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Original Research

Natural Resource Experience Affects Engagement with Emotionally Primed Presentations of Science☆

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ABSTRACT

Effective ecosystem management is supported by the communication of emerging science to a wide range of ecosystem stakeholders. Management-oriented audiences including policymakers, agency personnel, and agricultural producers vary in their values, beliefs, and experiences and consequently may receive scientific information in unique ways. We examine the impact of priming language presented before technical presentation of ecosystem science using emotionally loaded ("negative" and "positive") introductory paragraphs (primers). Wyoming ecosystem stakeholders ($n = 114$) were presented with technical text describing ecosystem uncertainty immediately after they read either positive or negative primers. Respondents with a background in agricultural production were more likely to respond in agreement with the scientific information presented in the text when it was introduced with the negative emotional (risk-based) primer. Respondents without production experience shifted their assessment of scientific information in response to both negative and positive (benefit-based) primers. All participants' responses were varied and unpredictable when technical text was not primed. Emotionally loaded primers did not lead respondents to contradict the scientific knowledge presented in the text, and in several cases primers caused stronger agreement with the text than did the control. We suggest that traditional "neutral" presentation of scientific contexts hinders rather than supports the transmission of scientific concepts and tools to management-oriented audiences. We more readily achieve successful transmission of science when emotional contexts familiar to audiences are evoked. Non-neutral primers followed by technical presentations of scientific concepts can engage audiences to increase potential field applications of emerging science.

Introduction

Effective ecosystem management is supported by partnership and communication between researchers and ecosystem stakeholders emerging from many different sectors, who can share knowledge and collaborate to set goals (Briske, 2012; Littell et al., 2012). In particular, ecosystem stakeholders such as agricultural producers, policymakers, and agency personnel tasked with enforcing policy must be able to access emerging science and evaluate that science in light of particular management challenges (Millar et al., 2007). Therefore, outreach to a diversity of stakeholder audiences is an important step in the translation of emerging science for application in management and policy (Briske, 2012).

Traditionally, scientists are trained to convey their findings neutrally, avoiding language that conveys values or beliefs (Lackey, 2007; Baram-Tsabari and Lewenstein, 2012). However, readers immediately begin judging text as they read; neutral writing is not neutrally received (Weber and Word, 2001). Many factors besides technical details of the science itself, such as audience experiences, values, and beliefs, affect how and whether an audience judges science to be true (Donner, 2011; Holtcamp, 2012). For example, debates surrounding climate change linger despite increased conveyance of scientific climate analyses (Nisbet and Mooney, 2007).

Stakeholder audiences are varied in perspectives and priorities, and their assessments of science depend on the role they play in interacting with the natural world. For example, hands-on managers often think of ecosystems in value-based terms and conceptualize conservation on broad scales (e.g., whole landscapes, species and/or populations) (Buijs and Elands, 2013). Producers, who have a specific livelihood stake in the functioning of an ecosystem, may be particularly sensitive to ecological risks and associated uncertainties when compared with other audiences (Marra et al., 2003). Among policymakers, risk aversion

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