

INFORMED CONSENT

The purpose of this study is to understand how people in America feel about science. Before we begin, we want to assure you that all the information you give will be kept completely confidential and that none of it will be released in any way that would permit identification of you or your family. Your participation in this study is, of course, voluntary. All research will be conducted on the Internet using an online survey.

If you decide to participate in this research, you will be asked to complete an online questionnaire. Participation will require answering a series of questions and viewing a social media post. You will be asked to complete one survey or interview. While reading and answering the following questions, please do not visit other websites online.

The risks of this study are minimal. You may feel upset thinking about personal information related to your opinions. These risks are similar to those you experience when discussing personal information with others. If you feel upset from this experience, you can tell the researcher, and he/she will tell you about resources available to help. We anticipate a minimal risk to you from you participating in this study. Also, we do not anticipate any direct benefits to you from participating in the study.

Faculty, students, and staff who may see your information will maintain confidentiality to the extent of laws and university policies. Personal identifiers will not be published or presented. Questionnaire data will be accessible to only the primary researchers of the study to reflect this. In other words, all data obtained from participants will be kept confidential and will be used solely for the research purpose. If you have any questions complaints or if you feel you have been harmed by this research, please contact one of the Principal Investigators listed below:

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Contact the Institutional Review Board (IRB) if you have questions regarding your rights as a research participant. Also, contact the IRB if you have questions, complaints or concerns which you do not feel you can discuss with the investigator. The University of Utah IRB may be reached by phone at (801) 581-3655 or by e-mail at irb@hsc.utah.edu. The University of Illinois IRB may be reached by phone at (217) 333-2670 or by e-mail at irb@illinois.edu. The University of Georgia IRB may be reached by phone at (706) 542-3199 or by e-mail at irb@uga.edu.

It should take approximately 15 minutes to complete the questionnaire. Participation in this study is voluntary. You can choose not to take part or not to finish the questionnaire.

By selecting “Yes” on the following question, you are acknowledging that you have read the information in this consent form and volunteer to participate in this study. Please print or download a copy of this consent form for your records, if you so desire.

Thank you for your time and consideration in taking part in this research project.

CONS. I agree to participate in this study and have read the consent form above.

Yes..... 1
No 2

[PAGE BREAK]

Commented [SKY1]: Fielding period: Oct 10, 2018 – Oct 31, 2018

[IF 2 IS SELECTED, SKIP TO END OF SURVEY]

SC1. I am 18+ years old.

Yes..... 1
No 2

[IF 2 IS SELECTED, SKIP TO END OF SURVEY]

SC2. I currently reside in the United States.

Yes..... 1
No 2

[PAGE BREAK]

DEMOGRAPHICS

D0. Because we try to get responses and opinions from different people, we would like to ask you a few questions that help us to reach people of different ages, genders, and so on. Once again, these responses will only be used for academic research purposes.

D1. How much guidance does religion provide in your everyday life?

No guidance at all						A great deal of guidance
1	2	3	4	5	6	7

[PAGE BREAK]

D2. The terms “liberal” and “conservative” may mean different things to people, depending on the kind of issue one is considering. In terms of economic issues, would you say you are:

Very liberal	Liberal	Somewhat liberal	Moderate	Somewhat conservative	Conservative	Very conservative
1	2	3	4	5	6	7

D3. Now, thinking in terms of social issues, would you say you are:

Very liberal	Liberal	Somewhat liberal	Moderate	Somewhat conservative	Conservative	Very conservative
1	2	3	4	5	6	7

[PAGE BREAK]

D4. Generally speaking, do you consider yourself a(n)...

Democrat 1
Republican 2
Independent 3
No preference 4
Other party 5
Don't know/Prefer not to answer 9

D5. What year were you born?

[DROPDOWN MENU WITH OPTION RANGE 1900-2000]

D6. What is your sex?

Male 1
 Female 2
 Other 3

D7. Please choose one or more races that you consider yourself to be.

White 1
 Asian 2
 Black or African-American 3
 Native Hawaiian or Pacific Islander 4
 American Indian or Alaskan Native 5
 Other 9

D8. How many years of formal education (including K-12 and higher education) have you completed?

[DROPDOWN MENU WITH OPTION RANGE 0...30, 31+] years

D9. How many college-level science courses have you taken?

[DROPDOWN MENU WITH OPTION RANGE 0...7, 8+]

[IF Q33 = 17+]

D10. Is your college degree in a scientific or science-related field?

Yes 1
 No 2

[PAGE BREAK]

PRE. We are conducting a study on how people feel about science. We are asking people to answer questions about science and related issues to get an idea of what people think about them.

While reading and answering the following questions, please do not visit other websites.

Please read each item carefully and select the appropriate option to indicate your response. To start, here are a few questions about your typical use of media.

MEDIA ATTENTION

Q1. How many days a week do you read a newspaper, either in print or online?

[DROP DOWN 0 TO 7] days

[PAGE BREAK]

RANDOMIZE ITEMS

Q2. How much attention do you pay to news stories about the following topics when you read the newspaper, either in print or online?

None						A lot
------	--	--	--	--	--	-------

1	2	3	4	5	6	7
1) International and national affairs 2) Local government and politics 3) Stories related to science and technology 4) Stories about scientific studies in new areas of research						

[PAGE BREAK]

[RANDOMIZE ITEMS]

Q3. How much attention do you pay to news stories about the following topics when you watch **television news**, either on a traditional television or in online sources (such as Hulu or web sites of television networks, such as ABC, CBS, NBC, Fox or CNN)?

None						A lot
1	2	3	4	5	6	7

- 1) International and national affairs
- 2) Local government and politics
- 3) Stories related to science and technology
- 4) Stories about scientific studies in new areas of research

[PAGE BREAK]

[RANDOMIZE ITEMS]

Q4. How much attention do you pay to news stories about the following topics when you **go online**? Please exclude social networking sites (such as Facebook or Twitter) and online versions of print newspapers or television shows and answer this question based on your usage of blogs, websites, and online-only newspapers.

None						A lot
1	2	3	4	5	6	7

- 1) International and national affairs
- 2) Local government and politics
- 3) Stories related to science and technology
- 4) Stories about scientific studies in new areas of research

[PAGE BREAK]

[RANDOMIZE ITEMS; ANCHOR Q5_7]

Q5. We would like to know more about your typical use of social media. How often do you use the following social networking sites?

Never						Often
1	2	3	4	5	6	7

- 1) Facebook
- 2) Twitter
- 3) Instagram
- 4) Snapchat
- 5) Reddit
- 6) YouTube
- 7) Other social networking sites: [TEXT BOX]

[PAGE BREAK]

[RANDOMIZE ITEMS]

Q6. How much attention do you pay to news stories about the following topics when you go to **social networking sites**?

None						A lot
1	2	3	4	5	6	7

- 1) International and national affairs
- 2) Local government and politics
- 3) Stories related to science and technology
- 4) Stories about scientific studies in new areas of research

[PAGE BREAK]

[RANDOMIZE ITEMS]

Q7. How much attention do you pay to the following **types of content**, either in traditional or online media?

None						A lot
1	2	3	4	5	6	7

- 1) Science-themed comedies, such as “The Big Bang Theory”
- 2) Science-themed dramas, such as “CSI: Crime Scene Investigation”
- 3) Science documentaries on stations such as PBS, Discovery Channel, or National Geographic Channel
- 4) Late-night **network** TV comedy news, such as “The Tonight Show with Jimmy Fallon” or “The Late Show with Stephen Colbert”
- 5) Late-night **cable** TV comedy news, such as “The Daily Show with Trevor Noah” or “Last Week Tonight with John Oliver”
- 6) Science podcasts, such as “Science Friday” or “Radiolab”

[PAGE BREAK]

HUMOR

[RANDOMIZE ITEMS]

Q8. We would now like to know about your attitudes and preferences as they relate to humor. Please tell us how much you agree or disagree with the following statements.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

- 1) I can say things in such a way as to make people laugh.
- 2) People look to me to say amusing things.
- 3) I can ease a tense situation by saying something funny.
- 4) I like a good joke.
- 5) I appreciate those who generate humor.
- 6) I am good at thinking-up jokes or funny stories.
- 7) I enjoy being with people who tell jokes or funny stories.

Commented [SKY2]: MSHS (Thorson & Powell, 1993)
Need for humor (Cline et al., 1999; Picard & Blanc, 2013)

[PAGE BREAK]

[RANDOMIZE ITEMS]

Q9. Continuing with humor, please tell us how much you agree with the following statements.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

- 1) People expect me to say amusing things.
- 2) I can crack people up with the things I say.
- 3) I often come up with witty comments.
- 4) People tell me that I am quick-witted.
- 5) I often feel the need to make other people laugh.
- 6) I enjoy being around quick-witted people.

[PAGE BREAK]

ATTITUDES**[RANDOMIZE ITEMS]**Q10. **Next**, please indicate the extent to which each of the following statements describes you.

Not at all like me						A lot like me
1	2	3	4	5	6	7

- 1) I prefer complex to simple problems.
- 2) I like having the responsibility of handling a situation that requires a lot of thinking.
- 3) I find satisfaction in deliberating hard and for long hours.
- 4) I enjoy a task that involves coming up with new solutions to problems.
- 5) I prefer my life to be filled with puzzles that I must solve.
- 6) I form opinions about everything.
- 7) It is very important to me to hold strong opinions.
- 8) It bothers me to remain neutral.
- 9) I would rather have a strong opinion than no opinion at all.
- 10) I pay a lot of attention to whether things are good or bad.

Commented [SKY3]: Need for cognition (Sohlberg, 2016; Nir, 2011; Cacioppo & Petty, 1982)
Need to evaluate (Nir, 2011)
Need for orientation (Lee, 2015)

[PAGE BREAK]

[RANDOMIZE ITEMS]Q11. **Now**, please rate how much you agree or disagree with the following statements.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

- 1) Emotions help people get along in life.
- 2) It is important for me to know how others are feeling.
- 3) If I reflect on my past, I see that I tend to be afraid of feeling emotions.
- 4) I think that it is important to explore my feelings.
- 5) I would prefer not to experience either the lows or highs of emotion.
- 6) Emotions are dangerous; they tend to get me into situations that I would rather avoid.

Commented [SKY4]: BIS/BAS (Appel et al., 2012)

[PAGE BREAK]

[RANDOMIZE ITEMS]

Q12. The next set of statements concern your personal reactions to a number of situations. Please consider each statement carefully and indicate how much you agree or disagree with them.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

- 1) It is my feeling that if everyone else in a group is behaving in a certain manner, this is probably the proper way to act.
- 2) When I am uncertain how to act in a social situation, I look to the behavior of others for cues.
- 3) I try to pay attention to how others react to my behavior in order to avoid being out of place.
- 4) At parties, I often behave in a manner that sets me apart.
- 5) When in a social situation, I tend not to follow the crowd but, instead, behave in a manner that suits my particular mood at the time.
- 6) It's important to me to fit into the group I'm with.
- 7) My behavior often depends on how I feel others think I should behave.

Commented [SKY5]: Self-monitoring scale (Lennox & Wolfe, 1984a; 1984b)

[PAGE BREAK]

KNOWLEDGE MANIPULATION

[RANDOM ASSIGNMENT OF PARTICIPANTS TO Q13 or Q13_alt]

[RANDOMIZE ITEMS]

Q13. Now, you are going to read a few statements about science. Could you tell us for each of the following statements if you think it is true or false?

Definitely true	Likely true	Likely false	Definitely false	Don't know
1	2	3	4	9

- 1) The center of the earth is very hot.
- 2) The continents have been moving their location for millions of years and will continue to move.
- 3) All radioactivity is man-made.
- 4) Electrons are smaller than atoms.
- 5) Lasers work by focusing sound waves.
- 6) It is the father's gene that decides whether the baby is a boy or a girl.
- 7) Antibiotics kill viruses as well as bacteria.

Commented [SKY6]: National Science Board knowledge items.

[RANDOMIZE ITEMS]

Q13_alt. Now, you are going to read a few statements about science. Could you tell us for each of the following statements if you think it is true or false?

True	False	Don't know
1	2	9

- 1) The center of the earth is very hot.
- 2) The continents have been moving their location for millions of years and will continue to move.
- 3) All radioactivity is man-made.

- 4) Electrons are smaller than atoms.
- 5) Lasers work by focusing sound waves.
- 6) It is the father's gene that decides whether the baby is a boy or a girl.
- 7) Antibiotics kill viruses as well as bacteria.

[PAGE BREAK]

INTEREST

[RANDOMIZE ITEMS]

Q14. How interested are you generally in the following?

Not interested at all						Very interested
1	2	3	4	5	6	7

- 1) Politics and current affairs
- 2) Science issues
- 3) Environmental issues
- 4) Advances in technology

[PAGE BREAK]

TRUST

[RANDOMIZE ITEMS]

Q15. Now, we would like to ask you which of the following sources of information, if any, you trust to tell the truth about science. How much do you trust the following?

Do not trust at all						Trust very much
1	2	3	4	5	6	7

- 1) University scientists
- 2) Industry scientists
- 3) Politicians
- 4) Friends and family
- 5) Regulatory agencies
- 6) Social media
- 7) Traditional media organizations (e.g., TV, radio, newspapers)

[PAGE BREAK]

[RANDOMIZE ITEMS; ANCHOR Q16_7]

Q16. Please also rate how much you trust the following social media platforms as sources of science information.

Do not trust at all						Trust very much
1	2	3	4	5	6	7

- 1) Facebook
- 2) Twitter
- 3) Instagram

- 4) Snapchat
- 5) Reddit
- 6) YouTube
- 7) Other social networking sites: [TEXT BOX]

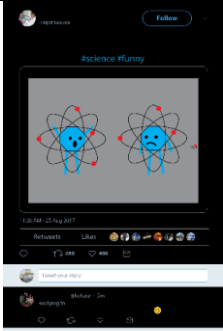
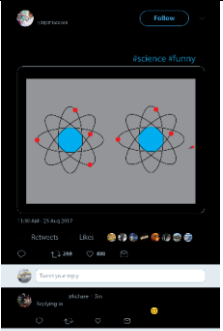
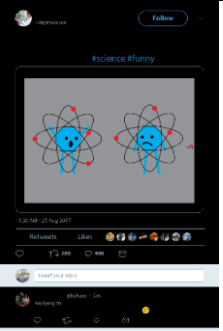
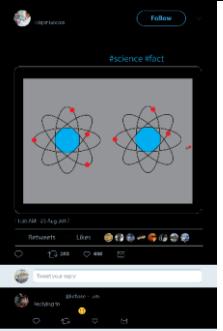
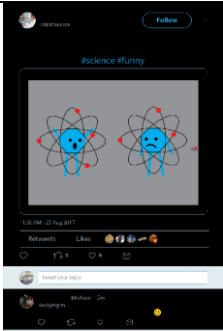
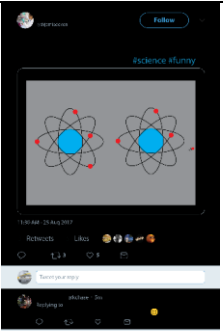
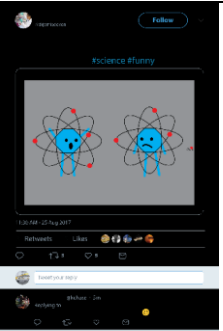
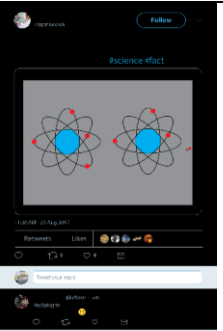
[PAGE BREAK]

STIMULUS INTRO

On the next page, you will see a screenshot of a Twitter conversation started by a scientist. Because this is a screenshot, you will not be able to click on any of the content. **Please read it carefully.** We will ask you more questions after viewing the Twitter conversation.

[PAGE BREAK]

[DISPLAY STIMULUS]

STIM_1	STIM_2	STIM_3	STIM_4
			
High Anthro	High Wordplay	High Anthro + WP	High No Humor
STIM_5	STIM_6	STIM_7	STIM_8
			
Low Anthro	Low Wordplay	Low Anthro + WP	Low No Humor

NOTE: All stimuli contain a text box for respondents to add their own comment. Images are displayed for at least 15 seconds.

STIM_#_COMM. If you have a comment to add to this Twitter conversation, please enter it in the space below.

[TEXT BOX]

[PAGE BREAK]

MANIPULATION CHECK

Q17. **As best you can recall**, what was the number of **retweets** associated with the original post?

- 0 to 10 retweets..... 1
 11 to 50 retweets 2
 51 to 100 retweets 3
 101 to 500 retweets 4
 501 to 1000 retweets 5
 More than 1000 retweets..... 6
 Cannot recall..... 99

Q18. Do you consider this number of **retweets** to be...?

Very few retweets						A lot of retweets	Cannot recall
1	2	3	4	5	6	7	99

Q19. What was the number of **likes** associated with the post?

- 0 to 10 likes..... 1
 11 to 50 likes..... 2
 51 to 100 likes..... 3
 101 to 500 likes..... 4
 501 to 1000 likes..... 5
 More than 1000 likes..... 6
 Cannot recall..... 99

Q20. Do you consider this number of **likes** to be...?

Very few likes						A lot of likes	Cannot recall
1	2	3	4	5	6	7	99

[PAGE BREAK]

DEPENDENT VARIABLES

[RANDOMIZE ITEMS]

Q21. Please indicate how you would describe the **Twitter conversation you just saw** using the following pairs of words. The closer your selection is to a word, the more certain you are of your evaluation. The Twitter conversation was...

	1	2	3	4	5	6	7	
1) not humorous								humorous
2) not funny								funny
3) not playful								playful

Commented [SKY7]: Message credibility (Appelman & Sundar, 2016)

4) not amusing								amusing
5) not dull								dull
6) not accurate								accurate
7) not authentic								authentic
8) not believable								believable
9) not popular								popular
10) not well-liked								well-liked
11) not entertaining								entertaining

[PAGE BREAK]

[RANDOMIZE ITEMS]

Q22. And, please indicate the extent to which you felt the following:

Not at all						Very much
1	2	3	4	5	6	7

- 1) Interested
- 2) Distressed
- 3) Excited
- 4) Upset
- 5) Enthusiastic
- 6) Irritable
- 7) Ashamed
- 8) Inspired

Commented [SKY8]: PANAS (Watson & Clark, 1994)

[PAGE BREAK]

[RANDOMIZE ITEMS]

Q23. People participate in different types of information sharing and gathering on social media.

Thinking back to the Twitter conversation, please tell us how much you agree or disagree with the following statements.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

- 1) The Twitter conversation is worth sharing with others.
- 2) I would recommend the Twitter conversation to others.
- 3) I would "like" the Twitter conversation.
- 4) I would "retweet" the Twitter conversation.
- 5) I would "share" the Twitter conversation with others.
- 6) I would add my own comment to the Twitter conversation.
- 7) I would discuss the Twitter conversation with others.
- 8) I enjoyed reading the Twitter conversation.

Commented [SKY9]: Self-efficacy in science learning (Sha et al., 2015)

[PAGE BREAK]

[RANDOMIZE ITEMS]

Q24. Now, thinking more about information seeking related to science, please indicate the extent to which **the Twitter conversation** would motivate you to...

Not at all						Very much
1	2	3	4	5	6	7

- 1) pay more attention to **science in the news**.
- 2) pay more attention to **science in social media**.
- 3) find out more about **scientific research**.
- 4) follow Jamie Devon, the **scientist who started the Twitter conversation**.
- 5) follow more **scientists on social media**.
- 6) follow more **scientific institutions on social media**.
- 7) follow more **research centers on social media**.
- 8) pay closer attention to **updates from scientists on social media**.

[PAGE BREAK]

[RANDOMIZE ITEMS]

Q25. The next set of questions are about the **scientist who started the Twitter conversation** you saw earlier. Please indicate how strongly you agree or disagree with the following statements.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

- 1) This person seems friendly.
- 2) This person seems likable.
- 3) This person seems warm.
- 4) This person seems approachable.
- 5) This person seems professional.
- 6) This person seems competent.
- 7) This person seems qualified.
- 8) This person seems well-educated.
- 9) This person seems arrogant.
- 10) This person seems annoying.

[PAGE BREAK]

[RANDOMIZE ITEMS]

Q26. **Compared to scientists in general**, how much better or worse do you think the scientist from the Twitter conversation is at each of the following activities?

Much worse			About the same			Much better
1	2	3	4	5	6	7

- 1) Communicating with public audiences
- 2) Conducting high-quality scientific research
- 3) Persuading audiences about the value of science
- 4) Sharing research with the public
- 5) Connecting with non-scientists
- 6) Understanding public knowledge about science
- 7) Engaging with the public

Commented [SKY10]: Reysen likeability scale (Reysen, 2005)
Muenster Epistemic Trustworthiness Inventory (METI; Hendriks et al., 2015)

[PAGE BREAK]

DEBRIEFING FORM

Debrief. Thank you very much for participating in our study. The purpose of this study is to learn more about the role of humor in science communication and its influence on how people feel about science and scientists. The Twitter conversation you viewed was taken or paraphrased from real Twitter posts. However, the scientist and users who retweeted or liked the post were fictional.

If you have questions about the research after today, you should contact the Principal Investigators.

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Leona Yi-Fan Su (phone: 217-300-8273; email: lyfsu@illinois.edu)

Michael A. Cacciato (phone: 706-542-2711; email: mcacciat@uga.edu)

We would like to remind you that your participation in this research is completely voluntary. If you would like to withdraw from this study, please let any of the Principal Investigators know and we will destroy any data collected about you during this study. The decision to withdraw from this research will involve no penalty or loss of any benefits to which you are otherwise entitled. This will not affect your relationship with the investigators.

Institutional Review Board: Contact the Institutional Review Board (IRB) if you have questions regarding your rights as a research participant. Also, contact the IRB if you have questions, complaints or concerns which you do not feel you can discuss with the investigator. The University of Utah IRB may be reached by phone at (801) 581-3655 or by e-mail at irb@hsc.utah.edu. The University of Illinois IRB may be reached by phone at (217) 333-2670 or by e-mail at irb@illinois.edu. The University of Georgia IRB may be reached by phone at (706) 542-3199 or by e-mail at irb@uga.edu.