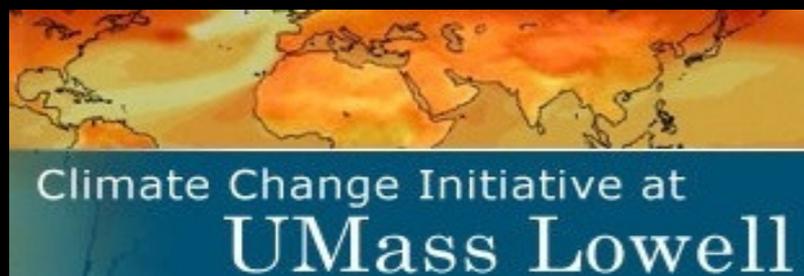


# Media Production as a Tool for Climate Change Education

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Angelica Allende Brisk, Marian Grogan, Candace Dunlap, Tamara Ledley



# An example...



<http://vimeo.com/42132066>

# Overview

- Why video literacy
- Why climate change education
- Challenges: affective, social, and mental models
- Video production to meet challenges
- Video to reach beyond the classroom

# Video as a key 21<sup>st</sup> century literacy

- Literacy:
  - **‘comprehensive set of skills needed by individuals to learn, work, socially interact and cope with the needs of everyday life’**

# Video as a key 21<sup>st</sup> century literacy

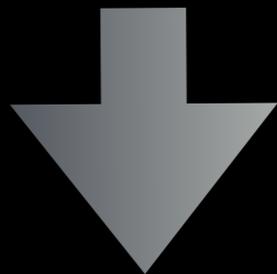
- Low cost and little technological expertise
- Increasingly dominant form of communication
- >27% of American teens have filmed and uploaded video (Lenhart 2012)

# Video as a key 21<sup>st</sup> century literacy

- “Reading” vs. “writing” video
- Process? Skills? Knowledge?

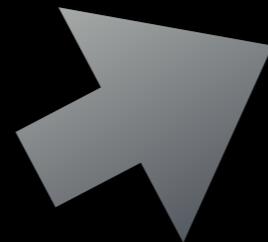
## Pre-production

- Brainstorming
- Research
- Write script
- Storyboard



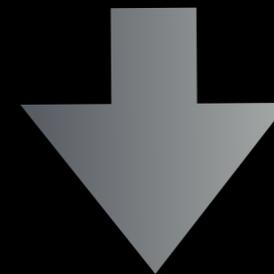
## Production

- Filming
- Creating graphics
- Animation
- Sound/narration



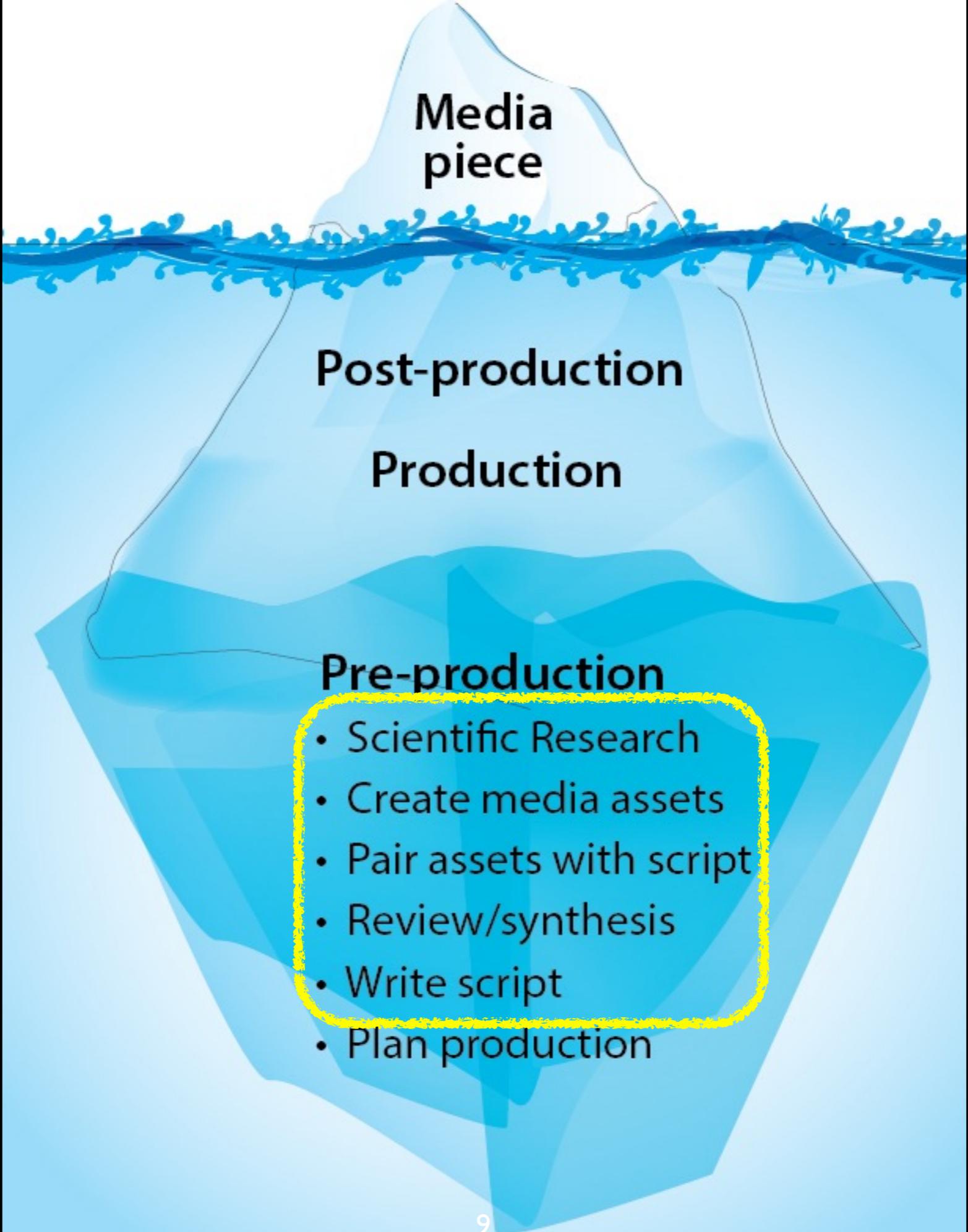
## Post-Production

- Editing
- Reviewing footage
- Discussion
- Revision



## Distribution

- Presentation preparation
- Public screening
- Broadcast
- Online distribution

An iceberg diagram illustrating the stages of media production. The tip of the iceberg, which is above the water line, is labeled 'Media piece'. The much larger part of the iceberg, which is submerged below the water line, is divided into two sections: 'Post-production' and 'Production'. The 'Pre-production' section is further detailed with a list of tasks: 'Scientific Research', 'Create media assets', 'Pair assets with script', 'Review/synthesis', 'Write script', and 'Plan production'. This list is enclosed in a yellow dashed border. The water surface is depicted with blue ripples.

**Media  
piece**

**Post-production**

**Production**

**Pre-production**

- Scientific Research
- Create media assets
- Pair assets with script
- Review/synthesis
- Write script
- Plan production

# Throughout the process:

- Learning through:
  - Teaching others
  - Engagement
  - Collaboration
  - Metaphors and storytelling

# Did you say 'metaphors' and 'storytelling'?

- Metaphor for the physical basis of the greenhouse effect??

# Why media production and climate change education?

- Let's start with a simple experiment: two headlines describing science in the news

1. Human microbiome studies should include wider diversity of populations, experts warn.

2. The West Antarctic Ice Sheet has passed the point of no return and is undergoing collapse.

How does each statement make you feel?

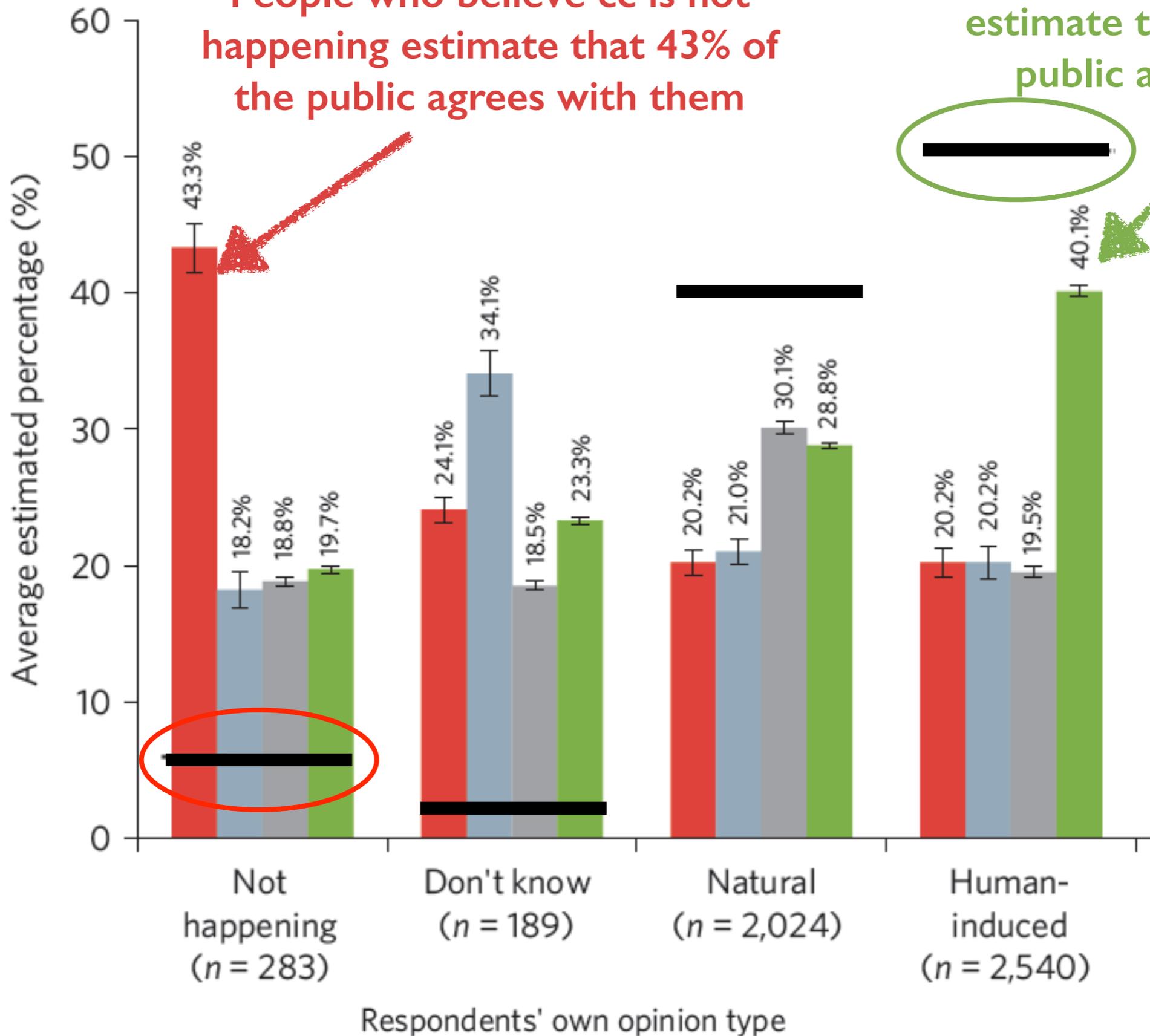
Interested? Bored? Happy? Sad? Hopeful? Scared? Frustrated?

# Affective response?

Rational/Analytic	Emotional/Affective
Logical	Intuitive
Abstract	Vivid
– encodes reality in abstract symbols, words, numbers	– encodes reality in concrete images and narratives
– rules and algorithms need to be learned	– operates automatically and without any training
– system needs to be cued; does not operate automatically	

# Affective responses can even drive analytic processing

- When affective and analytic are in conflict, affective almost always trumps
- **motivated reasoning**: decision-making and beliefs that are driven by affective response (need to reduce cognitive dissonance)
- Delivering more information doesn't solve the problem



# Both groups underestimate climate change belief

You walk into a classroom full of your peers.

Would you want to start talking about  
something that you think most of them  
disagree with?

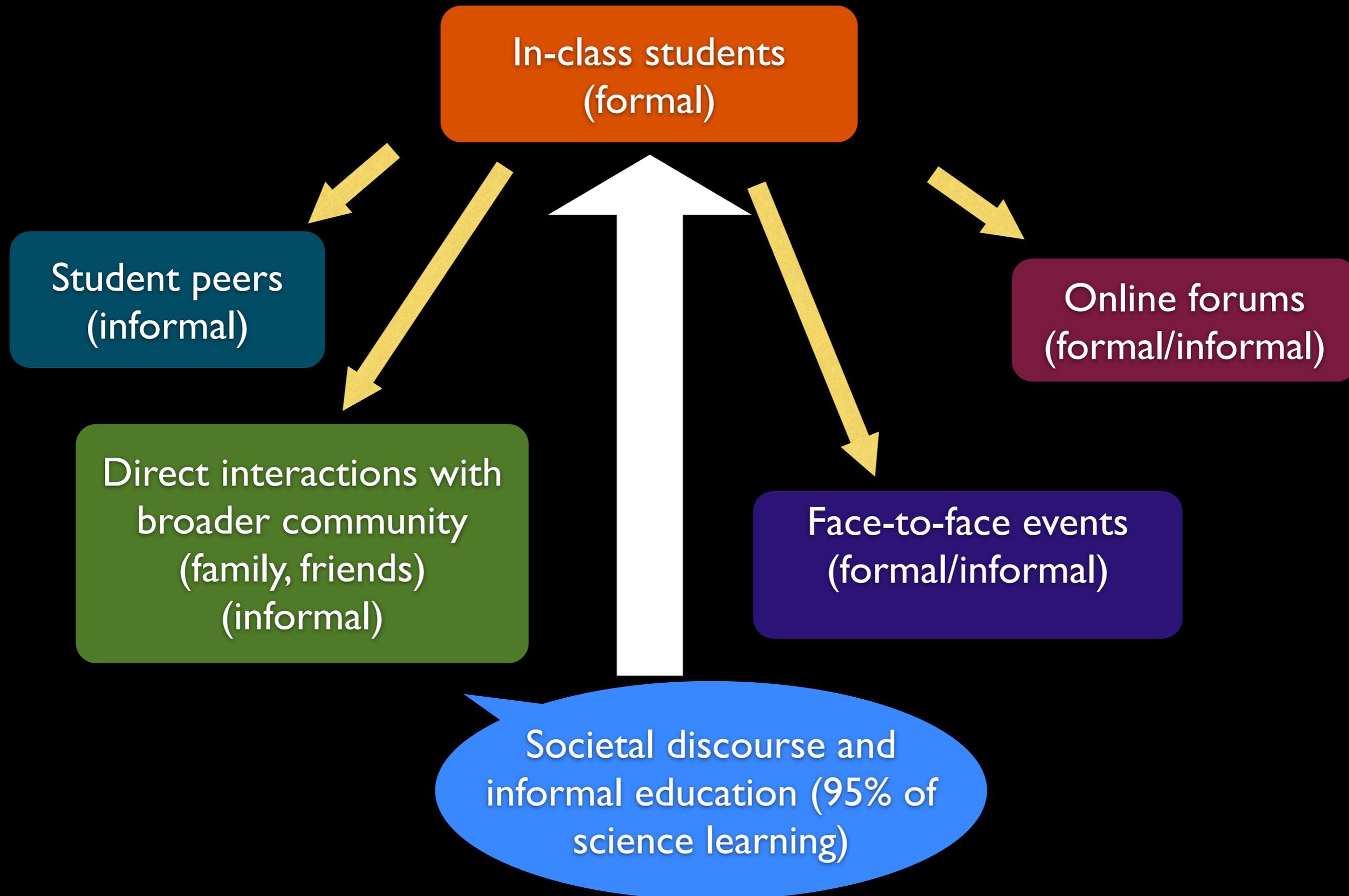
# Lessons from cognitive sciences

- Climate change education challenges include
  - Affective responses that may help or hinder student learning
  - Information delivery/science comprehension is not enough
  - Social dissonance/learning matters

# Media production to the rescue?

- Affective processing: narrative, visual images, elicit visceral response
- Collaboration, reflection, active engagement with material - social learning
- Learning through educating others
- Empowering students to contribute to 'closing the gap'
- >> Potential for deeper learning and robust mental models??

# A bridge between formal and informal



*“The video project was even more well-received than the World Climate experience.*

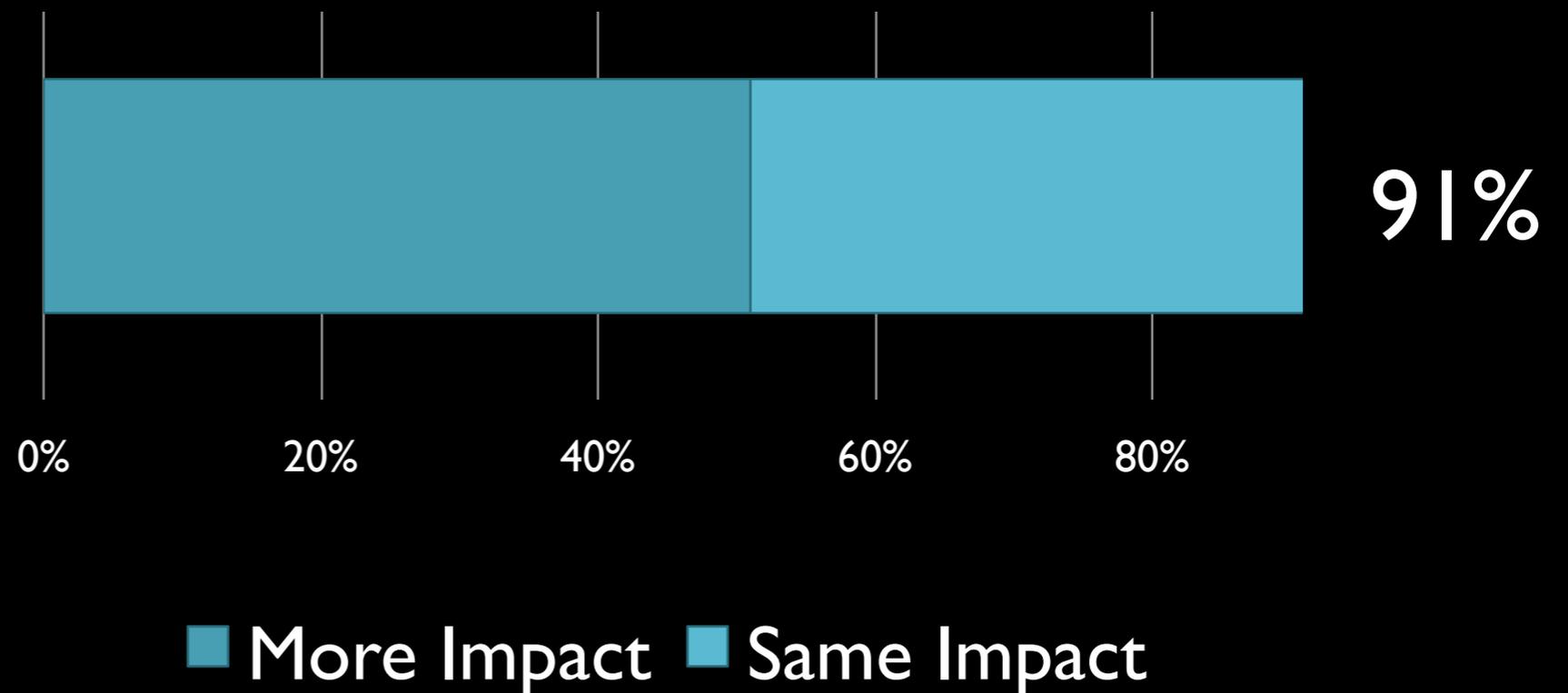
*“Many said they really loved the project and that it had been really eye-opening in terms of helping them learn how to communicate science ideas, and climate change in particular, to other people, especially those not inclined to believe in climate change to begin with.*

*“For the majority, the act of making the video had also increased their desire to get involved in climate change action.”*

# Audience responses/learning outcomes

- Videos screened live and online
- 114 participants (~90% students; 10% aged 30 - >60 years)

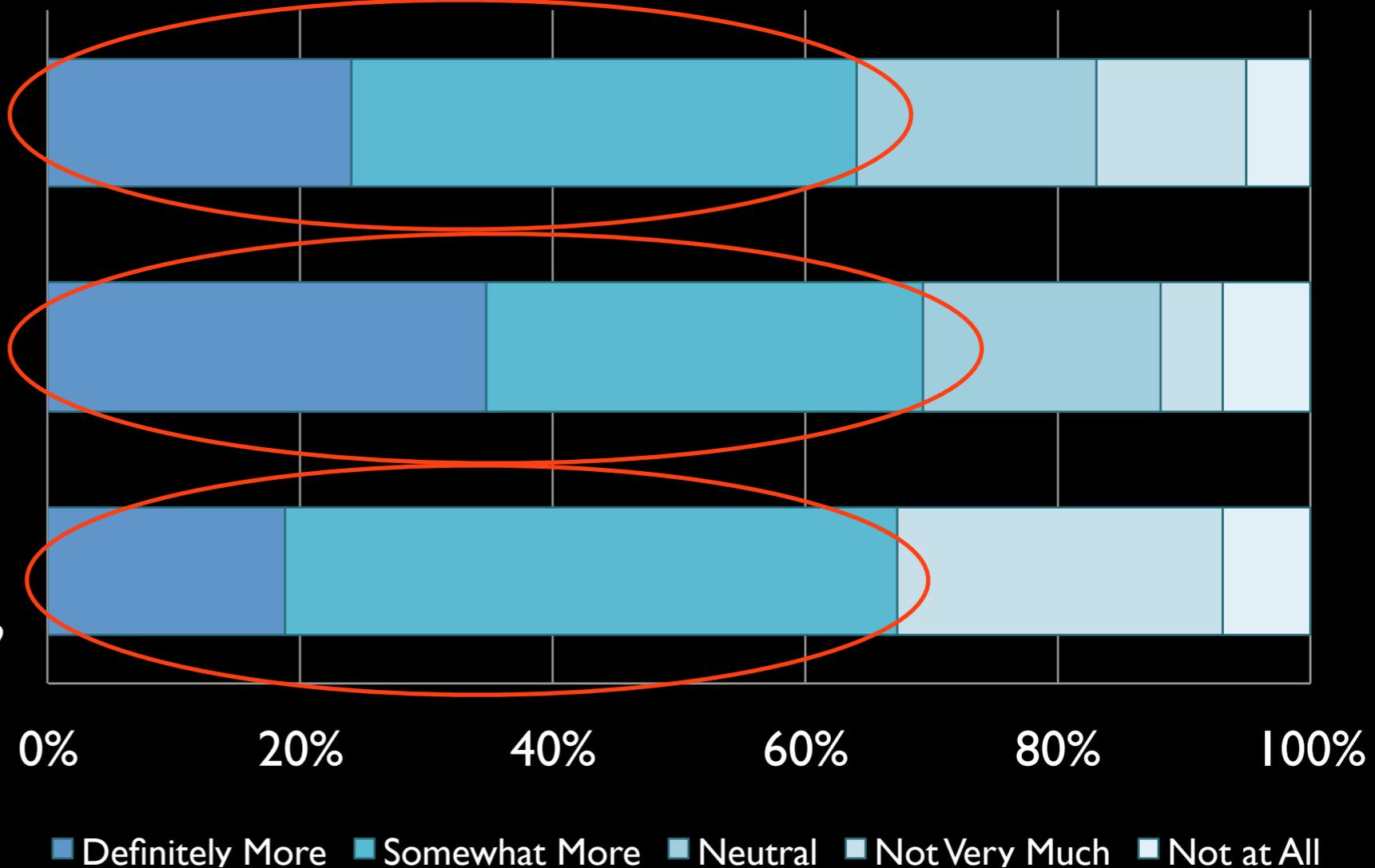
Impact compared to professionally-produced pieces?



Are you more concerned about climate change now than before watching these videos?

Did these videos interest you more about climate change?

How much more likely are you to seek out information about climate change after watching these videos?



- *“I feel that they are unbiased and the students are not trying to persuade us for monetary gain or popularity they are just interested in getting the information out there.”*
- *“The hard work and research these kids did in order to learn about the subject they were interested in and bring attention to the public with it was very inspirational.”*

# Audience learning outcomes

- Belief that climate change is happening (83% >> 93%) and caused mostly by human activities (5% >>52%)
- Identification of CO<sub>2</sub> as a greenhouse gas (67% >> 90%)
- Understanding that CO<sub>2</sub> emissions accumulate in the atmosphere and in terrestrial and marine sinks (27% >> 43%)
- Identification of key climate change impacts, such as rising sea levels, extreme weather, species extinctions (51% >> 81%)



Climate education  
in an  
**Age of  
Media**



## Climate Education in an Age of Media

[Our Approach](#)

[CAM in Action](#)

[In Your Classroom](#)

[CAM TV](#)

[About Us](#)

# Climate Education in an Age of Media

With support from NASA's Innovations in Climate Education (NICE) program, we are developing approaches to bring **student media production** into climate change education in ways that are engaging, empowering, and can be readily adopted in a wide range of instructional environments.

We have found that student media-making can be used to overcome many of the challenges that climate change education presents and is an excellent way to bring active, social, and affective learning to one of the most important and most complex problems facing human society today.

Learn more about:

- [CAM's approach to engaging learners with climate change science through media production](#)
- [Examples of CAM in action](#) with high school, undergraduate, and graduate students
- [How to bring CAM into your classroom](#)
- [About us](#)



# Examples of CAM Resources

- PSA projects
- Video mash-up projects (little class time)
- Person-on-the-street (POS) interviews
- Animation projects
- Mock trailers, film essays, and music videos

# PSA Projects

- Deliver a message and compel behavior change
- Communicate science to non-scientists
- Use storytelling, metaphor, emotion
- Effective for reaching beyond the classroom, service learning projects, culminating projects

# Video mash-ups

- Research, write narration, find/create visual assets, edit into a coherent piece
- Minimize production time (no filming needed)
- Can be completed as a homework assignment
- Information-rich



<http://vimeo.com/81563888>

# Person-on-the-street

- Great way to expose and address misconceptions
- E.g., debunk false consensus effect and pluralistic ignorance

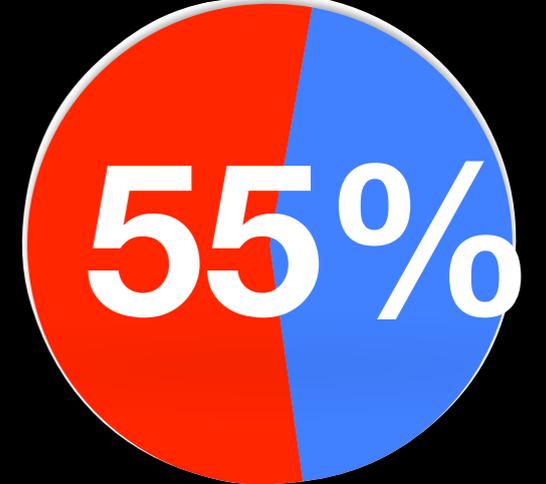


<http://youtu.be/gCWezXJ22dU>

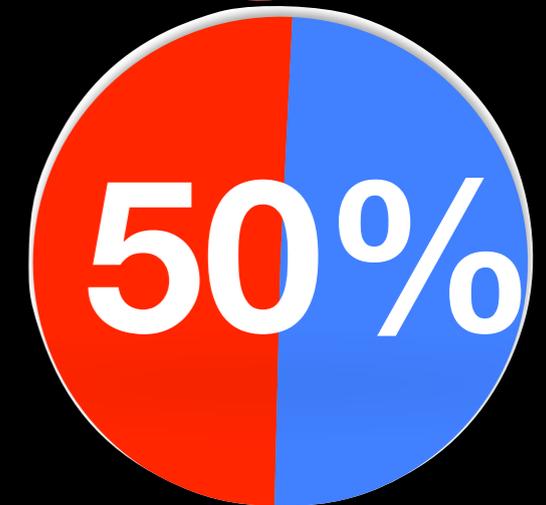
Percentage of climate change scientists who believe human-induced climate change is occurring (Cook et al. 2013)



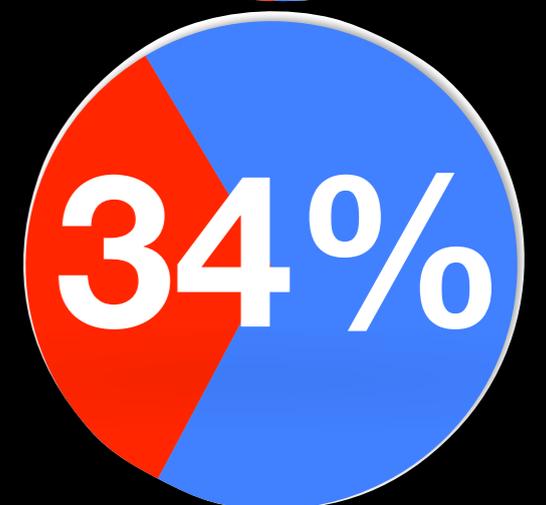
Perceived percentage of climate change scientists who believe human-induced climate change is occurring (Cook et al. 2013)



Percentage of public who believe human-induced climate change is occurring (Leviston et al. 2012)



Perceived percentage of public who believe human-induced climate change is occurring (Australia) (Leviston et al. 2012)

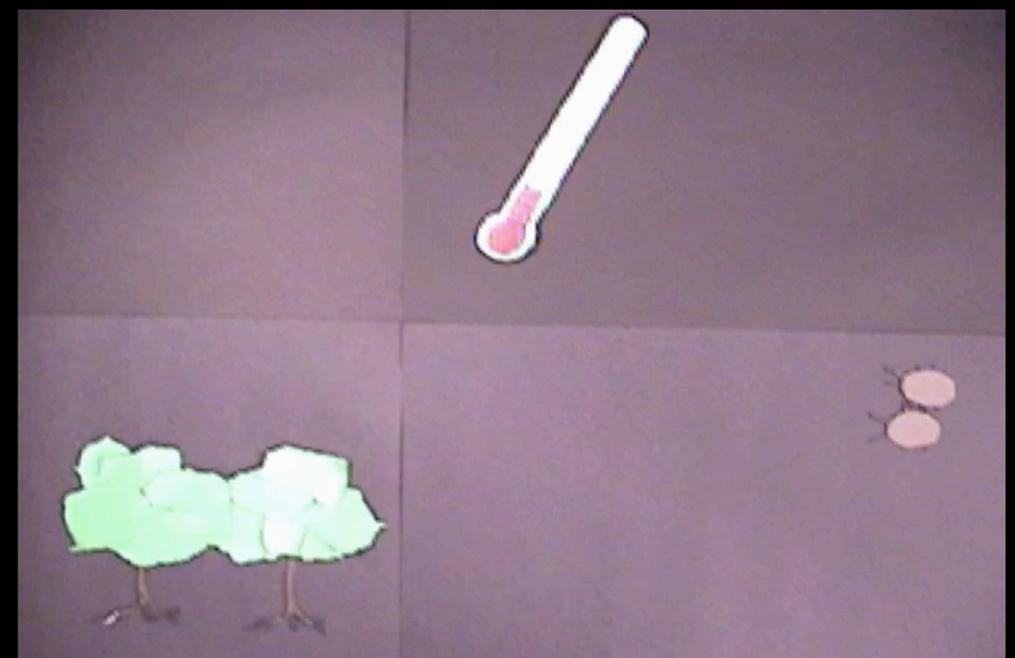


# Animation

- Abstract concepts
- Dynamic systems
- Information-rich
- Range of technologies (paper-mation to computer animation)



<http://youtu.be/qhaPrUS97Ws>



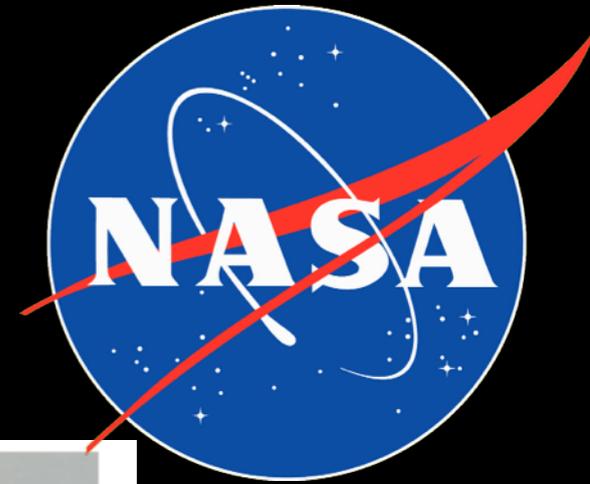
<https://vimeo.com/57078899>

# An invitation

- Media production:
  - a tool to engage your students in cc content
  - empower them to engage others
  - a key literacy
- Leverage CAM tools (and help us make them better!)



# Thanks



Cathryn Manduca



Kenneth Rath



Craig Slatin



Randy Olson



Cecelia Hunt  
Liz Adams



Devan Hawkins  
Paul Yan

# Questions?