Editorial: Introducing the Journal of Expertise

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The term *expertise* has been in common usage in the English language only since the 1950s, though interest in the topic has a long and venerable history in the social and behavioral sciences. As early as the 1830s, the statistician Adolphe Quetelet, famous for developing the concept of the normal curve, used archival records to show that productivity in English and French dramatists peaks at around age 50 (Quetelet, 1835). Later, in his book *Hereditary Genius* (1869), the Victorian polymath Francis Galton documented that eminent individuals in fields such as music, science, literature, and art tended to be biologically related. Questions about the origins and nature of expertise have been the subject of scientific research and debate ever since.

It is difficult to pinpoint when, exactly, the modern era of expertise research began—that is, when expertise emerged as an identifiable area of research. However, by any account, 1965 was important for the field. This is the year when Adriaan de Groot's dissertation examining thought processes underlying chess expertise was translated into English and published as the book *Thought and Choice in Chess* (de Groot, 1946/1965). Himself an accomplished chess player who twice played for the Netherlands in the Chess Olympiad, de Groot had players "think aloud" while considering moves.

In the study that might be said to mark the beginning of expertise as an area of research in cognitive psychology, William Chase and the Nobel laureate Herbert Simon replicated and extended de Groot's studies using more controlled laboratory procedures (Chase & Simon, 1973).

Figure 1. Adriaan de Groot, who conducted pioneering research on the thought processes underlying chess expertise. Source: *Kingpin Chess Magazine*.

Chase and Simon's research inspired a generation of expertise researchers. In a doctoral dissertation supervised by Chase, Neil Charness further investigated the mechanisms underlying chess expertise (Charness, 1976). Michelene Chi and James Voss studied the cognitive processes underlying expert problem solving (Chi, Feltovich, & Glaser, 1981; Voss, Greene, Post, & Penner, 1988). Anders Ericsson investigated the underpinnings of exceptional memory (Ericsson, Chase, & Faloon, 1980). Fran Allard, Janet Starkes, and Janice Deakin carried out pioneering research on expertise in sports (Allard & Starkes, 1980; Starkes, Deakin, Lindley, & Crisp,

1987), while Vimla Patel and Geoffrey Norman focused on medical expertise (Norman, Brooks, & Allen, 1989; Patel & Groen, 1986).

Meanwhile, taking a cognitive engineering approach, Kenneth Ford, Robert Hoffman, Paul Feltovich, and others focused on applying knowledge from expertise research to practically relevant problems (Feltovich & Barrows, 1984; Hoffman, 1987). By the end of the 1980s, the first edited volumes on expertise were appearing, including *The Nature of Expertise* (Chi, Glaser, & Farr, 1988).

Since then, expertise research has increased dramatically (see Figure 2). Numerous edited books on expertise were published in the 1990s, including the *The Psychology of Expertise: Cognitive Research and Empirical AI* (Hoffmann, 1992) and *The Road to Excellence: The Acquisition of Expert Performance in the Arts and Sciences, Sports and Games* (Ericsson, 1996). The first handbook on expertise—the *Cambridge Handbook of Expertise and Expert Performance* (Ericsson, Charness, Feltovich, & Hoffman, 2006)—followed in the mid-2000s.

The field has continued to grow. Recent books on expertise include Fernand Gobet's (2016) *Understanding Expertise: A Multi-disciplinary Approach*, Merim Bilalić's (2017) *The Neuroscience of Expertise*, and Robert Hoffman and colleagues' *Minding the Weather: How Expert Forecasters Think* (Hoffman, LaDue, Mogil, Trafton, & Roebber, 2017). Recent edited volumes include the *The Science of Expertise: Behavioral, Neural, and Genetic Approaches to Complex Skill* (Hambrick, Campitelli, & Macnamara, 2017) and the second edition of the *Cambridge Handbook of Expertise and Expert Performance* (Ericsson, Hoffman, Kozbelt, & Williams, 2018).

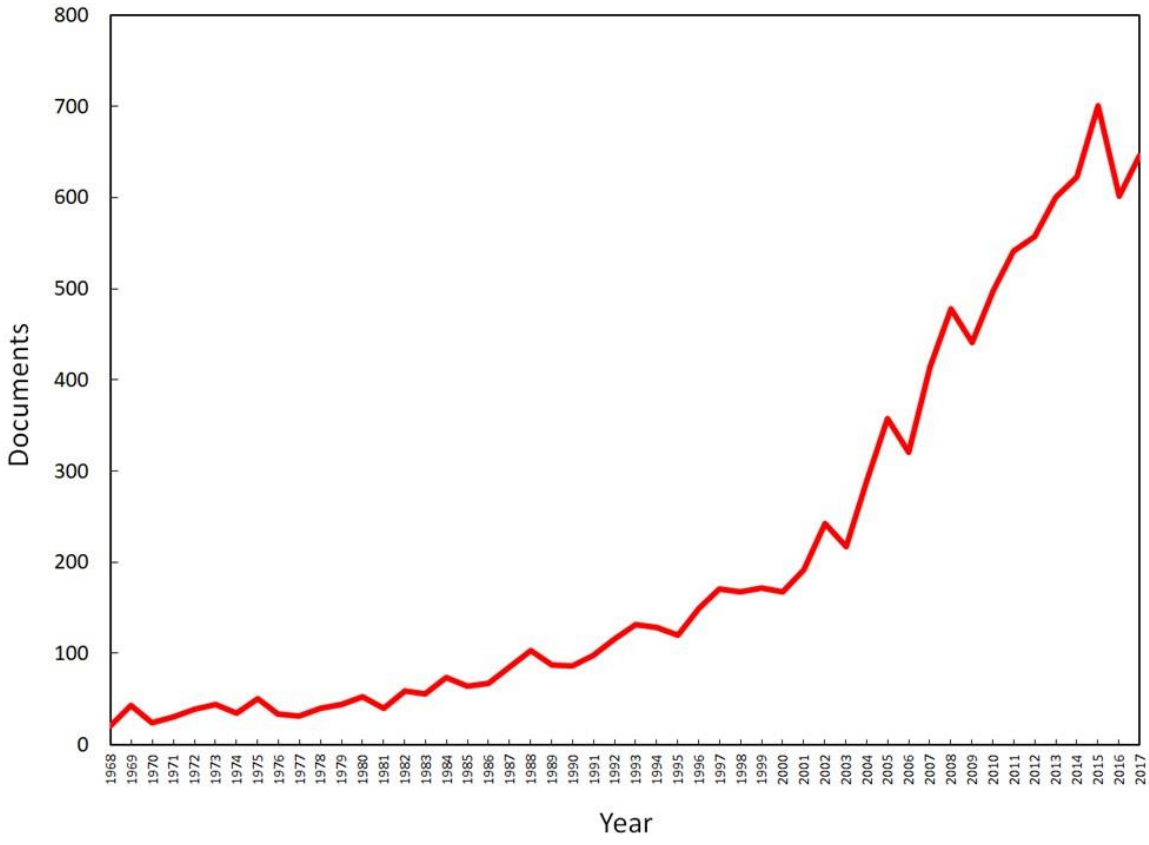

Figure 2. The rise of research on expertise: Documents in scientific literature with "expertise" or "expert performance" in title (1968-2017). Source: Scopus.

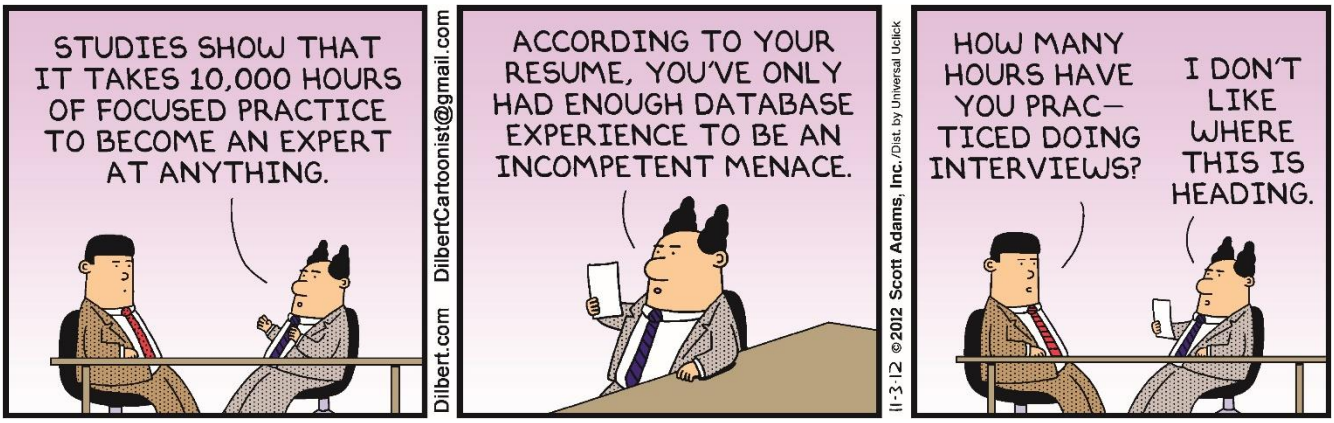

Figure 3. DILBERT © 2012 Scott Adams. Used By permission of ANDREWS MCMEEL SYNDICATION. All rights reserved.

Popular interest in expertise has exploded, as well. In his bestselling book *Outliers: The Story of Success*, drawing on findings from expertise research, Malcolm Gladwell (2008) wrote (erroneously, as it turns out) that "researchers have settled on what they believe is the magic number of true expertise: ten thousand hours" (pp. 39-40). The "10,000 hour rule" was, in turn, the inspiration for Dilbert comic strips by Gary Adams (one shown in Figure 3) and for Macklemore and Ryan Lewis's song *Ten Thousand Hours*, the lead track on their Grammy-award winning album *The Heist.* The song was used later as the theme music for a television commercial promoting the soft drink Dr. Pepper.

Other popular books to feature research on expertise included Daniel Coyle's (2009) *The Talent Code: Greatness Isn't Born. It's Grown. Here's How;* Geoff Colvin's (2010) *Talent is Overrated: What* Really *Separates World-Class Performers from Everybody Else*; David Shenk's (2010) *The Genius in All of Us: New Insights into Genetics, Talent, and IQ;* and Matthew Syed's (2010) *Bounce: Mozart, Federer, Picasso, Beckham, and the Science of Success.* Rarely, if ever, has an area of scientific research so captivated the public imagination.

Despite all this interest in expertise, there is no scientific journal devoted to the topic. Instead, research on expertise is published in a multitude of journals across a wide range of fields, including psychology, education, medicine, business, sports science, musicology, criminology, and computer science, to name just a few. Consequently, tracking theoretical and methodological developments concerning expertise is difficult, if not impossible. To fill this need, we introduce the *Journal of Expertise*—or JoE.

JoE is fully open access, meaning that there are no subscription fees for readers or publication fees for authors. Our aim is to provide researchers, practitioners, and the public with access to high-quality scientific research on expertise. JoE is peer-reviewed and dedicated to publishing both basic and applied research that focuses on expertise in domains such as music, art, sports, games, medicine, aviation, and science, as well as forms of "everyday" expertise that are acquired by most people (e.g., face recognition, language). Empirical reports may describe research using experimental, psychometric, historiometric, behavioral genetic, neuroimaging, computational, or idiographic approaches. Review articles may be qualitative (narrative) or quantitative (meta-analytic). JoE will also host interactive media (e.g., videos, PowerPoint presentations) created by authors to disseminate findings of their research.

We believe that research flourishes when scientists work together transparently and cooperatively, sharing data, analyses, materials, and, most of all, their *expertise* with one another. Accordingly, JoE embraces the open science movement. General guidelines for authors include the following:

1. JoE requires authors to make their raw dataset and research materials (questionnaires, tests, etc.) publicly available through the Open Science Framework, or to provide them to investigators upon request, free of cost, without condition, and in a timely manner (two weeks). If authors are unable to make any of these resources available immediately upon publication, they must disclose this when submitting a manuscript and indicate when they will make them available.
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3. Publication of research in JoE is not contingent on the results of the research, but rather on its methodological and statistical soundness.
4. JoE encourages authors to provide corrections and updates (e.g., additional analyses) to their work, to be linked to the original articles.
5. JoE eagerly seeks replications of previous studies. No less so than in any other field, replicability is vital to progress in expertise research.

Regular issues of JoE will typically include 6-8 articles, including empirical articles, reviews, and commentaries. Special issues may include a target article, followed by commentaries, and may be invited or proposed by authors.

The aim of JoE is to increase scientific understanding of human expertise in all of its varieties and complexity, adding to the knowledge base that already exists for addressing a wide range of practically relevant problems—whether it is accelerating the acquisition of expertise, reducing bias in expert decision making, or advising parents about when children should specialize in a domain. We are excited about working with the international community of expertise researchers to achieve this aim.

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