

Why communication matters in science & engineering

NSE
Nuclear Science
and Engineering

science : systems : society

22.011

Nuclear Science:
Science, Systems, and Society

Feb 5, 2020

Impact of Science on Society

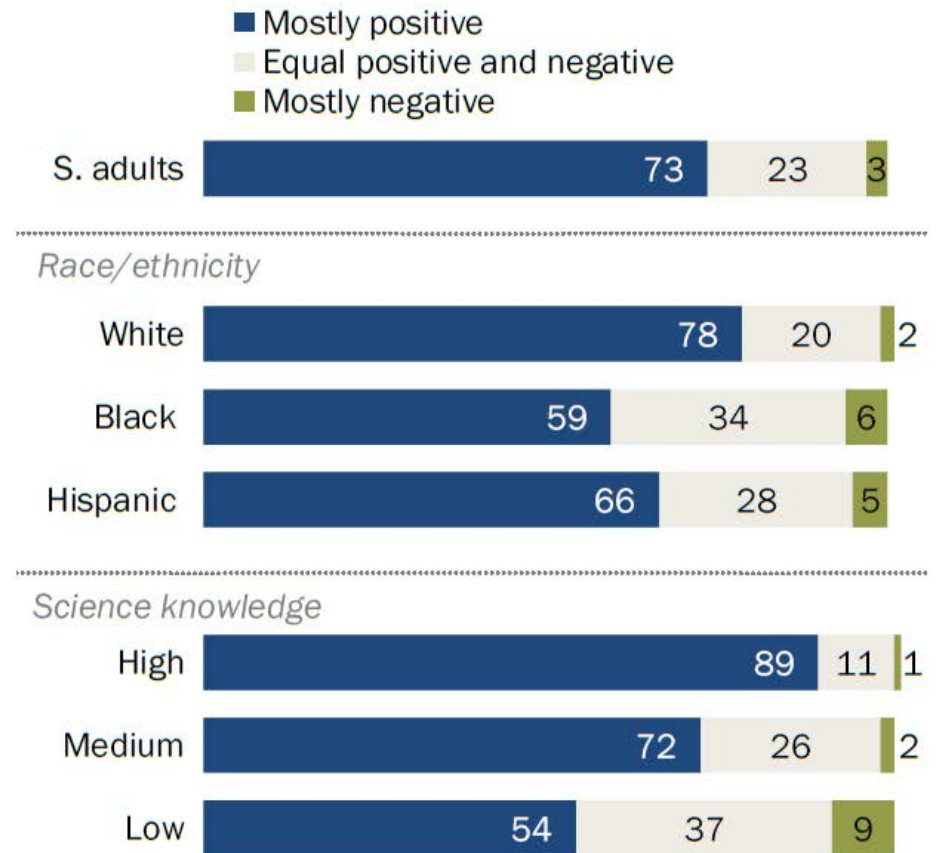


Image: Gregory Rec/Portland Press Herald via Getty Images

<https://www.pewresearch.org/fact-tank/2019/08/27/most-americans-say-science-has-brought-benefits-to-society-and-expect-more-to-come>

Majority of Americans say science has a mostly positive impact on society

% of U.S. adults in each group who say science has had a ___ effect on society



Note: Respondents who did not give an answer are not shown. See Methodology of report for details on index of science knowledge. Whites and blacks include those who report being only one race and are non-Hispanic. Hispanics are of any race.

Source: Survey conducted Jan. 7-21, 2019. n = 4,464

“Trust and Mistrust in Americans’ Views of Scientific Experts”

PEW RESEARCH CENTER

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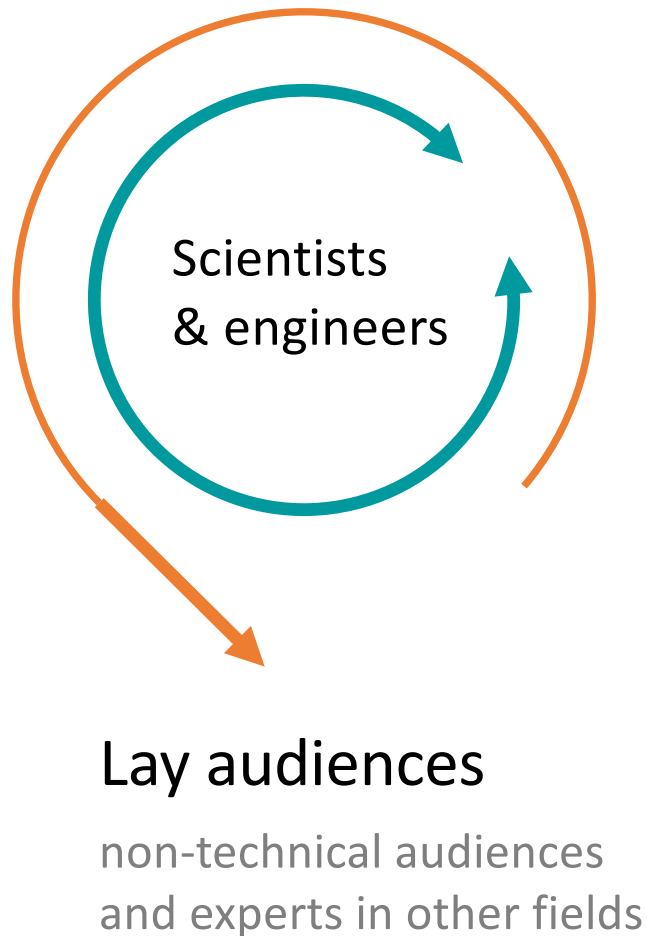
Impact of Society on Science



Cystic Fibrosis Foundation, 2018 Great Strides Walk in Hoover, AL
Photo: Amy M. Montz

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How do scientists and engineers share information about their work?



- Lab reports
- Technical notes
- Conference presentations
- Peer-reviewed publications
- ...
- In-person conversations
- Town halls
- Demonstrations at schools, museums...
- News, magazines, op-eds
- Social media (YouTube, Facebook, Twitter...) and blogs
- Flyers, posters, documentaries...

Example 1: “The New Fire”



<https://www.newfiremovie.com>

Example 2: Vaccines and autism

“Let me say this about autism, I have committed to people in my community, up in Montgomery County [Tennessee], to stand on the CDC’s desk and get the real data on vaccines. Because there is some concern that the rise in autism is the result of the preservatives that are in our vaccines.

As a physician, I can make that argument and I can look at it academically and make the argument against the CDC, if they really want to engage me on it.”

– Dr. Mark Green (U.S. House of Representatives)



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What channels do we use to communicate?

VERBAL (words)

- Written: documents, email/text messages...
- Oral: conversations, phone calls, lectures...

NON-VERBAL (no words)

- Body language & facial expressions
- Messages about personalities or values: aesthetics (dance), symbols (status, religious-inspired jewelry)...

VISUAL (visual aid)

- Graphs, typography, color...

What are some barriers to effective communication?

- Technical gap
- Emotional/experiential gap
- Assumptions, misconceptions
- Language/cultural barriers
- Limited attention span or availability
- No interest in the topic
- ...

When communicating,
aim to increase your signal-to-noise ratio.



Figure courtesy of Sarah Bening, Tej Chajed, and George Sun. Used with permission.

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22.011 Nuclear Engineering: Science, Systems and Society
Spring 2020

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