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## **Communicating Geoscience with the Public Through Print Publications – the Importance of Understanding Cognitive Differences in Audiences**

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One of the central missions of the American Geosciences Institute (AGI) is to communicate geoscience concepts and priorities to the general public, including educators and policy makers. These activities span the range of media, from presentations to fact sheets to reports and our monthly popular magazine, EARTH. AGI has focused on standard techniques for communicating science to the general public, including removing jargon, simplifying language, minimizing the amount of numerical data presented, and couching the communications in terms of “real life” examples.

More recently, AGI has developed new strategies for public communication, especially relative to print media, largely driven by the experiences of AGI’s Workforce Program in communicating social science data to geoscientists. Since 2008, AGI’s Workforce Program has been producing a stream of data briefs, project reports, and comprehensive analyses of the human capital and economic dynamics of the geoscience discipline. The data have been collected, analysed, and presented following standard social science approaches. Ensuing questions and, more worryingly, improper reanalysis/interpretation of results by geoscience colleagues show that members of the geoscience community approach these data as physical scientists without fully understanding some of the inherent differences in precision and expectations in social science data – a fundamental cognitive difference between potential audiences. In response, AGI is reframing reports to reflect how physical scientists expect data to be presented when they are the intended audience and presenting narrative discussions of the resulting data and analysis.

AGI recognizes that there is no universal “public” to communicate with, but rather multiple cohorts within “the public” so we have tried to align our publications with the learning triggers of their intended audiences. Policy documents, for example, now focus on intrinsic motivators for action rather than stressing background information and logic scenarios. By casting the geoscience information in a form that is familiar to the intended audience, we have seen sharply improved responses to the 2016 version of *Geoscience for America’s Critical Needs* and a recent report on the methane economy.

EARTH Magazine, which reaches a broad, general audience, has experimented with different editorial approaches, including an expansive art program, introduction of hyper-short news items, and strong cross linkages to online content. Many of these initiatives, however, have not engaged its science-aware public audience effectively. EARTH has, in fact, moved back to more long-form journalism, a mix of both technical and empathetic artwork, and a commitment to strong reading levels. One key lesson is that publishers must respect the calibre of the consumer and not assume that one comprehension level fits all. We can be most effective by wholly engaging, informing, and equipping interested cohorts so they can be the messenger for the science to the rest of the broader public through their normal discourse.



