INTRODUCTION

Learning to Read, Reading to Learn

HOW OFTEN HAVE YOU HAD YOUR EYES PASS OVER A TEXT, ONLY TO REALIZE SOME TIME later that you absorbed nothing of it? Or spent an hour listening at a seminar, only to walk away unclear about what the most important advance was? Is this entirely your fault, or is the design of the text or the seminar partly to blame?

In this special issue, we have collected a variety of articles that focus on literacy in science. The term represents two angles of the problem: knowing what science has discovered and being able to communicate in the language of science. And the value is twofold, as well: Good literacy skills make it easier to learn science, but science topics can also be used to teach literacy skills that will translate well to other subjects.

As Snow points out (p. 450), the language used in science is different from the language used in everyday conversation. The focus on details, the exclusion of ambiguous interpretations, and the complexity of the vocabulary all present the reader with challenges different from those found in fictional texts. But as van den Broek discusses (p. 453), strategies taken by the writer or speaker can help the novice through the language barrier. Webb (p. 448) discusses the kinds of supports that are helpful when the language of school is not the native language of the students. Krajcik and Sutherland (p. 456) analyze how scientific texts are best used in a classroom setting and how to design curricula that support lifelong science literacy skills. Taking the view that not all literacy is about writing, Osborne (p. 463) discusses how argumentation skills are critical for understanding why some ideas are wrong and others right. Pearson and colleagues (p. 459) describe the integration of literacy and science training through professional development for teachers, innovative curricula, and enhanced classroom materials. And research reported by Taylor *et al*. (p. 512) analyzes how both genetics and the teachers available affect a child's literacy skills.

In the Education Forum, Schleicher (p. 433) discusses how literacy skills required for participation in increasingly sophisticated societies have evolved and how meaningful international assessments can be conducted. In the 20 and 27 April issues, *Science Signaling* presents a set of Teaching Resources by Thatcher, each of which is a pair of short animations of a canonical signaling pathway; student-authored Journal Clubs cover topics ranging from signaling in cells of the immune system to signaling in plants.

Science is about generating and interpreting data. But it is also about communicating facts, ideas, and hypotheses. Scientists write, speak, debate, visualize, listen, and read about their specialties daily. For students unfamiliar with the language or style of science, the deceptively simple act of communication can be a barrier to understanding or becoming involved with the science.

– PAMELA J. HINES, BRAD WIBLE, MELISSA MCCARTNEY

Science, Language, and Literacy

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See also Editorial, p. 405; Science *Podcast,* Science Signaling, *and* Science Careers at *www.sciencemag.org/special/education2010/*

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