CHAPTER SEVEN

What Makes Everyday Scientific Reasoning So Challenging?

Priti Shah*,1, Audrey Michal†, Amira Ibrahim*, Rebecca Rhodes‡ and Fernando Rodriguez||

*University of Michigan, Ann Arbor, MI, United States
†Northwestern University, Evanston, IL, United States
‡Johns Hopkins University Applied Physics Laboratory, Laurel, MD, United States
§University of California, Irvine, Irvine, CA, United States

Corresponding author: E-mail: priti@umich.edu

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Abstract

Informed citizens are expected to use science-based evidence to make decisions about health, behavior and public policy. To do so, they must judge whether the evidence is consistent with the claims presented (theory-evidence coordination). Unfortunately, most individuals make numerous errors in theory-evidence coordination. In this chapter, we provide an overview of research on science evidence evaluation, drawing from research in cognitive and developmental psychology, science and statistics education, decision sciences, political science and science communication. Given the breadth of this research area, we highlight some influential studies and reviews across these different topics. This body of research provides several clues about: (1) why science evidence evaluation is challenging, (2) the influence of the content and context of the evidence and (3) how the characteristics of the individual examining the evidence impact the quality of the evaluations. Finally, we suggest some possible directions for empirical research on improving evidence evaluation and point to the responsibility of scientists, especially social and behavioral scientists, in communicating their findings to the public. Overall, our goal is to give readers an interdisciplinary view of science evidence evaluation research and to integrate research from different scientific communities that address similar questions.

1. INTRODUCTION

People are regular consumers of science claims presented in newspapers, advertisements, scientific articles and word of mouth (Baram-Tsabari & Osborne, 2015; Bromme & Goldman, 2014). Consider the following headlines:

*Lifting Lighter Weights Can Be Just as Effective as Heavy Ones.*

*NY Times (July 20, 2016)*

*Dose of nature is just what the doctor ordered.*

*Sciencedaily.com (June 23, 2016)*
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