

Book Reviews

***The Psychology of Science and the Origins of the Scientific Mind*
by Gregory Feist, Yale University Press, 2006, 316 pp. ISBN
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***Reviewed by Michelle L. Evans, California State University at
San Bernardino DOI: 10.1037/1931-3896.1.3.174***

Gregory Feist's *The Psychology of Science and the Origins of the Scientific Mind* (2006) is a welcomed look into the discipline of the psychology of science. He sets out to show two things: that psychology of science can be its own field and that this field has been growing along side of humanity ever since its inception.

Feist divides the book into two parts. First, he argues for the legitimacy of the field of psychology of science, addressing relevant research from many sub fields and their applications for the future. This first dip into the psychology of science is a refreshing one. Feist artfully selects interesting literature and weaves them together to create a collage illustrating the psychology of science. Part two delves into the origins and future of the scientific mind. He does so by examining the evolution of human cognition and the ties it has with the origins of scientific thinking. This new approach proceeds linearly through natural history hallmarking the four main periods of thought that led to our ancestors transitioning from using science as a means for an end, to pure science that is pursued for the sake of discovery.

Part One

Feist argues that there is ample reason for a separate subfield. He uses support from many disciplines to prove his assumptions and arguments, looking at a variety of research from biopsychology to social psychology to argue that there is empirical support for his theory of the origins of the scientific mind.

It is also argued that there is already work being done in the subfield of the psychology of science, but that it is not labeled as such. For example, he uses research from neuroscience to explain how the brain is capable of symbolic and metacognitive thought, both of which are critical to creating scientific thought. He also browses through developmental literature, working off of Karmiloff-Smith (1992) theory of cognitive development, to extract the idea that humans developed as a species from sensory-bound thought to more consciously represented thought. Scientific thought, his argument goes, mirrors infants as it develops the ability to think first in the concrete reality of the everyday and then more abstractly. From social psychology, he blends literature from everything from war to discrimination to show how scientific thought and behavior is nurtured or diminished. He maintains that the work in the psychology of science, while implicit in nature, can be nurtured into a subdiscipline in its own right.

He devotes many chapters to encourage specialists in the field of psychology to look at how individuals in their discipline are already doing work related to the psychology of science. He also discusses the

theoretical implications of this research and the areas that need to be studied in more depth. For example, by studying the personality characteristics of scientists, it may be possible to recognize scientific talent in future generations. If this talent is identified and then encouraged, then it could spur the next big scientific breakthrough. By pointing out such gaps in the field, Feist encourages others to take on the challenges and start working on such problems. The first part of the book concludes enthusiastically proclaiming the promise that the psychology of science holds.

Part Two

With the need for the subdiscipline of psychology of science well established, Feist reaches back in time to the beginnings of mankind to show how the events of writing, math, and measurement lead to our ability to perform metacognition. This novel theory is based off of the work of Donald (1991) and Mithen (1996). They present evidence that humans evolved not only physically, but also cognitively. Using evolutionary theory, Feist walks the readers through four specific periods relating to origins of the scientific mind. Stepping back almost two million years ago, scientific thought was preverbal. Characteristics such as observation, pattern recognition, and causal thinking were becoming possible for our species. One hundred thousand years ago, scientific thought was still implicit within our species. Early humans were expanding their cognitive skills in the verbal period by adding theorizing and controlling nature to their accomplishments. Thirty thousand years ago, in the applied phase, early humans found themselves being able to do incipient math and measurement. Almost three thousand years ago, modern man was conducting scientific thinking, with controlled experimentation and developed mathematics.

Feist's theory draws on the research from the multitude of disciplines that he cited in the beginning of the book. For example, when he is explaining evolution of early man, he ties in the literature on brain development to show of what exactly *Australopithecus* was cognitively, socially, and biologically capable.

It would have been preferable to see more integration of other perspectives in these last few chapters. For example, domain specificity of the mind is an issue that has two sides. Some researchers (Fodor, 1983; Gardner, 1983; Pinker, 1997) believe there is substantial evidence that the mind is neatly divided into areas with specific purposes. However, there is an equally strong movement of researchers (Apperly, Samson, & Humphreys, 2005; Uttal, 2003) who believe that domain specificity is absurd. Additional support and development of this argument would have made for a more solid assumption. In addition, the focus on the development of scientific thought is entirely evolutionarily based. Second, he takes a nativist position, which holds that humans are born with skills hardwired in their brains. This is a valid position, but he does not acknowledge alternative theories that take in account the role of other factors (Fillmore, & Langendoen, 1971; Fried & Ostman, 2005; Halle, Bresnan, & Miller, 1978; Karmiloff-Smith,

1992; MacWhinney, 1998; Pollard, & Sag, 1987). He assumes nativist theories of language acquisitions, but provides little support for these assumptions.

While this part is rich in detail on evolutionary theory, it would have been nice to show not only how science physically progressed, but also its cultural and spiritual progression. How was science viewed from a macro perspective, sociological perspective, or from a common person's perspective? How did cultural influences such as the Enlightenment, Renaissance, Dark Ages, or Romanticism affect attitudes toward science and thus developments in science? Expanding the theory to include some of these points would have further enriched it.

He concludes with the battles scientists face in modern society. The danger of nonbelievers, pseudoscientists, and the rifts within academia all affect the theoretical underpinnings scientists believe in. Pointing out the fundamental differences between hard and social sciences helps breach such formalized rhetoric, and gives hope that such disciplines can come together and talk formally about advancing the psychology of science together.

Overall, this book makes one logically consider what science is and is not. It brings about contemplation about how science developed and how humans embraced it. Feist says he wants to take on the applied implications for the formalized study of both the psychology and science and the properties of the scientific mind. His goal is to move the psychology of science from its implicit methods scattered across domains of psychology and make them explicit. He wants to unite researchers scattered across the world to make up a new psychology of science that actively meets, has its own journal, and can educate future researchers. This is all very interesting and indeed possible, as long as the meetings would follow the same integrative genius that is displayed in this book.

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***Drama Therapy and Storymaking in Special Education* by Paula Crimmens, Jessica Kingsley Publishers, 2006, 224 pp. ISBN 9781843102915. \$28.95**

Reviewed by Michelle Ebert Freire, California State University, San Bernardino DOI: 10.1037/1931-3896.1.3.175

Therapeutic Storymaking

Two children help a thunder god receive water and are rewarded with seeds that ultimately save their lives. A raven teaches a giant to move the tides so that the villagers can catch fish. A jealous young man attempts to drown his brother, who chants a magic spell and is saved by a whale. These stories come from traditional tales that address such universal themes as helping others, dealing with change, and competitiveness. They also, Paula Crimmens asserts, provide marvelous opportunities for structured dramatic play. Her book *Drama Therapy and Storymaking in Special Education* (2006) is a resource for therapists, teachers, and paraprofessionals—anyone working with those children deemed to have “special needs.” Crimmens, a drama practitioner who leads drama therapy sessions with students in Auckland, New Zealand schools, provides concrete examples of techniques from her own work, gently leading the novice through what might be an unfamiliar, even daunting, form of psychological and educational intervention.

Early on, Crimmens attempts to tackle the “talk soup” of special education terminology. In New Zealand, she explains, the terms “special education,” “special education needs,” and “special needs” are used interchangeably for “those with learning and physical disabilities, behavioral and communication difficulties, sensory impairments, and medical related conditions” (p. 9). Individuals with an autism spectrum disorder, attention-deficit/hyperactivity disorder, and/or Down’s syndrome are said in New Zealand to have “intellectual disabilities,” although Crimmens prefers the term “learning disability” (p. 11). What is clear is that the populations of children (and adults) who would most benefit from the techniques, stories, and activities found in this book live with, as American drama therapist Sally Dorothy Bailey organizes them, “physical, cognitive, or emotional” (Bailey, 1993, p. 17) disabilities. Bailey’s book, *Wings to Fly: Bringing Theater Arts to Students with Special Needs*, presumes that the reader is a drama practitioner with little experience working with individuals with disabilities and thus contains detailed explanations of the various kinds of “special needs.” Crimmens’ book, on the other hand, makes the assumption that its readers already work in the field of special education. Still, it would benefit from more comprehensive descriptions of specific disabilities, especially to avert the danger of the term “special needs” coming across as one “clump” of the human population. It strikes me that Bailey and Crimmens’ books would make good companion pieces for newer clinicians and educators.