

Plenary Presentation: Seeing Patterns of Word and Image: What Scientific Communicators Can Learn from Information Design

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How do professional communicators develop expertise in designing information that meets the needs of their intended audiences? Karen A Schriver characterized how professionals in different disciplines develop expertise by acquiring sophisticated patterned knowledge. She focused on the patterns of word and image needed by editors and explored ways to nurture effectiveness in science communication.

The literature on developing expertise reveals key findings about what high achievers do that may have parallels with building expertise in information design. Experts have deep knowledge about the materials and tools of their domains and how they work as a system. Possession of such knowledge, however, does not make an expert. Expertise typically develops through intense domain experience. Even so, experience is not necessarily enough.

Research shows that becoming experienced in a field does not mean that a person will acquire expertise. Experienced nonexperts approach problems with a one-solution-fits-all approach; experts solve problems in novel ways that surpass the performance of others. Many work environments assume that workers should make use of their existing knowledge rather than develop new knowledge—an

assumption that works against the development of expertise. Consequently, few work environments provide a context that encourages people to excel in their fields.

If experience does not lead to expertise, what does? The competing hypotheses are individual talent and deliberate practice. The individual-talent hypothesis suggests that some people have a talent for design or writing and require only the right setting to develop. The deliberate-practice hypothesis proposes that experts acquire skills through rigorous work subjected to scrutiny. The features of deliberate practice include working toward improvement, engaging in challenging activities, obtaining critical feedback, and correcting errors.

Studies suggest that experts engage in sustained deliberate practice for about 10 years (or several thousand hours) before reaching peak performance. For example, expert musicians (say, violinists and pianists) practice about 25 hours/week, whereas amateurs of the same age practice less than 2 hours/week. A study of scientists found that researchers' most valued publications were accepted more than 10 years into their careers.

Little research has taken place in the development of expertise in professional writing, editing, graphic design, or illustrating; but the literature on development of expertise in such fields as chess, medicine, music, art, and athletics is growing. Studies in those domains underscore the crucial role of deliberate practice in an expert's development; practice not only increases knowledge but also enhances abilities to see relationships among the things that a person knows and increases sensitivity in recognizing and evaluating meaningful

patterns. For example, as people grow in expertise in chess, they learn to perceive patterns typical of their domain—prototype cases, typical problems, then unusual and challenging ones.

Schriver pointed out that skilled information design also requires large amounts of patterned knowledge. Expert editors acquire sensitivity to the architecture of information. The effective information designer emphasizes the relationships among words and words, pictures and pictures, and words and pictures, guided by a sense of values about what readers need and expect. Information designers do that by orchestrating visual, verbal, and mathematical symbol systems into meaningful rhetorical (linguistic, structural, spatial, and graphic) patterns. They use their expertise to optimize the message in ways that are clear, accurate, relevant, graceful, memorable, and useful.

To become expert, designers can nurture their growth in seeing patterns of word and image. Schriver suggested diagnosing where you are, deciding what you need to do to improve, and making a plan to engage in deliberate practice. She advocated getting a mentor or working with others who have more experience. Her suggestions include reading voraciously, identifying time and productivity sinks, and critically evaluating technologies. She urged information designers to constantly increase their knowledge and gain feedback about their accomplishments by taking part in conferences, peer reviews, and degree programs. Finally, she exhorted us all to take responsibility for our own professional development and to “practice, practice, practice”. 📌