

Information Literacy in a Democratic Society  
by  
Kathryn Booke Perry  
2014



RESEARCH

#### Factors detracting from Cognitive Authority

Participants were less willing to criticize articles and did so hastily with phrases that advised their criticism.

Participants did express concern with articles that seemed too dated, too weakly argued, sources were not academic sources, or seemed to lack the knowledge that the participant had already. Some participants read the articles, but did not read or did not cite specific articles in their answers.

An interesting finding was that participants expressed reluctance to question authors with heavy affiliations.

#### Discussion

Participants were very clear and uniform about what they felt constituted cognitive authority. Students liked what they felt was good methodology.

Disclaimer statements did not serve as a red flag for the participants in this sample.

Participants were reluctant to criticize the research, and even when questioning they did it with reservations.

#### Conclusion

# Information Literacy in a Democratic Society

By  
Heather Brodie Perry



Whenever the people are well-informed, they can be trusted with their own government (Thomas Jefferson 1789)

Information is the foundation upon which individuals make important decisions, and scientific research often underpins this information.

Individuals need access to quality information to support and inform their activities from participation in democratic elections and ballot initiatives to making decisions that will keep them safe and healthy. (Saunders, 2013)

"Factual information is the currency of a democracy and under this premise its citizens must have ready access to factual information that facilitates the evaluation of public policy..." (Saunders, 2013)

anti-depressants  
sugar-sweetened-beverages  
pharmaceuticals  
flame-retardants  
tobacco  
coal  
climate-change  
living-wage  
chemicals  
regulation  
sugar  
equal-marriage  
fossil-fuels  
coco

Information collected in our libraries used to be carefully curated. Users came to libraries where the information was selected, and hopefully appropriate and accurate.

Now information is abundant and easily accessible.



The Alexandria Proclamation of 2005 describes information literacy and lifelong learning as the "beacons of the Information Society, illuminating the courses to development, prosperity and freedom. Information literacy empowers people in all walks of life to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals. It is a basic human right in a digital world and promotes social inclusion in all nations."

Access is essential but it is only one part of global information literacy. New types of information have challenged users ability to choose and evaluate information, and have challenged librarians assisting those users.

There are many different issues impacting information quality, and users ability to evaluate research.

Today we are going to talk about one of the serious concerns facing us.



"Scientists and scholars are concerned that financial interests can threaten the scientific community's adherence to methodological and ethical norms, such as objectivity, openness, social responsibility, and protection of research subjects" Resnick 2012



One issue that is rarely discussed is the issue of conflict of interest. While it may be impossible for human researchers to be completely free of conflicts, funding sources add a layer of complexity. Does the funder of research have impact on the design, methodology, results and conclusions of research?

“Considerable evidence shows a strong association between industry sponsorship, investigator financial conflicts of interest (COIs), and biased outcomes in clinical research. Industry sponsorship biases the written research record towards outcomes that are favorable to the sponsor, even when controlling for study design criteria . Financial ties between clinical researchers and industry have also been associated with reduced data sharing” (Krauth, Phillips, & Bero, 2014)



The issue of Conflict of Interest has its modern roots in the research funded by the tobacco industry.

Feeling the pressure of a growing body of evidence inst their product, they funded reSearch to create doubt.



Doubt is our product

Why this  
Matters?



ALL RIGHTS FOR ALL

"there's considerable disagreement among sociologists as to what the consequences of raising a child in a single-sex family, whether that is harmful to the child or not." (Antonin Scalia, 2013)

The paper he refers to, by Mark Regernus was funded specifically to be used in Anti-Marriage Equality cases.

No such disagreement exists.



That day, however, I was about to start learning about forms of corporate influence ...broader and ...more specific... They were broader in the sense of having less to do with the profits of a single company or industry than with questions of legal liability in general, but they were also more specific, being intended to “seed” the content of peer-reviewed scientific journals in ways that would shape legal decisions—... but in decisions by federal appeals courts and the U.S. Supreme Court. (Freudenberg)

what the reSearch shows



Industry Sponsored research has led to concerns about conflicts of interest and its impact on research integrity.





Approximately 60% of scientific research  
in the United States is funded by industry.  
(Dorsey et al., 2010)

Authors with conflicts of interest are 10 to 20 times less likely to present negative findings than authors without conflicts. (Dadhich, 2012)

Pharmaceutical-industry-sponsored studies were four times more likely to support the industry's product than studies not funded by industry. (Lexchin, Bero, Djubegovic & Clark, 2003)

Disclosure statements exist to make readers aware of the possibility of bias. (deMello-Martin & Intemann, 2009)

Can COI be detected?

Can COI be detected?

In a pilot study I wanted to examine whether or not undergraduate students were aware of the issue of COI and if they could recognize it in their research.



## what I wanted them to see



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eating.

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<sup>3</sup> Author disclosures: F. Bellisle has received consulting fees and honoraria from food and beverage companies. A. Drewnowski has received research grants from Ajinomoto. G. H. Anderson has received consulting fees, honoraria, donations, and unrestricted grants from food, beverage, and pharmaceutical companies and from government and nonprofit entities. He is Director of the University-Industry Program in Food Safety, Nutrition and Regulatory Affairs at the University of Toronto. Current membership includes 14 private sector members. He has published research on both energy-containing and low-calorie sweeteners. M. Westerterp-Plantenga and C. Martin, no conflicts of interest.

\*To whom correspondence should be addressed. E-mail: f.bellisle@uren.smbh.univ-paris13.fr.

what they saw

# Affiliation of Author

## Proxy climatic and environmental changes of the past 1000 years

 Willie Soon<sup>1,2,\*</sup>, Sallie Baliunas<sup>1,2</sup>

<sup>1</sup>Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, MS 16, Cambridge, Massachusetts 02138, USA

<sup>2</sup>Mount Wilson Observatory, Mount Wilson, California 91023, USA

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ABSTRACT: The 1000 yr climatic and environmental history of the Earth contained in various proxy records is reviewed. As indicators, the proxies duly represent local climate. Because each is of a different nature, the results from the proxy indicators cannot be combined into a hemispheric or global quantitative composite. However, considered as an ensemble of individual expert opinions, the assemblage of local representations of climate establishes both the Little Ice Age and Medieval Warm Period as climatic anomalies with worldwide imprints, extending earlier results by Bryson et al. (1963), Lamb (1965), and numerous intervening research efforts. Furthermore, the individual proxies can be used to address the question of whether the 20th century is the warmest of the 2nd millennium locally. Across the world, many records reveal that the 20th century is probably not the warmest nor a uniquely extreme climatic period of the last millennium.



## Sweetness, Satiety, and Satiety<sup>1–3</sup>

France Bellisle,<sup>4\*</sup> Adam Drewnowski,<sup>5</sup> G. Harvey Anderson,<sup>6</sup> Margriet Westerterp-Plantenga,<sup>7</sup> and Corby K. Martin<sup>8</sup>

<sup>4</sup>Centre de Recherche en Nutrition Humaine d'Île de France, Université Paris, Bobigny, France; <sup>5</sup>University of Washington, Nutritional Sciences Program, Seattle, WA; <sup>6</sup>University of Toronto, Department of Nutritional Sciences, Toronto, Ontario, Canada; <sup>7</sup>Maastricht University, Maastricht, Netherlands MD; and <sup>8</sup>Pennington Biomedical Research Center, Baton Rouge, LA

### Abstract

Satiation and satiety are central concepts in the understanding of appetite control and both have to do with the inhibition of eating. Satiation occurs during an eating episode and brings it to an end. Satiety starts after the end of eating and prevents further eating before the return of hunger. Enhancing satiation and satiety derived from foodstuffs was perceived as a means to facilitate weight control. Many studies have examined the various sensory, cognitive, postgestive, and postabsorptive factors that can potentially contribute to the inhibition of eating. In such studies, careful attention to study design is crucial for correct interpretation of the results. Although sweetness is a potent sensory stimulus of intake, sweet-tasting products produce satiation and satiety as a result of their volume as well as their nutrient and energy content. The particular case of energy intake from fluids has generated much research and it is still debated whether energy from fluids is as satiating as energy ingested from solid foods. This review discusses the satiating power of foods and drinks containing nutritive and nonnutritive sweeteners. The brain mechanisms of food reward (in terms of "liking" and "wanting") are also addressed. Finally, we highlight the importance of reward homeostasis, which can help prevent eating in the absence of hunger, for the control of intake. *J. Nutr.* 142: 1149S–1154S, 2012.

### Introduction

This paper addresses the important notions of satiation and satiety, both of which relate to the inhibition of eating. Satiation occurs at the time of eating and represents the cumulative effect of inhibitory signals induced by the ingestion of food substances as the meal progresses. Such signals have many origins: sensory, cognitive, digestive, and hormonal. Satiation signals ultimately bring eating to an end. Following the end of an eating episode, a period of satiety begins and endures for some time before hunger

returns. Again, the signals that contribute to the duration and intensity of satiety are of varied origin, as conceptualized in the notion of the "satiety cascade" (1). During satiety, sensory and cognitive processes interact with postgestive and postabsorptive peripheral and central mechanisms to inhibit further eating. Because satiation and satiety have to do with the inhibition of eating, they can potentially affect total intake and facilitate body weight control.

It is important to understand whether sweet-tasting foods and drinks exert a special influence on satiation and satiety. Their high palatability could trigger overeating, at least in some individuals under certain circumstances. In addition, the special case of energy obtained from fluids raises the crucial question of the potency of satiety signals following drinking rather than eating.

<sup>1</sup> Published in a supplement to *The Journal of Nutrition*. Presented at the conference Low-Calorie Sweeteners, Appetite and Weight Control: What the Science Tells Us, held in Washington, DC, April 7–8, 2011. The conference was sponsored by the Committee on Low-calorie Sweeteners of the International Life Sciences Institute North America. The views expressed in these papers are not necessarily those of the supplement coordinator or guest editors. The supplement coordinator for this supplement was Adam Drewnowski, University of Washington. Supplement Coordinator disclosures: Adam Drewnowski received travel reimbursement for participation in the Low-Calorie Sweeteners Conference. The supplement is the responsibility of the Guest Editor to whom the Editor of *The Journal of Nutrition* has delegated supervision of both technical conformity to the published regulations of *The Journal of Nutrition* and general oversight of the scientific merit of each article. The Guest Editor for this supplement was Sibylle Kranz. Guest Editor disclosure: Sibylle Kranz has received funding from The Kellogg Company to conduct research projects unrelated to this supplement material. She has also been an invited speaker at a roundtable discussion funded by The Kellogg Company. Publication costs for this supplement were defrayed in part by the payment of page charges. This publication must therefore be hereby marked "advertisement" in accordance with 18 USC section 1734 solely to indicate this fact. The opinions expressed in this publication are those of the authors and are not attributable to the sponsors or the publisher, Editor, or Editorial Board of *The Journal of Nutrition*.

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# Participants Loved Charts

Location	Latitude	Longitude	Type	Source	Answer		
					(1)	(2)	(3)
Worldwide	-	-	Mp	Mann et al. (1999)	Yes	No	Yes <sup>a</sup>
Arctic wide	-	-	Mp	Overpeck et al. (1997)	Yes	-	Yes <sup>a</sup>
Worldwide	-	-	Mp	Crowley & Lowery (2000)	Yes	No	Yes <sup>a</sup>
Worldwide	-	-	Mp	Jones et al. (1998)	Yes	No	Yes <sup>a</sup>
Worldwide	-	-	T	Briffa (2000)	Yes	No	Yes <sup>a</sup>
Worldwide	-	-	T	Briffa et al. (2001)	Yes	-	Yes <sup>a</sup>
Worldwide	-	-	T	Jones et al. (2001)	Yes	-	Yes <sup>a</sup>
NH mid-latitude	-	-	T	Esper et al. (2002)	Yes	Yes	No
Worldwide	-	-	Mp	Lamb (1977, 1982)	Yes	Yes	-
Worldwide	-	-	G + Is	Porter (1986)	Yes	Yes	-
Worldwide	-	-	G	Grove & Switsur (1994)	-	Yes	-
Worldwide	-	-	T+G+D	Hughes & Diaz (1994)	Yes	No? <sup>b</sup>	No? <sup>b</sup>
Worldwide	-	-	Mp	Grove (1996)	-	Yes	-
Worldwide	-	-	B	Huang et al. (1997)	Yes	Yes	No
Worldwide	-	-	D	Perry & Hsu (2000 <sup>c</sup> )	Yes	Yes	No
Worldwide	-	-	D	deMenocal (2001)	Yes	Yes	-
Americas	-	-	Ts+Gm+Mp	Stine (1998)	-	Yes	-
N. Atlantic (Iceland)	63-66° N	14-24° W	Mp	Ogilvie et al. (2000)	Yes	Yes	No
N. Atlantic (S. Greenland)	60-70° N	20-55° W	Mp	Ogilvie et al. (2000)	Yes	Yes	No
W. Europe	45-54° N	0-15° E	Mp	Pfister et al. (1998)	Yes	Yes	No
N. Atlantic (Europe)	35-70° N	25° W-30° E	In+D	Luterbacher et al. (2000)	Yes	-	-
Central England	52° N	2° E	In+D	Lamb 65, Manley (1974)	Yes	Yes	No
S. Spain	37.30° N	4.30° W	In+D	Rodrigo et al. (2000)	Yes	-	No
Crete Is.	35.15° N	25.00° E	D	Grove & Conterio (1995)	Yes	-	No
Mid-Russia	50-60° N	30-50° E	In+D	Borisenkov (1995)	Yes	-	-
Czech Republic	48.5-51.2° N	12-19° E	In+B	Bodri & Cermák (1999)	Yes	Yes	Yes?
S. USA	37-38° N	107.5-109.5° W	Pf+Cl+D	Petersen (1994)	Yes	Yes	-
E. China (Guang Dong Prov.)	22-25° N	112-114.3° E	D	Chan & Shi (2000)	Yes	-	-
E. China-wide	20-40° N	90-120° E	D	Song (2000)	Yes	-	No?
Japan	30-40° N	125-145° E	D	Tagami (1993, 1996)	Yes	Yes	No
S. Africa	22.2° S	28.38° E	Cl	Huffman (1996)	Yes	Yes	-
E. Greenland (Nansen Fjord)	68.3° N	29.7° W	Is	Jennings & Weiner (1996)	Yes	Yes	No
C. Greenland (Crête)	71.12° N	37.32° W	Is	Dansgaard et al. (1975)	Yes	Yes	No
C. Greenland (GRIP)	72.6° N	37.6° W	B	Dahl-Jensen et al. (1998)	Yes	Yes	No
S. Greenland (Dye 3)	65.2° N	43.8° W	B	Dahl-Jensen et al. (1998)	Yes	Yes	No
C. Greenland (GISP2)	72.58° N	38.5° W	Is+Ml	Meese et al. (1994)	Yes	Yes	No
C. Greenland (GISP2)	72.58° N	38.5° W	Is	Stuiver et al. (1995)	Yes	Yes	No
Svalbard	79° N	15° E	Ml	Tarussov (1995)	Yes	Yes	No
Devon Island	75° N	87° W	Ml	Koerner (1977)	Yes	-	Yes <sup>a</sup>
Ellesmere Island	80.7° N	73.1° W	Ml	Koerner & Fisher (1990)	Yes	Yes	No
Ellesmere Island	80.7° N	73.1° W	B+Is	Beltrami & Taylor (1995)	Yes	Yes	No
Gulf of Alaska	60-61° N	149° W	G+T	Calkin et al. (2001)	Yes	Yes	-
Swiss Alps (Gorner Glacier)	45.8-46.5° N	7.75-8.16° E	G+Gm	Holzhauser (1997)	Yes	Yes	No
(Grosser Aletsch Glacier)	45.8-46.5° N	7.75-8.16° E	Is+T	Holzhauser (1997)	Yes	Yes	No
South Georgia Island	54-55° S	36-38° W	G+Gm	Clapperton et al. (1989)	Yes	Yes	-
Southern Alps (Mueller Glacier)	43.44° S	170.06° E	G+Gm	Winkler (2000)	Yes	-	-
Antarctica (James Ross Island)	64.22° S	57.68° W	Is	Aristarain et al. (1990)	Yes?	-	No
Antarctica (Law Dome)	66.73° S	112.83° E	Is	Morgan (1985)	Yes	Yes	No
Antarctica (Victoria Land)	74.33° S	165.13° E	G+Gm+Is	Baroni & Orombelli (1994)	Yes	Yes	-



# Graphs

	Baseline	Follow-up
<b>Anthropometric</b>		
Body mass index (kg/m <sup>2</sup> )	20.73 (3.99)	22.23 (4.38)
Triceps skinfolds (mm)	15.87 (6.74)	17.38 (7.31)
Number obese*	150 (27.4%)	152 (27.7%)
Obesity incidence†	..	37 (9.3%)
<b>Dietary‡</b>		
Sugar-sweetened drinks (daily servings)	1.22 (1.10)	1.44 (1.09)‡
Fruit juice (daily servings)	1.28 (1.17)	1.08 (1.04)
Total energy intake (kJ)	8950 (4500)	9610 (4715)
Energy from fat	31.3% (5.4%)	30.1% (5.1%)
Change in sugar-sweetened drink consumption (daily servings)	..	0.22 (1.14)
Change in juice consumption (daily servings)	..	-0.20 (1.21)
Change in energy intake from fat	..	-1.8% (5.6%)
<b>Physical activity and inactivity</b>		
Daily television viewing (h)	3.32 (2.10)	3.11 (2.08)
Daily reported h of activity (≥3.5 met)	1.34 (1.09)	1.28 (1.03)
Weekly number of physical education lessons	2.00 (1.20)	2.09 (1.03)
Change in television viewing	..	-0.21 (2.07)
Change in h of activity	..	-0.06 (0.97)

\*BMI and triceps-skinfold measurements ≥85th reference percentiles. †Obesity incidence=number of the 398 individuals not obese at baseline, who became obese at follow-up. ‡p<0.001. All values are mean (SD) unless otherwise indicated.

**Table 1: Baseline (October, 1995) and follow-up (May, 1997) anthropometric, dietary, and activity data (n=548)**

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## Discussion

Participants were very clear and uniform about what they felt constituted cognitive authority.

Students liked what they felt was good methodology.

Disclosure statements did not serve as a red flag for the participants in this sample.

Participants were reluctant to criticize the research, and even when questioning they did it with reservation.

What should we look for to find articles that may have a conflict of interest?

# watch out for Supplements

Supplements to biomedical journals can be used as a forum to highlight a particular disease state or intervention. They are often sponsored by a commercial enterprise with a stake in the topic being discussed. For example the sponsor can be a pharmaceutical company wishing to promote their medications. Usually the supplement is funded through an unrestricted grant... (Citrome, 2004)

Supplements are generally not peer-reviewed, many need to be labeled as advertisements, but are often available free on the web, so they are often used by students.

## watch out for Symposia

Symposiums sponsored by drug companies often have promotional attributes and are not peer-reviewed. Financial relations among Symposium participants, sponsors, and journals should be completely disclosed, Symposiums should be clearly identified, and journal editors should maintain editorial control over contributions from Symposiums. (Bero, 1992)

Published Symposia are also available free, and likely to be used. They are also often shorter and easier to read, so are appealing to students. Like Supplements they appear very similar to other journal articles.

What can a reader do?

Disclosure statements are not always on the article. The Medical and biomedical fields frequently have disclosure statements, but these statements are rare in other disciplines.

Look at the article to

See if there are other signs of a conflict.

Research the authors, see if there are any red flags.

Check to see if they have done any previous funded research.

Does what you are looking at make sense within the context?

Do the conclusions fit the results?



You will want to carefully examine where the information comes from and the affiliations of the authors.

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Based on a presentation made at the 12th European Nutrition Conference FENS 2015, Nutrition and Health Throughout the Life Cycle—Science for the European Consumer as part of the session “Controversies about Sugar Consumption” first presented on October 21, 2015.



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This article belongs to a supplement sponsored by Rippe Health.



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✉ James M. Rippe  
jrippe@rippelifestyle.com



Theodore J. Angelopoulos  
tangelopoulos@ehc.edu

<sup>1</sup> Rippe Lifestyle Institute, 21 North Quinsigamond Avenue,  
Shrewsbury, MA 01545, USA



<sup>2</sup> School of Health Sciences, Emory and Henry College,  
Emory, VA 24327, USA

This article is a supplement sponsored by Rippe Health. Supplements do not undergo the same rigorous peer-review as typical articles. Supplements tend to be more promotional than typical journal articles.

James Rippe's email address is rippelifestyle.com and appears to be affiliated with Rippe Health. You should investigate exactly what this organization is, and who they are funded by.

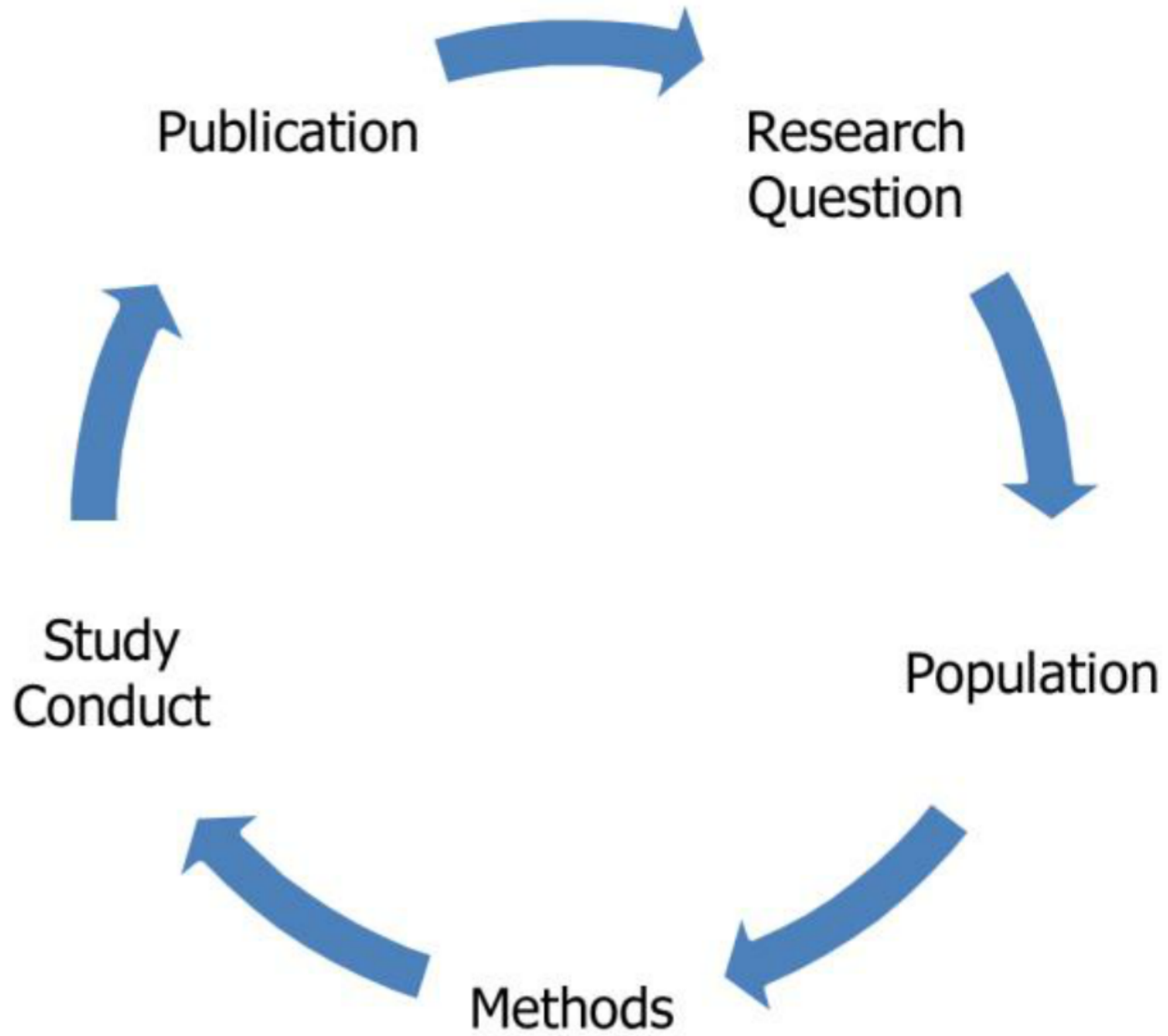
One thing that made my students skeptical was if the article did not fit with their "world view" the information they already knew about the subject. This can be a mixed bag. They may accept false information that "fits".

# Questions to Ask Yourself

Does the research fit the research question?

Does the population studied make sense?

Do the conclusions fit?



Cycle of Bias

Odierna et al, 2013

Does the article  
create doubt?

Does the article  
make sense?









Front groups often make publications that resemble publications from official sources. In this case the IPCC, the Intergovernmental Panel on Climate Change issued their report. The Heartland Institute, a group of climate change deniers funds the NIPCC The Nongovernmental International Panel on Climate change, a group that seeks to distort the science.



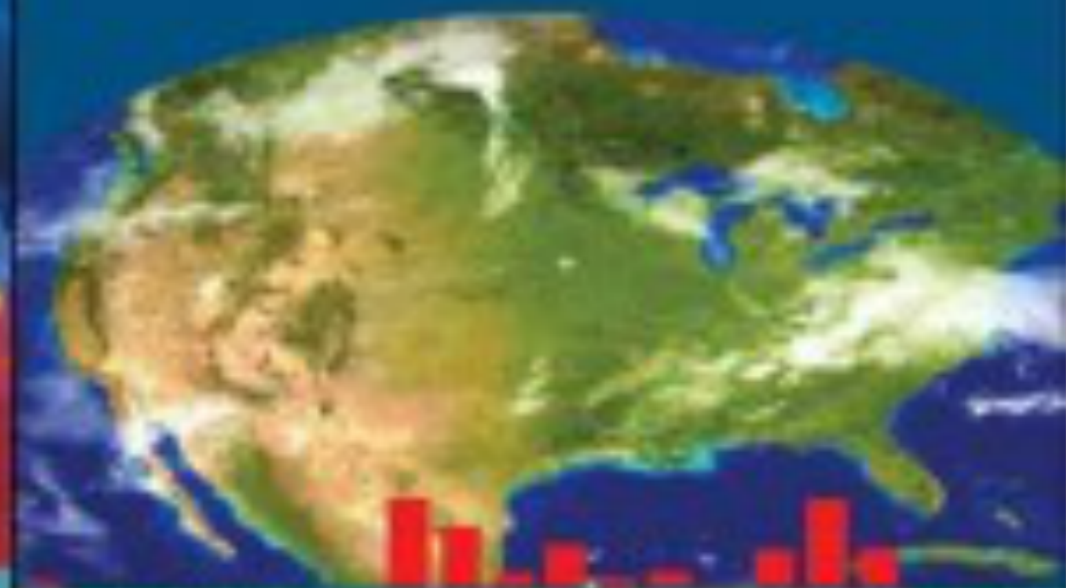
# Global Climate Change Impacts in the United States

U.S. GLOBAL CHANGE  
RESEARCH PROGRAM



# ADDENDUM: Global Climate Change Impacts in the United States

Center for the Study of Public Science and Public Policy  
Cass Institute







## Go Ahead, Have That Fourth Cup

If you're one of the millions of Americans that downs coffee or other caffeinated beverages to get through the work day, here's some good news. A new scientific review on the safety of caffeine says drinking up to four cups of coffee, or about 400 milligrams of caffeine, is pretty safe.

The review, which is the most exhaustive of its kind to date, was led by Esther Myers, specialist in systematic research reviews at the International Life Sciences Institute.

Systematic review of the potential adverse effects of caffeine consumption in healthy adults, pregnant women, adolescents, and children

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