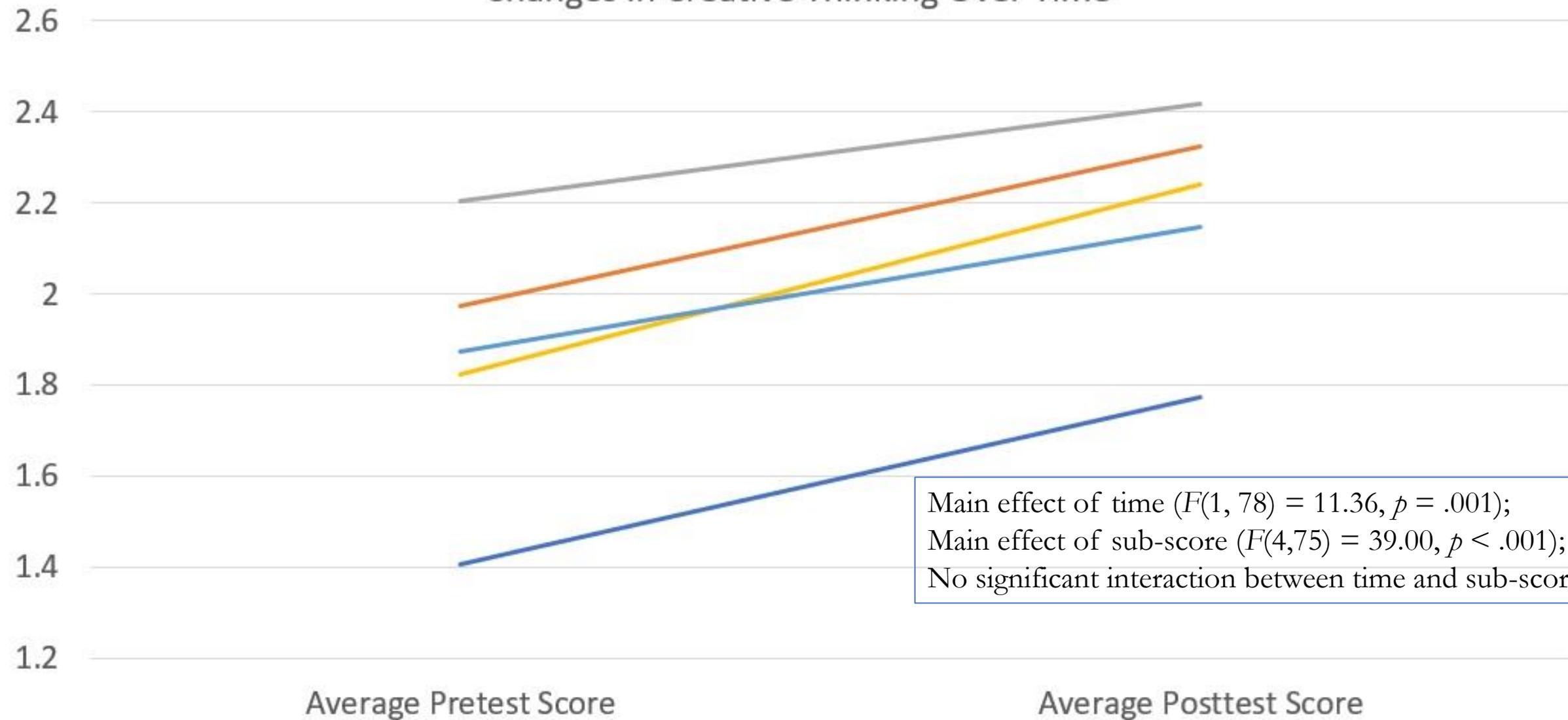
- Acquiring Competencies\*
- Taking Risks
- Solving Problems
- Embracing Contradictions
- Innovative Thinking
- Connecting, Synthesizing, Transforming

## Critical Thinking

- Explanation of Issues
- Evidence
- Influence of Context & Assumptions
- Student's position
- Conclusion & Related Outcomes



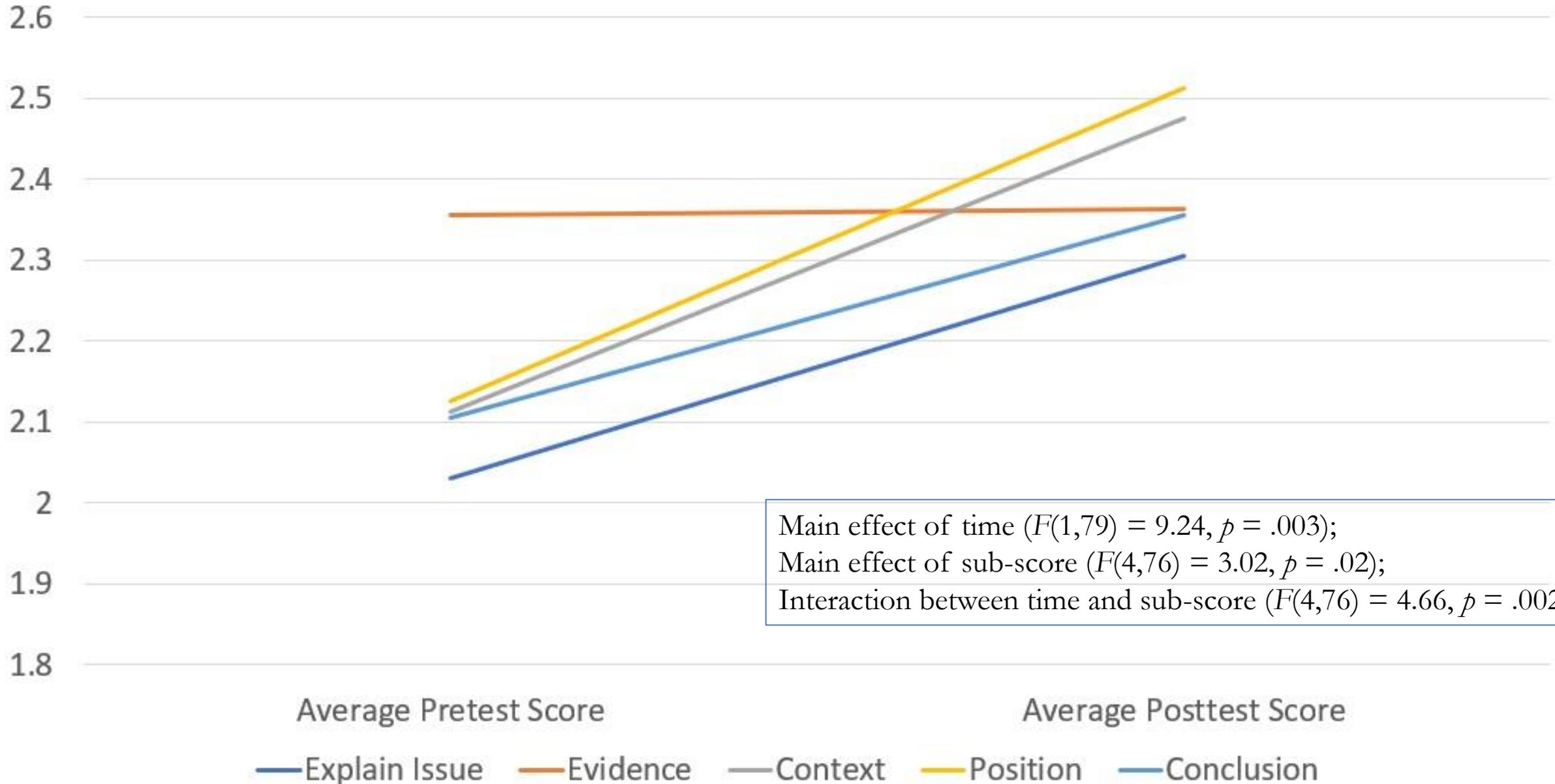
## Changes in Creative Thinking Over Time



Main effect of time ( $F(1, 78) = 11.36, p = .001$ );  
Main effect of sub-score ( $F(4, 75) = 39.00, p < .001$ );  
No significant interaction between time and sub-score.

— Taking Risks    — Problem Solving    — Contradictions    — Innovation    — Synthesis

## Changes in Critical Thinking Over Time



# Critical Thinking Analysis: Evidence Category

**Evidence:** Selecting and using Information to investigate a point of view or conclusion

**Benchmark (1):** Information is taken from sources without any interpretation/evaluation. Viewpoints of experts are taken as fact, without question.

...

**Capstone (4)** Information is taken from sources with enough interpretation/evaluation to develop a comprehensive analysis or synthesis. Viewpoints of experts are questioned thoroughly.

# Student Perceptions of their Learning

- **Increase in perceived topic knowledge** from start to end of course, maintained at six month follow-up
  - $F(2,18) = 6.37, p = .008$
- Increase in perceived **need to reflect on what you, or the field, do not know** from start to end of course, maintained at six month follow-up
  - $F(1.30, 11.74) = 14.97, p = .001$

# Why it Matters: Implications of Collaborative Interdisciplinarity for Ongoing Higher Education Conversations

- Developing students **transferrable skills**
  - Reading and Writing across the curriculum (Horning 2007, 2013)
  - Group Work and Collaboration (AAC&U Employer Reports)
- Connecting to **best practice and aspirations in higher ed**
  - “Innovation”—Creativity & Complexity ([Wired](#); Charon 2018)
  - Fostering “student-ready” environments (McNair et al. 2016)
  - Return to “liberal” education ([Branches from the Same Tree](#), National Academies of Sciences, Engineering, & Medicine, 2018)
- Supporting the **affective components of learning**
  - Confronting Emotion in Learning (Boler 1999; Felten 2017; Thompson 2017)
  - Students as Partners (Cook-Sather et al. 2014)

# Renovating Liberal Learning: Leveraging Institutional Opportunities

## Across the Curriculum:

- Interdisciplinary team teaching and other collaborative experiences—early!
- Take advantage of capstone experiences and thesis work
- Assess the “interdisciplinary” in interdisciplinary programs
- Include more humanities in experiential/community-engaged learning activities
- See AAC&U Integrative Learning resources for more ideas  
(<https://www.aacu.org/resources/integrative-learning>)

## In the Co-Curricular and Research Spaces:

- Incorporate into advising (e.g., for science/humanities majors)
- Create and reserve space for research collaboration among faculty and students

# Questions?

We extend our sincere gratitude to...

Our collaborators in teaching and learning: Drs. Laurie Anderson, Rehenuma Asmi, John Cort, Rebecca Dawson, Barbara Fultner, Peter Grandbois, Judy Holdner, Haruhiko Ito, Aline Lo, Hewlet McFarlane, Cheryl McFarren, Karen Poremski, Joel Richeimer, Barbara Shaw, Karen Snouffer, Stephen Volz, Paula White and all of our students

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