

Virtues and Pitfalls of Laypeople's Evidence-Based Reasoning with Science Reports in Popular News Media (Poster)

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Abstract

Increasingly, the Internet serves as a predominant source for scientific information and as a resource for health decision making (Brossard, 2013; Higgins, et al., 2011). This research examines the ways in which laypeople utilize (conflicting) scientific evidence in online information sources for health decisions. We aim to shed light on their evidence-based reasoning, i.e. the processes of attending to the methodology and findings of research, and of interpreting evidence. 28 Social Science and Humanities undergraduates were given four documents, adapted from authentic online information sources, which reported discrepant results from scientific studies regarding the impact of milk consumption on heart health. Participants were told that a fictitious friend is contemplating whether to consume dairy products. Participants were asked to think aloud while reading these documents and then to write a letter to their friend, based on the documents. In these letters, participants analyzed the effect of milk consumption on heart health and recommended whether or not to consume dairy products. Analyses of participants' letters revealed that more than a third of the participants refrained from citing research findings or conclusions. Within-subjects comparisons indicated that participants provided significantly more evidence with greater detail in support of their position than for the counter position, $z = -2.55, p = .011$. This suggests that participants' position influenced their use of evidence. Only about a third of the participants reflected critically on the quality and reliability of the evidence. Although most of the participants used evidence to justify their recommendations, they also drew heavily on their prior knowledge and on non-evidentiary claims from the documents. This study contributes to identifying the challenges laypeople face in dealing with discrepant reports of scientific studies. We found that one of the pitfalls manifested in laypeople's evidence-based reasoning is that laypeople delve more deeply in evidence that reaffirms their position than in evidence supporting the counter position. Although many participants were attentive to conflicts between evidence, they may have found it difficult to weigh the evidence and reconcile discrepancies. Their prior knowledge and non-evidentiary explanations may compensate for these difficulties and overshadow the analysis of evidence. Consequently, though reports of scientific research become more accessible, their potential to advance laypeople's decision making appears at present to be rather constrained. Conceptualizing and understanding the ways in which laypeople analyze online research reports will enable us to inform science education concerning reasoning skills that might be necessary for everyday science.

Keywords: Evidence-based reasoning, online learning, argumentation, science education.

*Proceedings of the 10th Chais Conference for the Study of Innovation and Learning Technologies:
Learning in the Technological Era*

Y. Eshet-Alkalai, I. Blau, A. Caspi, N. Geri, Y. Kalman, V. Silber-Varod (Eds.), Raanana: The Open University of Israel

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