TO DIVIDE OR TO HEAL

Evolution, Climate Change, and the Church

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ABSTRACT

Scientific debates primarily occur in the public sphere of shared values, which can be alienating for church audiences.

This creates a dual challenge to both bring the public sphere conversation into the church and bring Christian values into the public sphere discussion.

Christian scientists are uniquely positioned to mediate these interactions and influence their ultimate outcomes. Evolution and climate change are two issues where people often perceive a disconnect between church and society.

In this presentation, I will share some of my personal experiences re-framing evolution and climate change conflict as opportunities for discipleship and stewardship.
OUTLINE

- A Divided People
- Wicked Problems
- Values Disconnect
- Examining Assumptions about Division
- Case Study 1: Evolution and the Church
- Case Study 11: Climate Change and K-12
- Conclusion
We were all humans until race disconnected us, religion separated us, politics divided us and wealth classified us.” - unknown
DIVISION

- Poverty

WICKED PROBLEMS

- incomplete or contradictory knowledge
- number of people and opinions involved
- large economic burden
- interconnected with other problems
- beyond science to social/policy

Which science issues fulfill these?
WICKED PROBLEMS

“The search for scientific bases for confronting problems of social policy is bound to fail, because of the nature of these problems. They are “wicked” problems, whereas science has developed to deal with “tame” problems. Policy problems cannot be definitively described. Moreover, in a pluralistic society there is nothing like the undisputable public good; there is no objective definition of equity; policies that respond to social problems cannot be meaningfully correct or false; and it makes no sense to talk about “optimal solutions” to social problems unless severe qualifications are imposed first. Even worse, there are no “solutions” in the sense of definitive and objective answers.”
VALUES DISCONNECT

PUBLIC
Largely devoid of Christian-inclusive shared value language

Majority of science debates

CHURCH
Christianity has rich history of language development to express shared values.

E.g. Image of God, basic value of humanity, stewardship of gifts, grace.
Division unavoidable

‘Science problems’ are often much more: wicked problems

Disconnect in the conversation between church and society

Christian scientists live and work in the intersecting space

Challenge: *bring public discussion to engage the church, bring Christian values to the public discussion*
CHURCH & SCIENCE...

WHY ENGAGE?

- Evolution
- GMOs
- Gender
- Conservation
- Reproductive Rights
- Climate Change

SHARED CHRISTIAN VALUES
CHURCH & SCIENCE... WHY ENGAGE?

Evolution

GMOs

Gender

Conservation

Reproductive Rights

Climate Change

SHARED CHRISTIAN VALUES
GO TELL IT ON THE MOUNTAIN?

- Not so fast…need to revisit the origins of polarizing conflict and consider of addressing those in a way where discipleship and diversity flourishes.

Bill Watterson, Calvin and Hobbes
EXAMINING ASSUMPTIONS

Dr. Dan Kahan, Law & Psychology, Yale Law School

Oxford Handbook on the Science of Science Communication

On the Sources of Ordinary Science Knowledge and Extraordinary Science Ignorance

Dan M. Kahan
Yale University
ISSUE BIAS

Most science ‘discoveries’ accepted without question
Culture is increasingly anti-science.

Figure 2. Select NSF Indicators’ science attitude items. Source: NSF (2016).
“Would you say that, on balance, the benefits of scientific research have outweighed the harmful results, or have the harmful results of scientific research been greater than its benefits?”

Kahan, 2016
EXAMINING ASSUMPTIONS

3. Ignorance or lack of education

There is “solid evidence” of recent global warming due “mostly” to “human activity such as burning fossil fuels.” [agree, disagree]
Division rises in a complex mixture of individual ‘pattern recognition’ of scientific data/ideas influenced by:

- Authority
- Tribe/Experience
- Values
ALTERNATIVE FRAMEWORK

PUBLIC

Authority

Values

CHURCH

Tribe/Experience
“It is a mistake to believe that either social scientists or science communicators can intuit effective communication strategies by simply consulting compendiums of psychological mechanisms.” -Kahan, 2013
I. EVOLUTION AND FAITH

- Share faith/science/life story congregations

- Important elements:
  - Personal story - testimony and experiences as a Christian scientist.
  - Shared real evolution story from dissertation
  - Encouraged audience participation through two values-based activities.
I. EVOLUTION AND FAITH

Zooming In

- Important elements:
  
  - Personal story - testimony and experiences as a Christian scientist. - constant re-frames to dispel tension and ponder scripture together. Photography.
  
  - Shared real evolution story from dissertation — connected the science to experiencing wonder of God’s creation and His hand in creating/sustaining.
  
  - Encouraged participation through two values-based activities. -

    1. Name fears and hopes surrounding topic. Validate.

    2. Darwin and the Psalms - active learning
Lord, our Lord,
   When I contemplate the entangled bank,
    clothed with plants of many kinds,
I see the birds of the sky singing
   among the branches of well watered trees.
As I look closer at the works of your hands
   I see flitting insects and crawling worms.

When I reflect on these elaborate forms
   and their production, I know
    you are the author of highest eminence.
When you send forth your Spirit, they evolve
   and continue to form endless species most wonderful.
In wisdom you make them all,
   according to your laws acting around us.

Steve Roels, 2014
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<thead>
<tr>
<th>GOALS</th>
<th>OUTCOMES</th>
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<tr>
<td>Broaden worldview - not ‘change’ minds!</td>
<td>Overwhelmingly positive responses from attendees (~100)</td>
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<tr>
<td>Spark real conversation</td>
<td>Longevity</td>
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<td>Model productive discourse</td>
<td>Open Doors?</td>
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<td>Involve youth</td>
<td></td>
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<td>Help church minister to scientists</td>
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II. CLIMATE CHANGE IN K-12 EDUCATION

- Change the way people are taught to look for and make sense of science data.
- Change perspective on authority, expertise, and modify experience.
- Improve science literacy of next generation, specifically targeting carbon transforming processes as a way of understanding how life works at multiple scales and how humans impact global carbon cycling.
UNITs

Four Units on carbon-transforming processes at the macroscopic scale

- Systems & Scale
- Animals
- Plants
- Decomposers

Two units on carbon-transforming processes at the large scale

- Ecosystems
- Human Energy Systems
LP LEVELS 1-2

**Force-dynamic stories about actors and enablers**

- **Actors:** people, animals, plants, flames
- **Enablers:** food, sunlight, care, match
- **Events:** growth, weight loss, fire
Matter cycles; Energy Flows


- Sunlight
- Photosynthesis
- Inorganic Carbon (CO₂)
- Organic Matter Pools with Chemical Energy
- Cellular Respiration
- Motion, Life Functions
- Heat (to Outer Space)

Organic Carbon Pools and Fluxes

- CO₂ in atmosphere
- Photosynthesis
- Producer Organic Carbon
- Herbivore Organic Carbon
- Carnivore Organic Carbon
- Falling Leaves, Death, Feces
- Soil Organic Carbon
- Decomposer CR

CR

LP LEVEL 4
WHY DOES THIS MATTER?

- Majority of college students don’t understand pool & flux models.
- Critical to climate science literacy and decision-making (therefore: earthkeeping!)
- Example question: *If tomorrow, worldwide carbon emissions were cut to zero, what would global CO2 levels look like for the next 40 years?*
A way to bring set of shared language, science literacy, and even Christian values (e.g. earthkeeping) to the future public sphere.

- Audience: MI ~ rural and religious. Lansing Catholic HS

- Affecting student’s reliance on others for validation of their models. Think like a scientist. Accessible.

- Opportunities for CSI curriculum? What would that look like? Need more Christian scientists in this realm.
SUMMARY

To divide or to heal……

Multiple perspectives enrich our understanding of reality.
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CRC Emerging Scholars

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Loren Haarsma
Andy Anderson
BONUS SLIDES (DIDN’T GET TO)
EXAMINING ASSUMPTIONS

Kahan, 2016 - Adapted Figure 1. Risk assessment, both polarized and non.
SUPPORT FOR EDUCATIONAL CHANGE

Curriculum
Prof. Development
Networks

Teachers & Students
Shared experiences
Tribalism
Discourse
INSTRUCTIONAL MODEL