Using the DataWISE Tool

In today's modern technological age, students (and adults) often look to different forms of media in search of answers to their burning questions. When these questions involve scientific ideas and concepts such as vaccines, GMOs, climate change, evolution, and other topics steeped in public and political controversy, separating reliable information from misinformation or even disinformation can be challenging.[1,2,3] Many tools and strategies have been suggested for analyzing and evaluating the validity and reliability of sources in print, audiovisual, and online media. These include strategies for lateral reading, checking for timeliness, authority, and intent of the content, being on the lookout for logical fallacies and bias, and guarding against hype and clickbait.[1,4,5]

The DataWISE tool developed by NCSE combines key principles and practices gathered from these other research-supported strategies into one easy-to-use tool with added attention given to the ways that data can be co-opted or misrepresented. When considering a claim presented with accompanying data, students will ask themselves a series of questions to judge the authority, purpose, presentation, and sensibility of the claim and evidence. They start with questions that allow them to determine whether the claim is **Worthy** of their attention, **Inspect** the data, ask if the interpretation of the data and the conclusions make **Sense**, and pay close attention to the **Emotions** elicited by the claim and data presented.

With continued practice, students should eventually be able to internalize these questions and use this method to critically evaluate any data-based claim presented to them in person, print, or digital formats. The tool is really just a template that prompts students to consider multiple aspects of data analysis and source evaluation. Unfortunately, templates can sometimes be used in ways that are rote, especially if completing the template becomes the main goal. Our hope in creating the DataWISE tool was that it would be used in a more purposeful way. Completing the template should never be the ultimate goal, but rather the tool should serve to structure a meaningful task such as comparing competing claims or analyzing sources that will be cited in a debate or research paper.

[1] Sinatra, G. M., & Lombardi, D. (2020). Evaluating sources of scientific evidence and claims in the post-truth era may require reappraising plausibility judgments. *Educational Psychologist*, 55(3), 120-131.
[2] *Tools to Evaluate Sources* (2023) *CSUN University Library*. Available at: https://libguides.csun.edu/hs-students/evaluating-sources.
[3] West, J. D., & Bergstrom, C. T. (2021). Misinformation in and about science. *Proceedings of the National Academy of Sciences, 118*(15), e1912444117.
[4] Herrick, I. R., Sinatra, G. M., & Lombardi, D. (2023). Is That Plausible?. The Science Teacher, 90(3), 55-59.
[5] Lewandowsky, S., Cook, J., Ecker, U., Albarracín, D., Kendeou, P., Newman, E. J., ... & Zaragoza, M. S. (2020). The debunking handbook 2020.