World Knowledge Dialogue

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Nurturing Students' Capacity to Bridge

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Two questions

i. What is interdisciplinary understanding?

ii. How can we assess it?

Interdisciplinary Understanding defined

Individuals demonstrate *interdisciplinary understanding* when they can integrate knowledge and modes of thinking from two or more disciplines to produce a cognitive or practical advancement—e.g. create products, solve problems, pose questions and offer explanations – that would have been unlikely through single disciplinary means.

Adapted from Boix Mansilla & Gardner, 2000

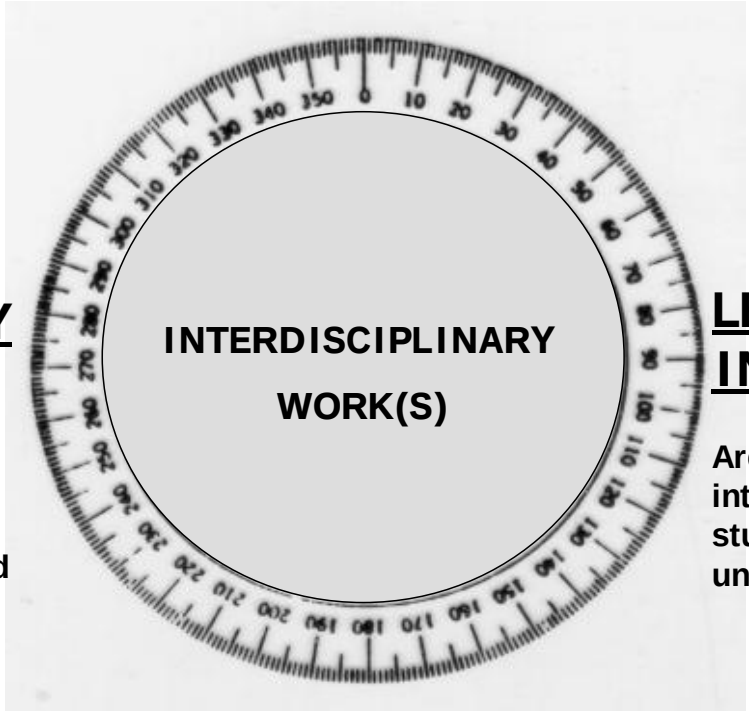
ID assessment framework

PURPOSE

What is the purpose of the student's work and is it inviting to ID?

DISCIPLINARY GROUNDING

Are selected disciplinary insights used in appropriate and effective ways?



LEVERAGING INTEGRATION

Are disciplinary integrations enhancing student understanding?

THOUGHTFULNESS

Does the student reflect about key aspects of the interdisciplinary craft?

extras

Forms of integration

- *Analogy-based integrations*
  - Conceptual bridging
  - Aesthetic reinterpretation

- *Complementarity-based integrations*
  - *Comprehensive explanations*
  - *Contextualization*

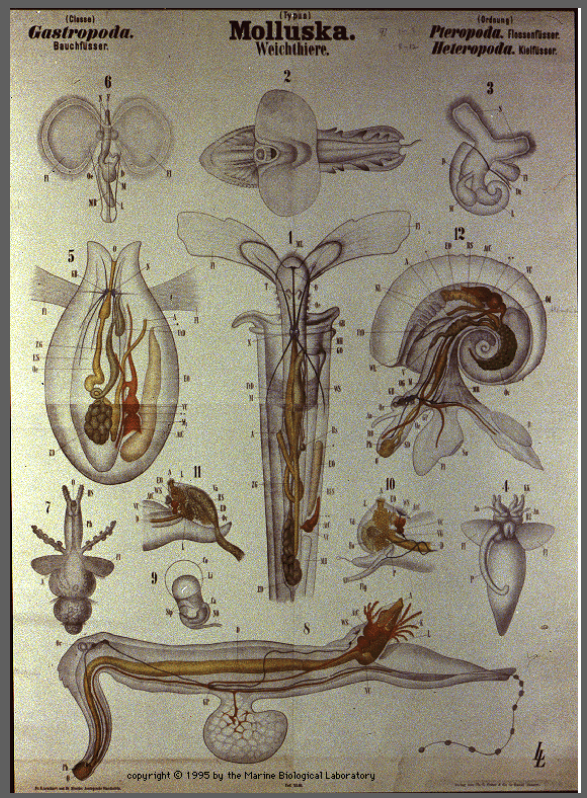
Some forms of integration

Aesthetic synthesis

“Perhaps it was an empathetic response to the idea about war that had led me to cut open the earth – an initial violence that heals in time but leaves a memory, like a scar.”

Maya Lin

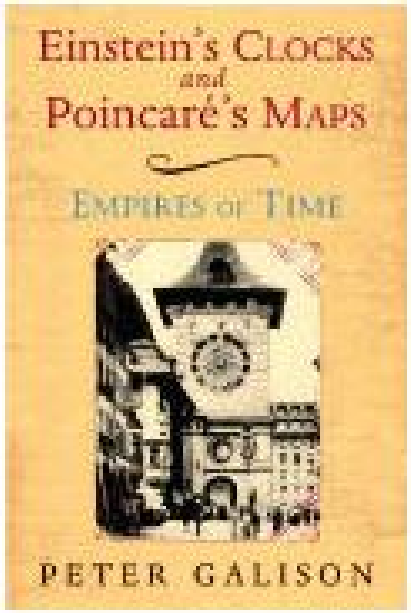
Some forms of integration



Crossover tool

Biological drawing calls on technical visual skills such as close observation or negative space, texture and perspective drawing typically present in the visual arts.

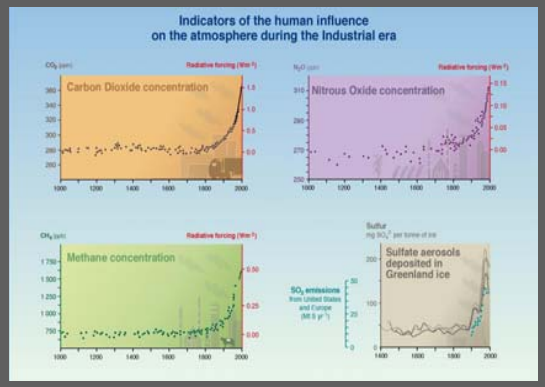
Some forms of integration



contextualizing

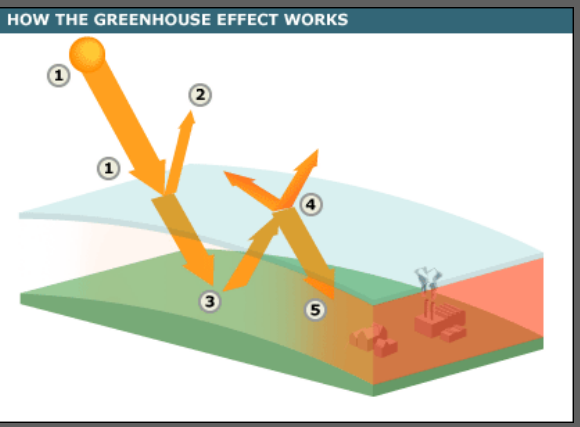
"part history, part science, part adventure, part biography, part meditation on the meaning of modernity....In Galison's telling of science, clocks and trains, and telegraphs were an indispensable real-world background to the enormous theoretical breakthrough of relativity" (New York Times).

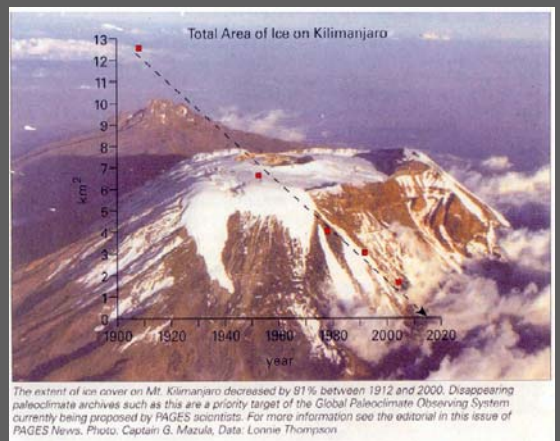
Some forms of integration



Multicausal explanations

Climate change is the result of the feedback-and integration among factors such as increased greenhouse gas emissions, atmospheric heat trapping, loss of glacial reflective surfaces, and sea level rise among others





The extent of ice cover on Mt. Kilimanjaro decreased by 81% between 1912 and 2000. Disappearing paleoclimate archives such as this are a priority target of the Global Paleoclimate Observing System currently being proposed by PAGES scientists. For more information see the editorial in this issue of PAGES News. Photo: Captain G. Mazula, Data: Lonnie Thompson

Some forms of integration

Pragmatic solution

“To stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.“

"such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change and to insure that food production is not threatened and to enable economic development to proceed in a sustainable manner."

UN Framework Convention on Climate change.