

Science Communication & the Public



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Why We Need to Understand Science

- We live in a society exquisitely dependent on science and technology, in which hardly anyone knows anything about science and technology. This is a clear prescription for disaster.

– Carl Sagan, 1990



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Ignorance as a Virtue

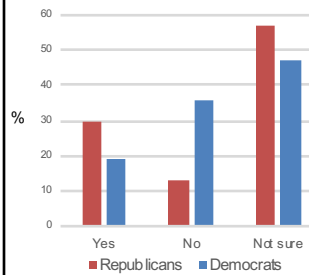
- Anti-intellectualism has been a constant thread winding its way through our political and cultural life, nurtured by the false notion that democracy means that *'my ignorance is just as good as your knowledge.'*

– Isaac Asimov, 1980



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« Would you Support Bombing Agrabah? »



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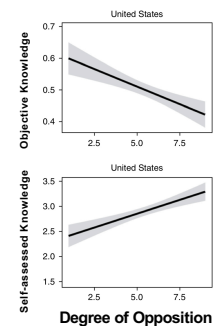
Opposition to GMOs and Biotech



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Opposition to GMO Study

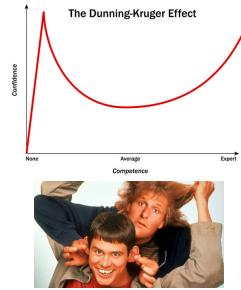
- Psychology research in USA & Canada in 2019
- Asked 500 Americans about concern and opposition to GMOs
 - Over 90% voiced some concern/opposition
- Were tested on their understanding of science and genetics



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Dunning-Kruger Effect

- « Not only do such people reach erroneous conclusions and make unfortunate choices, but their incompetence robs them of the ability to realize it »



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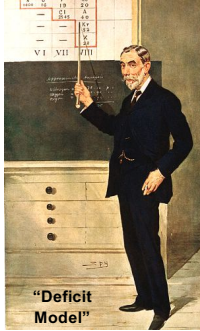
Where is the False Knowledge From?

- Google searches
- WIKIPEDIA knowledge The Free Encyclopedia
- Lay people bloggers
- Celebrities and influencers
- Fueled by lack of metacognition and by confirmation bias



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From PUS to Science Literacy



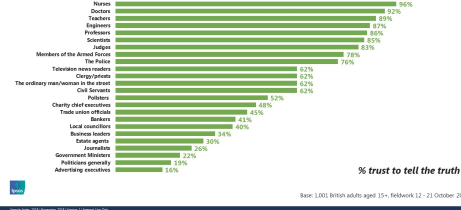
Engagement with Science

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Trust in Science

Veracity Index 2018 – all professions

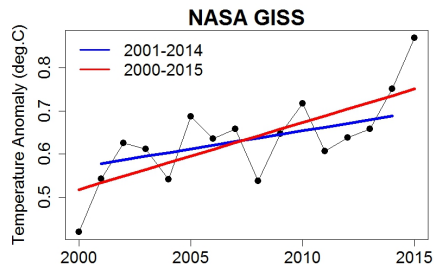
"Now I will read you a list of different types of people. For each would you tell me if you generally trust them to tell the truth, or not?"



Base: 1,001 British adults aged 16+, February 12 - 20 October 2018

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Science Communication Backfires



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The Role of Values




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Cultural World Views

● Hierarchy-Egalitarianism

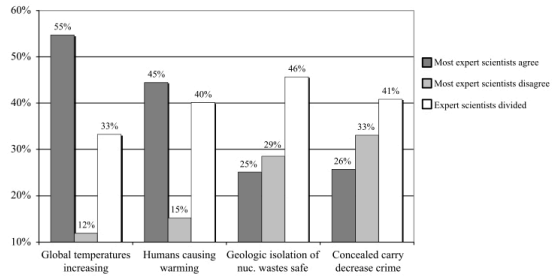


● Individualism-Communitarianism



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Perceptions of Science

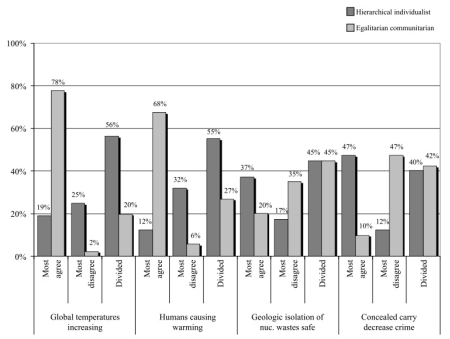


Topic	Most expert scientists agree	Most expert scientists disagree	Expert scientists divided
Global temperatures increasing	55%	12%	33%
Humans causing warming	45%	15%	40%
Geologic isolation of nuc. wastes safe	25%	29%	46%
Concealed carry decrease crime	26%	33%	41%

Kahan et al. (2011) Cultural Cognition

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Perception vs. World View

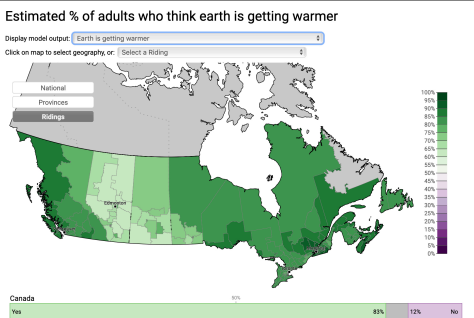


Topic	World View	Most agree	Most disagree	Divided
Global temperatures increasing	Hierarchical individualist	19%	25%	56%
	Egalitarian communitarian	78%	2%	20%
Humans causing warming	Hierarchical individualist	12%	33%	55%
	Egalitarian communitarian	68%	6%	27%
Geologic isolation of nuc. wastes safe	Hierarchical individualist	20%	17%	63%
	Egalitarian communitarian	45%	33%	22%
Concealed carry decrease crime	Hierarchical individualist	10%	12%	78%
	Egalitarian communitarian	47%	40%	13%

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World View in Canada

Estimated % of adults who think earth is getting warmer



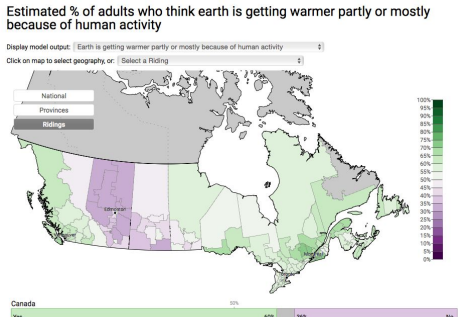
Province	Estimated %
Alberta	12%
British Columbia	81%
Manitoba	60%
Ontario	60%
Quebec	12%
Saskatchewan	12%
Atlantic	12%

<https://www.umontreal.ca/climat/en/>

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World View in Canada

Estimated % of adults who think earth is getting warmer partly or mostly because of human activity




Province	Estimated %
Alberta	29%
British Columbia	60%
Manitoba	60%
Ontario	60%
Quebec	17%
Saskatchewan	17%
Atlantic	17%

<https://www.umontreal.ca/climat/en/>

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The Six Americas



December 2018 n=1,114

Level	Percentage
Alarmed	29%
Concerned	30%
Cautious	17%
Disengaged	5%
Doubtful	9%
Dismissive	9%


Highest Belief in Global Warming: Most Concerned, Most Motivated

Lowest Belief in Global Warming: Least Concerned, Least Motivated

The Six Americas

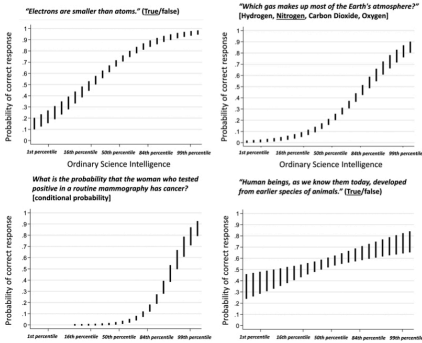
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Belief is Rooted in Values



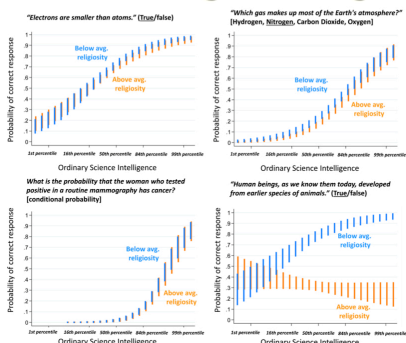
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Knowledge of Science



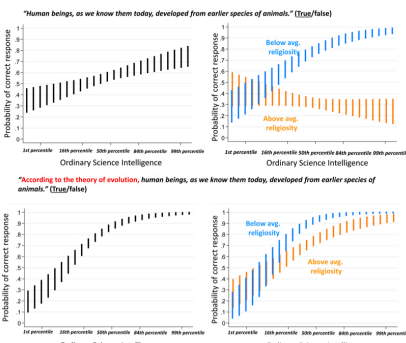
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Science Knowledge vs. Religiosity



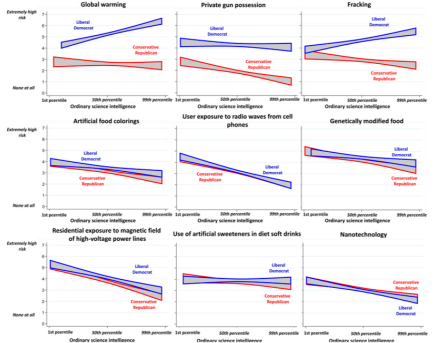
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Reframing for Religiosity



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Politics and Risk Perception



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Toxic Masculinity




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Is Eco-Friendly Unmanly?

Brough et al. (2019)

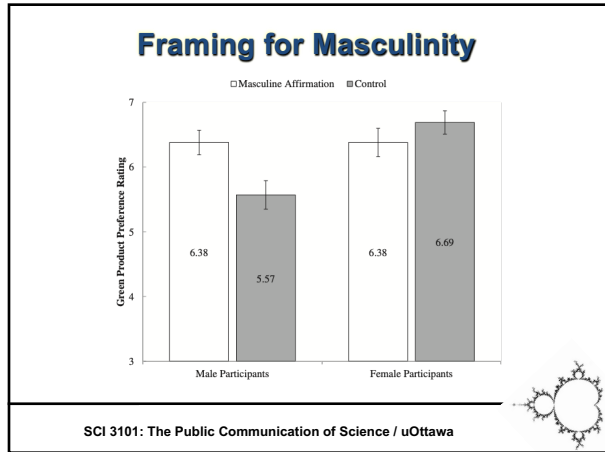


More Environmentally-friendly Choices




Too Threatened to Take a Stand

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Questions?



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