DISCLOSURE STATEMENT FOR JOURNALISTS:
ANSWERS TO STANDARD POLL REPORTING QUESTIONS

FULL ARTICLE: Plutzer, Eric, Glenn Branch and Amanda L. Townley. 2024. "Climate change education in U.S. middle schools: Changes over five pivotal years" *Journal of Microbiology & Biology Education.* https://journals.asm.org/doi/10.1128/jmbe.00015-24

CONTACT FOR QUESTIONS ABOUT SURVEY METHODOLOGY:
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1. Who conducted the poll?

The surveys were conducted by Penn State University with Professor Eric Plutzer serving as Principal Investigator. Plutzer is director of Penn State's Graduate Program in Survey Methodology and serves as co-editor-in-chief of *Public Opinion Quarterly* (through June 30, 2024).

Fieldwork for the two surveys was conducted by several organizations. Postal contacts and mail (pencil-paper) surveys were conducted by the Penn State Survey Research Center in 2014 and by NPC, Inc. in 2019. The web survey follow-up was conducted by the Penn State Survey Research Center in 2014 and by Eric Plutzer in 2019, both using the Qualtrics platform.

2. How were respondents interviewed?

Respondents were recruited by post and asked to complete a pencil and paper questionnaire. Non-respondents were then contacted by email and invited to complete the survey online.

3. Who paid for the survey and why was it done?

Penn State conducted both surveys under a contract with the National Center for Science Education. NCSE senior staff consulted on the questionnaire design. Once the questionnaire was finalized, all data collection and data analysis were conducted at Penn State. Replication data for this paper are available at:

> Plutzer E. 2024. "Replication Data for: Plutzer, Eric, Glenn Branch, and Amanda L. Townley. 2024. 'Climate change education in U.S. middle schools: changes over five pivotal years'". Harvard Dataverse, V1. Available from: https://doi.org/10.7910/DVN/HZHMO1

The survey was conducted to assess change in teaching practices, and designed to be directly comparable – in data collection methods and question wording – with previous national surveys of science teachers.

4. How many people were interviewed for this survey?

A total of 1500 teachers completed the 2014 survey and 1499 completed the 2019 survey. This paper is based on the subset of 678 Middle School teachers.

5. In what language(s) were respondents interviewed?

English

6. Question wording:

The full questionnaire is available:

Plutzer, Eric, 2020, "2019 Survey of American Science Teachers", https://doi.org/10.7910/DVN/4FBY8O, Harvard Dataverse, V1

7. When was your survey conducted?

The first survey was conducted November of 2014 and February of 2015. The later survey was in the field from February through May of 2019.

8. What is the source of your sample for this survey, and by what method were respondents selected?

The samples were drawn, based on investigator specifications, from a national teacher file maintained by MDR (Market Data Retrieval, a Dunn and Bradstreet direct mail firm that maintains the largest mailing list of educators in the US). To ensure national coverage, the national list science teachers was first stratified by state and urban/suburban/other location. With the District of Columbia serving as a single stratum, this produced 151 segments. Within each segment, we selected a random sample to obtain our recruitment list containing eacher names and addresses.

9. Were quotas applied to sampling or interviewing?

No quotas were employed.

10. What is the universe of people you are trying to survey?

The universe for this paper is defined as all public middle school teachers who teach science classes. For the larger project, the universe also includes all public high school teachers.

11. If surveys were conducted online, were respondents allowed to complete the survey via mobile browsers, and approximately what share of your respondents did so?

We do not have a breakdown by operating system.

14. What is your estimate of this survey's error? If you are reporting a margin of sampling error, has it been adjusted for design effects?

The maximum estimated Margin of Sampling Error for the full sample of middle school biology teachers is ± 4%. This includes design effects that account for weighting (typical DEFT for percentages reported in the referenced paper range from 1.05 to 1.15).

15. If your survey has been weighted, please list the weighting variables and the source of the weighting parameters.

Design weights are based on census-like data from the Department of Education's Common Core of Data. Non-response calibration is based on propensity scores based on models including the following frame variables:

Email supplied by vendor, Charter school, Gender, Pct of students who are Black, Pct of students who are Hispanic, Pct of students free lunch eligible, Urbanism, Student Teacher Ratio.

The final analysis weight is the product of the design and non-response calibration weight.

16. Is there a minimum unweighted sample size you require before releasing any subset estimates, and if so, what is it?

N=30 (however most estimates are based on Ns of over 200).