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An Introduction to *Expertise at Work*: Current and Emerging Trends

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Sustained organizational success is largely built on expertise, which is commonly defined as a combination of knowledge, years of experience in one domain, problem-solving skills, and behavioral traits (Germain, 2006; Germain & Tejada, 2012; Grenier, 2005, 2009). Knowledge is a fundamental component of any organization, and according to Greer and Egan (2019), it is vital to organizational survival. This is because what an individual learns and knows has consequences for the organization in which they work (Simon, 1991). As Nonaka (1991) contends, “successful companies are those that consistently create new knowledge, disseminate it widely throughout the organization and quickly embody it in new technologies and products” (p. 162).

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To ensure survival and enhance organizational success, it is critical that leaders, managers, and human resource development professionals know how to not only define expertise, but also how to identify and nurture it in others. For instance, a strong understanding of employee expertise can aid an organization in making the best allocations of labor, while also improving organizational performance and flexibility (van der Heijde & van der Heijden, 2006). At the same time, organizations who have a strong grasp of expertise and value it in employees can effectively address what De Cuyper and De Witte (2011) call the management paradox. This occurs when organizations want to retain employees with high levels of expertise, but are confronted with an investment in the development of expertise that is at odds with the possibility of losing those employees to competitors once occupational expertise is achieved and before seeing a return on the training and development investment.

Furthermore, since expertise is local or trans-situated (Nicolini, Mørk, Masovic, & Hanseth, 2017), it exists in many places simultaneously with each having a unique history and path to it. This local conceptualization, according to Nicolini et al. (2017), means it is “not only relational and socio-material but is also inherently situated in multiple connected locales” (p. 28). A deeper understanding of expertise such as this is vital for organizations seeking to create and foster a culture where expertise is appreciated and rewarded. Organizations that embrace expertise as part of their organizational culture, ensure that the shared values, beliefs, and understandings that guide decision making and engagement foster learning and instill the growth mindset (Grossman, 2015) necessary for expertise to flourish. Grossman (2015) notes that in such a culture, employees are compelled to help their organization and are also then motivated to share their expertise with others. Conversely, organizations that ignore the important role of expertise in their structures and culture face a number of repercussions. For instance, an organization may unintentionally create an environment where sharing knowledge and expertise is devalued, resulting in knowledge hoarding (Bender & Fish, 2000), which is where employees are not willing to communicate or share their expertise with others. Or expertise may be constrained or underutilized in an organization or field of practice when processes, routines, and incentives that

reward creative action are not attended to or when there is an unwillingness to be flexible and reconfigure in response to changing needs, technologies, or markets.

Equal to the importance of an organization's understanding and commitment to expertise is an individual's awareness of their own expertise. With such an understanding an individual can seek out organizations that recognize expertise in all its forms and identify opportunities that provide supportive processes that move them from competency to expertise or to redevelop expertise. It can also be helpful in understanding the value of one's expertise. Today, the job market is filled with people constantly looking for their next better job opportunity and that is influenced by organizations looking to operate on small budgets and with fewer employees. Individuals new to the workforce must quickly identify what sets them apart from other job seekers, while those already employed may want to capitalize on their expertise to retain a position, move up in the organization, or secure a more challenging or rewarding job somewhere else (De Vos, Forrier, Van der Heijden, & De Cuyper, 2017). And for those already working, the importance of movement capital (Wei-Ming, 2004) is critical. The combination of education, special prior experience, transferable skills, and cognitive ability, as well as their occupational expertise (Forrier, Verbruggen, & De Cuyper, 2015) shape an individual's perception of their contributions to their current organization, as well as influencing their sense of potential marketability to other employers.

Furthermore, expertise is equally important to those working independent of any organization. The growth of the gig economy sees emerging digital platforms and structures that rely on dispersed and unorganized workers (Kneese & Rosenblat, 2014) who need the career competencies of: knowing how, knowing whom, and knowing why (Arthur, Inkson, & Pringle, 1999; DeFillippi & Arthur, 1996). This means that contingent workers, including independent contractors, temps or freelancers, or others with no specific organizational ties like artists, athletes, or writers all have the need for developing, retaining, and communicating expertise in a response to the importance of employability, rather than job security, for long-term success.

Given the importance of expertise in the workplace and for individuals who work, and the need for those preparing to study organizations to

have a strong grasp of its definition, application, and development, we assembled a group of authors to contribute to *Expertise at Work*. This book is designed as both a stand-alone collection for professionals who want to survey the current thinking on occupational expertise and a text that covers a broad array of issues, ideas, and domains of expertise to study and critique in undergraduate or graduate classes in human resource development, adult learning, leadership, and business and management.

Overview of the Content

There are numerous texts about expertise, but books focusing on expertise in the context of work and in organizations are largely absent, so we wanted to bring together a collection of authors who together could help readers to see the diverse picture of occupational expertise. This book offers scholars and scholar-practitioners a comprehensive look at the development of human expertise in organizations, as well as a glimpse into the future of occupational expertise. Using contemporary perspectives across a broad range of domains, readers are introduced to expertise within the context of various professional perspectives that when taken together provide a more holistic understanding of what defines expertise in different environments and how organizations influence expert development. The book also describes how researchers and practitioners can address practical problems related to the development, redevelopment, and sustainability of expertise in light of current and future organizational needs. To do this the book puts specific emphasis on the emerging trends in the study and practice of expertise in organizations, including the use of artificial intelligence (AI).

Chapter 2 begins this exploration by providing a foundation of expertise in the workplace. Yujin Kim introduces and discusses the theoretical and conceptual underpinnings of expertise. This is an excellent entry point, not only because many of the chapters that follow build of the concepts she introduces, but because such defining is important since expertise is a word “rooted in ordinary language” that often becomes murky when we try to explain what makes one individual an expert and not another (Watson, 2020, ix). Drawing from the extensive literature on

expertise that spans across numerous disciplines, Kim covers: a review of definitions of expert and expertise, psychological and sociological perspectives of expertise, concepts of flexexpertise and adaptive expertise, and emerging theories of expertise development in the workplace. In her chapter, she posits that the fundamental dimension of expertise is social processes to operationalize experts and expertise in terms of social roles and functions. Based on these foundations, Kim offers two conclusions. First, a traditional concept of expertise as a set of structured and decontextualized knowledge and skills tends to overlook subtle and other critical, but lesser-known aspects of expertise in dynamic environments. Second, an understanding of adaptive expertise and flexible expertise is valuable in Human Resource Development (HRD) and for organizations more broadly since the core dimensions of expertise in the modern workplace are related to solving unpredictable and atypical problems, as well as the continuous transformation of expertise.

In Chap. 3, “Routine Expertise, Adaptive Expertise, and Task and Environmental Influences,” Katerina Bohle Carbonell and Amber Dailey-Hebert maintain that organizations operating in increasingly dynamic environments must focus on the importance of adaptive expertise, as well understanding the usefulness of informal learning in developing such expertise. Building off of Kim’s introduction to adaptive expertise in Chap. 2, Bohle Carbonell and Dailey-Hebert offer a deeper dive into the phenomenon through their review of relevant literature that addresses important aspects of adaptive expertise in organizations. First, they describe adaptive expertise as the result of switching from fully or semi-automated processes to fully conscious and manual behaviors. Then they explore the notion that environmental conditions affect an individual’s ability to deal with unfamiliar problems and thus develop adaptive expertise. This idea of environment and culture is one that is repeated by other authors in this book because it is central to understanding expertise. Environments are filled with resources and objects, people, stressors, environmental conditions, and distractors (Hambrick, Burgoyne, & Araujo, 2020) and all of these come into play with cognition and expertise. Bohle Carbonell and Dailey-Hebert conclude the chapter with ideas for supporting adaptive expertise development. They suggest that places where individuals work need to be encouraging and create space

necessary for flexibility to adjust to unexpected situations. They also emphasize the need for organizations to design and facilitate employee engagement in a variety of tasks in dynamic environments that provide individuals with an array of organizational problems to work through.

Identifying and Measuring Expertise in Organizations written by Robin S. Grenier is the final foundational chapter. She notes that while there is clear evidence that expertise is important for workers and the overall success of an organization, many individuals responsible for hiring or those in human resource development still struggle to clearly identify and measure expertise in employees or volunteers. Taking what is presented in the preceding chapters, Grenier begins Chap. 4 with an explanation of the term competence in relation to expertise in order for readers to compare that definition to definitions of expertise presented throughout this text. Defining competence also provides an entrance into an introduction to competency models that are useful for organizations' attempts to identify expertise in their workforce. Next, she presents six approaches designed to measure expertise across a variety of fields. These measures are the *Professional Expertise Scale* (Johanna & van der Heijden, 2000), the *Cochran-Weiss-Shanteau Index of Performance* (Weiss & Shanteau, 2003), the *Expertise Measurement* (Mieg, 2009), the *Generalized Expertise Measure* (Germain, 2006), the *Employee Expertise Development Scale* (Kim, 2015), and the *Adaptive Expertise Inventory* (Bohle Carbonell, Könings, Segers, & van Merriënboer, 2016). Methods such as these can help improve organizational understanding of the behavioral and attitudinal correlates of verifiable, objective and subjective expertise, and the management of employees' expertise. In their book, Klein, Shneiderman, Hoffman, and Ford (2017) state that we depend "on experts for mission-critical, complex technical guidance for high-stakes decision making...Experts are the people the team turns to when faced with difficult tasks" (p. 67), and in doing so they highlight the imperative need for organizations to be able to identify and assess expertise. As such, Grenier's chapter concludes with a call to action for organizations to take up methods for assessing expertise.

These first chapters set the stage for defining and situating expertise within an organizational and work context. In the next three chapters, authors take up this framing to explore expertise within the specific

contexts of veteran's transition to non-military employment, the world of professional cycling, and the organizational structures of higher education. Military expertise has been described "as an expansive and evolving concept that overlaps with knowledge in a variety of civilian sectors" (Crosbie & Kleykamp, 2020, p. 129). Looking at the military as a workplace where a vast array of expertise is developed, Chap. 5 from Sarah E. Minnis and Michael Kirchner focuses on the unique, yet applicable, expertise service members develop while serving in the US Armed Forces while highlighting the importance of expertise redeveloped for veterans as they transition to non-military employment. Chapter 5 begins with an explanation of what military veterans' expertise is and the importance of both soft skills and technical skills to defining the concept. Minnis and Kirchner then suggest that veterans need a new language for communicating their expertise; one that effectively translates their military expertise into the soft and technical skills sought after in civilian employment. They go on to address this by explaining how the definition and understanding of expertise can differ between veterans and non-military employers, and why that incongruity threatens the employability of veterans. Then Minnis and Kirchner introduce the need for expertise redevelopment as veterans transition to non-military employment. After summarizing the Model of Expertise Redevelopment (Grenier & Kerhahn, 2008), they use a case study that highlights this transition and expertise redevelopment for a military motor transport operator. Minnis and Kirchner conclude the chapter by addressing how both organizations and veterans have a role in ensuring the value of military veterans' expertise for civilian employment is valued.

In Chap. 6, expertise is explored in the context of professional sports. Straying outside traditional notions of work, Gabija Liutkutė, Florentina J. Hettinga, and Marije Elferink-Gemsera use competitive cycling as a case for examining the elite athlete's expertise. Central to their chapter is the concept of self-regulation as the ultimate determinant for attainment and execution of expert performance in athletes. Self-regulatory mechanisms are constantly engaged during sport performance, meaning that elite athletes are proactive and committed learners who use reflection, goal setting, planning, monitoring, and evaluation of their performance to achieve exceptional performance. Developing such self-regulation

demands effort, focus, and self-awareness by an athlete if they are going to be able to effectively respond to changes in performance (Zimmerman, 2002). As Liutkutė, Hettinga, and Elferink-Gemsera point out, sport presents a multitude of psychological challenges to overcome during expertise development, including anxiety, affect, mood, pain, and fatigue. They contend that if these challenges are managed correctly, the resulting self-regulation will enable successful deliberate practice—a process central to expertise development. Those athletes who master self-regulatory skills and overcome the psychological and physical challenges are more likely to achieve an elite level of performance.

In the final exploration of expertise in an organizational context, Zachery Spires asks readers to consider what it means to have expertise in a university. In Chap. 7, he uses the lens of assemblage theory (Bacevic, 2018) to consider how expertise serves to illuminate tensions about and create possibilities of the forms, functions, and stated purpose of universities. To begin, Spire addresses the way universities act as sites of expertise and what it means to be an expert in higher education. He then presents cases from university programs: Stanford University's Institutional Research and Decision Making Support (Stanford IR&DS), and the University College London (UCL) Arena Centre for Research Based Education (UCL Arena). These provide a way for the reader to situate Spires' broader discussion about the potential of expertise, experts, and novices in universities that can turn these organizations into assemblages of knowledge. The chapter concludes with the potential for universities as emergent and complex places of educational possibility; spaces for experts and novices to develop individual and social knowledge, awareness, ability, and capacity and where individuals can serve themselves, as well as the public and society as a whole.

After establishing the concept of expertise in organizations and seeing how those notions are applied in some specific contexts, the authors of the final chapters of the book invite readers to look ahead at how what we know about expertise can change in the future. Many like Fulbright and Walters (2020) believe that humans and artificial intelligence (AI) will soon be working together and in doing so compensate for each others' weaknesses. The authors of Chap. 8, Jan Maarten Schraagen and Jurriaan van Diggelen focus on helping readers understand artificial intelligence

(AI) from this joint cognitive systems viewpoint in relation to expertise. Through their presentation of the relationship between expertise and artificial intelligence, they posit that expertise is currently viewed as a skilled adaptation to complexity and novelty and that artificial intelligence, when restricted to machine learning systems, results in brittle systems that cannot cope with unanticipated variability. This creates a poor match with human experts' competencies. Schraagen and van Diggelen argue that from a joint cognitive systems perspective, we can see the intricacies of the mutual dependencies between humans and AI, and the constantly evolving distribution of skill sets required from an organizational perspective. Through a case study in radiology, they illustrate these general principles. Specifically, in order to effectively collaborate with human experts, AI requires collaborative skills, such as being able to explain itself, and the introduction of AI results in a series of new skills, or fusion skills (Daugherty & Wilson, 2018), that human experts need to develop in order to deal with AI.

Chapter 9 is written by Marie-Line Germain. She begins a conversation about how the future of work might challenge the assumptions of traditional notions of expertise by examining the impact of workforce demographics and technology on how human expertise is perceived and defined. This is important to the future of organizations since evolving changes influence traditional approaches to work, as well as effect labor demands (Acemoglu & Restrepo, 2018). Germain presents a look at the changing composition of the US workforce, which is increasingly more diverse compared to previous decades (in educational attainment, age, gender, and race). She then addresses how this diversity has changed the typical profile of today's CEOs and entrepreneurs, especially in the tech industry. Next, the chapter includes an explanation of how the digital revolution and the exponential use of artificial intelligence in the workplace have created new demands in labor needs and employee skills in for-profit and nonprofit organizations. In her conclusion, Germain posits that the combination of these three areas of change is reshaping how human expertise is perceived and defined, especially in technology fields.

In Chap. 10, Jason Moats combines much of the thought on expertise that is contributed by others at this point in the book and uses it to invite readers to look into the near future. He does this through an imaginative

and very plausible case study that helps us to see what likely “could be” a worker’s experience in a durable goods plant. In doing so he is able to then explore opportunities to enhance what he calls the necessary and valuable deliberate practice needed to develop expertise at an expedited pace. His emphasis on speed is critical given that, as Kodden (2020) notes, although change is not new, the speed of change is; this is due in large part to innovations in technology that “are not linear, but rather exponential” (p. 26). Moats posits that in a future where organizations will be challenged to swiftly and continually transform and adapt (even more so than today), employees will need to redefine their expertise—learning knowledge and skills in ways that are both rapid in response and uncompromising in the level of mastery. He concludes the chapter by calling on human resource development professionals and organizational leaders to question the current methods for developing expertise, which may be incongruent for establishing and/or maintaining a competitive advantage in an excellerative environment driven by technology and innovation. Jason Moats’ chapter delves into the ubiquitous nature and the rapid evolution of workplace technology, the ever-present transformation of the workplace, and the unrelenting fast pace of innovation, which, he posits, will continue to disrupt the competitive landscape which subsequently challenges organizations’ performance.

Chapter 11, the concluding chapter, is a reflection on the complexity of the construct of expertise, both from a theoretical perspective and from practical perspective. The editors charge the readers with staying abreast of the ever-evolving nature of expertise, pointing out that the swift changes most organizations have to embrace, like those resulting from the COVID-19 pandemic, necessitate preparation and anticipation to ensure that expertise is maintained. Using the work of the authors’ chapters, the editors offer implications and considerations for scholars and scholar-practitioners as they seek ways to support experts and expertise at work.

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