A Real Polêmica: An Approach to Scientific Controversy and its Uncertain Reach

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Polemic

**po·lem·ic**

/pəˈlemɪk/

*noun*

1. a strong verbal or written attack on someone; his polemic against the cultural revolution

*synonyms:* diatribe, invective, rant, condemnation, criticism

*adjective*

1. another term for polemical.

Translations, word origin, and more definitions

Google Translation
Polêmica

• É a prática de provocar disputas e causar controvérsias em diversos campos discursivos, como na religião, na filosofia, na política, na arte, na literatura etc.

CONTROVERSY...in religion, philosophy, politics, art, literature, etc.

And often just controversy...
Binding the two

• This talk is a roadmap for perhaps one might attempt to bind the two:
  • *Polêmica* of a science controversy with the polemical ways in which it is expressed...extending from the same root? Or totally unrelated?

“You know, back in the ’70s — I remember the ’70s, we were told there was global cooling. And everyone was told global cooling was a really big problem. ... The problem with climate change is there’s never been a day in the history of the world in which the climate is not changing.”

”There is no connection between microcephaly and Zika virus. There’s nothing to put them together. It’s like the CDC and WHO want to make something up to scare women from having children.
Trajectory

- Adaptation and vulnerability work
- Climate change perceptions
- Science controversies and the role of media influence
Project origin

Driven by “wicked problems” (intractable scientific controversies)
• involve controversy among stakeholders
• divided opinions among citizens
• limit the ability of government to enact and apply effective solutions.

NSF PI’d under Deserai with collaboration from CSTPR affiliates
Long-term that seemingly will never be resolved (or "agreed upon")

Short-term that are seemingly resolved quickly

Medial-length issues that could be resolved with further inquiry but have not for whatever reason.
AUGUST 25, 2014
5.62
MILLION SQUARE
KILOMETRES OF ICE CAP
...AN INCREASE OF
+43%
OR 1.715 MILLION
SQUARE KILOMETRES
IN TWO YEARS –
THE SIZE OF ALASKA

AUGUST 25, 2012
3.91
MILLION SQUARE
KILOMETRES OF ICE CAP

LAND ICE

PURPLE AND RED AREAS ON SATELLITE IMAGE SHOW AREAS OF HIGHEST DENSITY OF ICE

Sea ice concentration (%)
0 10 20 30 40 50 60 70 80 90 100

ARCTIC SEA ICE CAP

HOW MELT HAS SLOWED OVER 10 YEARS

“...BAD NEWS FOR AL GORE
The ice cap is falling off a cliff. It could be completely gone in summer in as little as 7 years from now.”

AL GORE’S NOBEL PRIZE SPEECH, DECEMBER 2007

Deesillustration.com

Geoffrey Grider (nowtheendbegins.com)
In our own wickedness we are interested in

What are:

(1) the drivers of social constructions and public opinion related to contentious areas under scientific inquiry,

and

(2) the degree to which social constructions, public opinion, science (or scientists), or political factors play a greater or lesser roles in promoting or preventing policy change to solve these problems.
Intended objectives

• To understand
  • **Objective 1.** How contested scientific issues are constructed in the public sphere.
  • **Objective 2.** The connection between social constructions of contested scientific issues, the actual experiences of those issues that individuals understand, and public opinion related to the same issues.
  • **Objective 3.** The relationship between opinions held by citizens and the policies decisions of legislatures.
How hard the challenge truly is
Questions

The second one

The degree to which social constructions, public opinion, science (or scientists), or political factors such as focusing events, play greater or lesser roles in promoting policy change to solve these problems.

Getting a sense of the social dimensions of scientific issues, drawing from various social science fields such as political science and public policy, and subsequently propose to link those social constructions to policy outcomes.
Literature

Science, Technology & Society (STS) frameworks to investigate how two science controversies – climate change and childhood vaccine adoption – are socially constructed, how public opinion is formed around these issues, and how these processes and outcomes are linked to policy decisions in U.S. states.

But what is a scientific controversy?

• Simply disagreements among practitioners of a given science regarding some aspect of their practice?
• Disagreements over the way to tackle a given problem or puzzle, or what the solution to that puzzle is?
• Or is it a disagreement about shared assumptions
  • As Baltas (2000) noted, unless some aspect of the assumption is resolved to the satisfaction of the other part or parties
  • It has to effectively be disclosed
How to frame scientific controversies and relevance to policy?

• Concerted sociological efforts from the 1960s and 1970s to construe meaning and durability of scientific controversies (Nowotny, 1975; Ross, 1971; Van DenDaele, 1977).

• Questions of how and why scientists become embroiled in controversy, why the public (or specific publics) perceive controversies, and the interplay between the scientific community and nonscientists have driven much STS scholarship (Landström, Hauxwell-Baldwin, Lorenzoni, & Rogers-Hayden, 2015; Merton, 1957; Sismondo, 2011).

• Public policy and political science scholarship has frequently sought to understand the role of science, advocates, and public opinion in the policy process (Sabatier & Jenkins-Smith, 1999a; Sabatier & Jenkins-Smith, 1993; Sabatier & Weible, 2007).
• The role of science, as an agent or an actant, has evolved in various iterations of the discipline.
  • This conceptualization did not leave extensive room for considering diverse social constructions of scientific knowledge.

By the 1960s, de Solla Price (1963) and others saw merit in the use of quantitative scientific metrics, particularly in measuring citations of scientific works
  • Thus, a dichotomy formed between qualitative and quantitative assessment of science and its impacts
• Proposed research seeks to explain controversies in science, while also emphasizing the process of "doing" and "creating" science.
  • With a fuller understanding of the interplay between science and society within the two cases analyzed in this proposed project, we contend that our research design can help untangle how controversies are constructed, which can be applied to other controversial science issues
Medialization

• Scientific research provides a steady stream of information to the media, and because a minuscule amount is newsworthy according to media production values, the resulting product is *medialized* (Altheide & Snow, 1988; Sarcinelli, 1998; Schulz, 2004).

• Social reality of what is construed as science prior to medialization, however, is often perpetuated by scientific projects
  • promoting scientific agendas, legitimating projects, and encouraging further funding.

• As Weingarten (2012) observes, this coupling substantiates dependencies between media and scientific "systems" (epistemes), even if their constructions of scientific phenomena are seemingly at odds.
(a) for scientists and by scientists and

(b) for the public by scientists or journalists, are interactive independent of their epistemic differences.

- Suggests that scientific controversies may lend themselves to media controversies, which in turn may encourage further scientific controversies independent of their actual magnitude and breadth.
Social construction

• Social construction within science has focused on:
  (a) science and technology as fundamentally social pursuits
  (b) scientists as active in development, definition, and redefinition of ideas about nature
  (c) science and technology as not representative of a direct route from nature to ideas about nature
  (d) science and technology themselves as unnatural.

• We don’t hold all controversies up to the same light, or that which states a "Strong form" of social constructivism: facts, inasmuch as they make up the body of scientific knowledge, are fundamentally social and mediated through the shared commitments of those who explore and seek to explain the natural world (Hacking, 1999).

• Apprehension of an objective social reality, while at the same time a continuous production of it.
  • integral to our proposed project so that we may more fully understand the various processes...
Initial proposal idea

• Proposed idea is to adapt U.S. state-level social constructions and policymaking using the cases of climate change and childhood vaccines
  • Will take a slight turn here for a Brazilian case
• First, social construction of case study issues will be analyzed at the U.S. state-level
  (a) analysis of statewide news coverage,
  (b) measures of focusing events as evident in news and social media, and
  (c) non-mediated social constructions measured in social media
• Second, social construction data will be compared with state-level
  (a) political
  (b) socioeconomic
  (c) physical data (measures of local climate conditions or vaccine/disease rates)

Use public opinion data to understand whether social construction of issues or other socio-political factors are more influential
• Finally, the first two stages of data collection and analysis will inform the third stage of the project wherein we analyze
  (a) interviews with key state legislators
  (b) state-level policy data,
  (c) surveys with policymakers and staff to understand the influences of social construction of issues and public opinion on policy debates and actions taken by states.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Measurement</th>
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<tbody>
<tr>
<td>Contested science</td>
<td>Disputes among scientists and between scientists and lay people that seek to appeal to fact (Englehardt &amp; Caplan, 1987).</td>
<td>• Presence or absence of conflicting framing of issue in public sphere.</td>
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<tr>
<td>Public Opinion</td>
<td>Shared beliefs about issues, their importance, or the appropriate solutions to problems (Zaller, 1992).</td>
<td>• Public opinion polling using consistent question format over time, among representative populations.</td>
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<tr>
<td>Social Constructions</td>
<td>Creation of shared understandings and opinions about issues, the influence of social forces on knowledge and the creation of knowledge (Boghossian, 2001).</td>
<td>• Media framing of issues. • Non-mediated discussions of issues. • Actors represented as influential or knowledgeable in media and public discussions.</td>
</tr>
<tr>
<td>Policy Outcomes</td>
<td>Decisions to adopt, enact, or reject a proposed policy within a governmental decision body (Lasswell, 1970), or a law, program, or regulation adopted with the goal of solving a problem (Kingdon, 2003).</td>
<td>• Decisions made within governmental bodies to adopt a policy or reject a policy. • Debates within governmental bodies that do not lead to a formal policy proposal or decision.</td>
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Climate change

• Anthropogenic climate change (CC) is an issue-area where significant scientific evidence and consensus exists amongst relevant experts...yet CC is currently one of the most controversial arenas in U.S. policymaking even post Paris 2015

• Policy aimed at mitigating CC or its effects in the U.S. has not changed dramatically at the national level, which has received the bulk of scholarly and public attention (at least in ink spilled [Yale PCCC 2016])
  • U.S. national and state-level policy debates have often centered on the validity of the science underlying CC predictions (Dryzek, Norgaard, & Schlosberg, 2011)

• Much of the inaction on greenhouse gas reductions and CC adaptation also have to do with economic considerations--policy action is frequently stymied by the perceived economic costs of action to government and industry

• Social constructions of CC can be reliably measured using news and social media content--important contributors to the dialogue of CC and policymaking, particularly surrounding the science, politics, and anthropogenic nature of CC
Public opinion across U.S. states is shown to be deeply divided on whether CC—still...

Proximate physical data relevant to understanding individual citizen experience with CC are available from sources (NOAA and USGS) includesreme events such as droughts, floods, wildfires, and hurricanes, some of which are predicted to increase as a result of CC; all of which have been discussed in the media as connected to CC (Trenberth, Fasullo, & Shepherd, 2015).

Fig. 1 Spatial distribution of recorded extreme weather events (left) and reported personal experience (right)
Childhood vaccines are widely accepted in the medical community as safe and effective for preventing disease (Gust, Darling, Kennedy, & Schwartz, 2008).

Global pandemics such as smallpox, polio, pertussis, and diphtheria have either been eradicated from much of the world, or have become less prevalent as a result of widespread adoption of childhood vaccines (Conis, 2014).

Vaccination safety in the U.S. has been registered as a public concern since the late 1990s, when medical literature appeared to indicate that a relationship existed between autism and the Measels-Mumps-Rubella (MMR) vaccine (Wakefield, 1999).

The so-called "thimerosal scare," which focused on childhood vaccine safety, has resurfaced in recent years with increasing anxiety about immunizations beyond only the MMR (Conis, 2014).

CDC= number of cases of individuals with measles quadrupled in 2014 due to lower childhood vaccination rates in areas of the U.S., with the majority of parents who opted-out of vaccinations stating that their choice was based on fears of vaccine safety, or due to religious beliefs.
• Zika virus
  
  • To give topical (and international) application—Zika???
  
  • Virus is spread to people through the bite of an infected Aedes species mosquito.
  
  • Fever, rash, joint pain, and conjunctivitis (red eyes).
  
  • Linked to microcephaly and Guillain-Barré syndrome

CDC 2016
But it has faced a level of controversy

Microcefalia: governo e sete estados divergem sobre casos confirmados

por JULIANA DAL PIVA
Methods and analysis

- Social construction data will include news coverage of the issue appearing in statewide newspapers between the years 2005-2015 accessed from Lexis-Nexis and Proquest Newspaper Database
- Social media downloaded from Twitter, Google Analytics, and publicly available Facebook content between 2005-2016
<table>
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<tr>
<th>Social Construction Frame</th>
<th>Media Codebook Examples</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropogenic climate change is an existential threat</td>
<td>&quot;crisis&quot; NEAR &quot;climate change&quot; NEAR &quot;opportunity&quot; NEAR &quot;anthropogenic&quot;</td>
<td>Initial latent Dirichlet allocation (LDA) coding using the dictionary method and automapping</td>
</tr>
<tr>
<td>Anthropogenic climate change is debatable</td>
<td>&quot;climate change&quot; NEAR &quot;controversial&quot; NEAR &quot;debate&quot; NEAR &quot;consensus&quot;</td>
<td>Same</td>
</tr>
<tr>
<td>Anthropogenic climate change is false</td>
<td>&quot;climate change&quot; NEAR &quot;hoax&quot; NEAR &quot;conspiracy&quot;</td>
<td>Same</td>
</tr>
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</table>
Public opinion

• Tie social constructions of case issues established in the previous stage with socio-political data:

  (1) public opinion data from secondary sources, including Gallup, the Yale Project on Climate Change, and the Pew Research Center for the People and the Press

  (2) proximate physical data for each case including: (a) climate conditions, extreme events, and daily weather patterns in the U.S. states from the National Ocean and Atmospheric Administration and the U.S. Geological Survey; and (b) vaccine adoption and disease outbreaks in the state populations from the Centers for Disease Control and Prevention

  (3) socio-political data of each state, including registered voter affiliations, presidential election outcomes from elections between 2005-2015, electoral representation (including state legislatures, governors, and Congress), and socioeconomic data (US Census)
Policy data

• The final stage of the project will analyze whether social constructions, socio-political factors, public opinion, or other variables influence policy outcomes in U.S. states in the two case study issues.
  • Data from the prior two stages of research will be combined with the following three sources of data:
    1. state-level policymaking data gathered from the National Conference of State Legislatures and individual states to measure the type and extent of policy debate and action related to climate change or childhood vaccine adoption within each state
    2. in-depth semistructured interviews with key legislators and staff from selected states (n~20) focused on the policy issues, influential policy factors, and the role of the hypothesized variables included in this study
    3. a survey of all legislators from the 50 states conducted to broaden the qualitative findings from interviews and to measure perceptions of policy influences such as advocates, media, public opinion/citizens, science/scientists, focusing events, and state economic factors (dominant industries, economic health, etc.).
• Documents, interviews, and survey data
• In-depth interviews transcribed verbatim and coded using established qualitative coding procedures (Miles, Huberman, & Saldaña, 2013)
• Codebook will break down complex text into variables of analysis:
  • social constructions (dialogue, debates, understandings of issues mentioned by subjects)
  • public opinion
  • focusing events and other proximate state-level experiences with the case study issues
  • political conditions
  • science
  • elite actors
  • and policy decisions
<table>
<thead>
<tr>
<th>Supercode 1: Social Constructions</th>
<th>SOCCON – Mention of understandings, discussion, or awareness of case study issue within the state.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subcode 1: Media Constructions</td>
<td>MEDIA – Mention news media coverage of the issue or corollary effects or perceptions of the issue.</td>
</tr>
<tr>
<td>Subcode 2: Social Media Constructions</td>
<td>SOCIAL – Mention of discussion, debate, or coverage of the issue in social media, including the corollary effects or perceptions of the issue.</td>
</tr>
</tbody>
</table>
• Policy data broken down for hand coding and statistical analysis
• Policy documents (legislation and executive orders) will be coded to focus on variables such as:
  (a) topic of discussion
  (b) type of policy (increased regulation, decreased regulation, tax incentives, executive orders, etc.)
  (c) passage or failure of policy
  (d) date of policy introduction and passage
Model example—using Zika in Brazil

Zika doesn’t cause microcephaly nor G-B disease

Split opinion in the medical community

Risks, Conspiracies, All-consuming pandemic

Inaction, Heightened action, Entirely unrelated
A Farsa do Zika Vírus: Microcefalia ligada à larvicida na água

11-02-2016, 06:21 PM

Respostas: 1,333
Agradecimentos feitos: 
24010
Agradecimentos recebidos: 6082 em 1252 posts
Registrado em: Aug 2013
Reputação: 51

A Farsa do Zika Vírus: Microcefalia ligada à larvicida na água

ZIKA VIRUS
A HOAX?

NaturalNews.com

http://forum.antinovaordemmundial.com
Brasil pode protagonizar 'escândalo global', diz professor da USP sobre zika

Professor da USP diz que não há evidências suficientes para mostrar relação entre zika e microcefalia
Médico phd faz denuncia alarmante: "Microce causada pelo Zika víi vacinas vencidas"

Você está aqui
Mundo Educação » Doenças » Doenças virais » Diferenças entre a Dengue, Chik

Diferenças entre a Dengue, Chikungunya e Zika

As principais diferenças entre a Dengue, a Chikungunya e a Zika estão na intensidade dos sintomas. Entre essas doenças, a dengue é a mais grave.

Publicado por: Vanessa Sardinha dos Santos em Doenças virais

O mosquito do gênero Aedes é responsável por transmitir diversas enfermidades
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