PGRP
Outreach and Social Science

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Science and Math Investigative Learning Experience (SMILE)

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Social context

- ↓ public scientific literacy + ↑ science complexity
- ↑ gaps between scientific and public understandings
- Risk that policy is driven by simplistic understandings of issues based on incomplete or one-sided messages

Pew Research Center. 2015.
Our Specific Goals

• Increase teachers’ content area knowledge, confidence and access to materials for teaching about genetics in society (emphasis on GMO crops)

• Increase learners’ abilities
  • to think critically and reflectively
  • to apply science to address complex socio-scientific problems
Our approach

Science pedagogy

• Effective materials & tools
• Empowered teachers
• Scientifically literate, engaged students

Psychological science
In-depth look at the psychological science

• Guided by frameworks of
  • Epistemic cognition
  • Motivated reasoning

• Explore what factors contribute to cognitive complexity

• Understand whether and how well-designed case studies increase cognitive complexity

In-depth look at the psychological science

Cognitions

“GMOs are scary”
“GMOs can help alleviate hunger”
“I don’t like GMOs”
In-depth look at the psychological science

... have different sources

Cognitions

... include emotions

Parentcenterhub.org

Naturalnews.com

Amazon.com

Naturalnews.com

Flaxen saxon
In-depth look at the psychological science

Cognitions

... have different sources

Emotionally based cognitions influence information processing in certain ways

... are influenced by emotion
In-depth look at the psychological science

- **Cognitions**
  - ... have different sources
  - ... have different degrees of complexity
  - ... are influenced by emotion

- **Personal interest in topic**

**Scientific disposition**
Cognitions

... have different degrees of complexity

GMO = Bad (heuristic)

BUT, sometimes pros > cons

Traditional breeding

Gene splicing

Genetic modification

Health (insulin) = Good

Corn → loss of monarchs = Bad
Case studies

• Designed to promote open-minded processing
• Seek to increase cognitive complexity
Our aspiration

• Help teachers convey current, potentially controversial science in a non-biased way
  • Develop engaging case studies related to genetic technology
• Cultivate an orientation toward and skills for learning about dynamic science
  • Help students recognize their own cognitive short-cuts and identify what is valid information
  • Empower students to make sense of science, use science to make good decisions for selves
We look forward to working with you to help us develop and adapt materials to meet the needs of your students and your interests