



The psychology of entrepreneurial performance—theoretical *and* applied: Robert A. Baron and Michael Frese, co-recipients of the 2024 Global Award for Entrepreneurship Research

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Abstract Professors Robert A. Baron and Michael Frese are the joint recipients of the 2024 Global Award for Entrepreneurship Research. Their research contributions have helped establish the disciplinary foundation necessary to explore entrepreneurship from theoretical and applied psychological perspectives. From a theoretical psychological perspective, Professor Baron has repeatedly introduced a disciplinary scaffolding from cognitive psychology, social psychology, and judgment and decision-making psychology to develop the field's socio-cognitive perspective. He has examined entrepreneurship's basic “why” questions: (1) Why do some persons but not others choose to become entrepreneurs? (2) Why do some persons but not others recognize opportunities for new products or services that can be profitably exploited? (3) Why are some

entrepreneurs so much more successful than others? From an applied psychological perspective, Professor Frese has examined entrepreneurship as the epitome of a proactive approach to work, advocating the benefits of personal initiative and the need for a self-regulatory approach to performance among both small business owners and employees in transition economies. Continually taking stock of what is known about the psychology of entrepreneurship through reviews and meta-analysis, he and his students have advanced an evidence-based approach to entrepreneurial training and performance in challenging contexts. Together, Professors Baron and Frese have served as ambassadors for the field of entrepreneurship, welcoming an entire generation of micro scholars to explore the entrepreneurial process and the psychology of the entrepreneurs who enact it.

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Plain English Summary The winners of the 2024 Global Award for Entrepreneurship Research, Robert Baron and Michael Frese, have improved our understanding of the psychology of entrepreneurship, introducing many of the conceptual tools needed to examine why some persons but not others become entrepreneurs, recognize opportunities, and succeed in entrepreneurship. Professor Baron illuminated the role of affect in the entrepreneurial process, developed the notion of opportunity recognition as pattern detection, and enabled the study of entrepreneurial cognition by articulating the potential of the cognitive perspective as an alternative to the personality traits approach. His efforts have helped facilitate the field's rapid theoretical maturity, equipping it to examine not only its own knowledge frontier but also the disciplinary foundations that it draws upon. Simultaneously, Professor Frese demonstrated the importance of personal initiative and efficient self-regulation in the practice of entrepreneurship in several challenging settings, ranging from transition to developing economies. His tireless efforts to promote an evidence-based approach to the phenomenon and to document its empirical findings have facilitated entrepreneurial training and development while advancing an applied psychological approach to the field of entrepreneurship.

Keywords Global Award for Entrepreneurship Research · Entrepreneurship · Psychology · Cognition · Affect

JEL Classification L26 · D81

1 Introduction

The winners of the Global Award for Entrepreneurship Research 2024 are Professors Robert A. Baron and Michael Frese. Professor Baron is a social psychologist renowned for his pioneering research on human aggression before turning his scholarly attention almost exclusively toward examining entrepreneurship in the late 1990s. Similarly, Professor Frese is an industrial organizational psychologist who was renowned for his research on error management in work. Wrestling with the organizational stresses elicited by the transition of former Soviet states toward a free market economy, Frese began his foray into

entrepreneurship research by examining the effects of personal initiative, action regulation, and dynamic self-reliance. These characteristics, commonly associated with entrepreneurs, led him deeper and deeper into educating and training entrepreneurs to enhance their performance, especially in challenging work contexts such as transitional or developing economies.

1.1 The global award for entrepreneurship research: a brief background

The Global Award for Entrepreneurship Research was initiated in 1996 and has since become the most prestigious award for entrepreneurship research. It consists of 100,000 euros and a statuette designed by the internationally renowned Swedish sculptor Carl Milles. According to the original statutes, the award should be given to “a person who has produced scientific work of outstanding quality and importance, thereby giving a significant contribution to theory building concerning entrepreneurship and small business development, the role and importance of new firm formation and the role of SMEs in economic development.” The main aims of the award are (1) to highlight the importance of research produced in the areas of entrepreneurship and small business, (2) to further stimulate and promote research within these fields, and (3) to diffuse state-of-the-art research among scholars, practitioners, and people involved in small business development.¹

The domain of entrepreneurship research is broad (Carlsson et al., 2013), which means that entrepreneurship research that can be considered for the award is undertaken in several different disciplines, including economics, sociology, history, business administration, management, geography, and psychology. Any aspect of entrepreneurship research is eligible, including the environment and the organizations in which entrepreneurship is conducted, the character of the entrepreneur (personality, cognitive, and affective aspects), or the role of the entrepreneur and/or the entrepreneurial function in a wider sense (at the level of the community, region, country, or industry). One ambition of the Prize

¹ See Henrekson and Lundström (2009) for a thorough description.

Committee is that the award-winning contributions, seen together over a longer time span, reflect the extraordinary breadth of entrepreneurship as a research field in the social sciences. The key criteria for prize-worthy contributions are originality and influence (Braunerhjelm & Henrekson, 2009). It is recognized that contributions can be influential in many ways. A contribution can, for example, be influential because it has had a significant impact on subsequent scientific work, furthered entrepreneurship as a field of research (through creating important databases or by starting influential journals, scientific communities, etc.), furthered entrepreneurship education and training at the academic level, and/or influenced practice, policymaking, and society more broadly.

When selecting prize-worthy contributions, the Prize Committee emphasizes the qualitative aspects of candidates' contributions. Quantitative metrics, such as citation counts and impact factor-adjusted publication volumes, do provide important information about candidates, but they will never replace qualitative judgment. This means that quantity will never substitute for quality, and it is even possible for a scholar to receive the award for a single landmark contribution.

1.2 Short biographies of the 2024 co-winners:

Robert A. Baron and Michael Frese

1.2.1 Robert A. Baron

Robert Alan Baron was born in the United States in 1943. He studied psychology at the City University of New York and received his Ph.D. from the University of Iowa in 1968. He is Professor Emeritus of Management at Oklahoma State University's Spears School of Business and has held faculty appointments at the Lally School of Management and Technology, Rensselaer Polytechnic Institute, Purdue University, Princeton University, University of Texas, and the University of Washington. He was a Visiting Fellow at the University of Oxford, 1982. Professor Baron served as a Program Director at NSF (1979–1981) and was appointed a Visiting Senior Research Fellow by the French Ministry of Research at the University of Toulouse (2001–2002). He is a Fellow of the Society of Industrial and Organizational Psychology, the Association for Psychological Science, and the

American Psychological Association. He holds three U.S. patents and is the founder and CEO of IEP, Inc. (1993–2000).

Professor Baron has authored and co-authored more than 130 articles, 35 chapters, and 45 books, including *Social Psychology* (14th edition), *Behavior in Organizations* (9th edition), and *The Psychology of Entrepreneurship* (together with Robert Baum and Michael Frese). His work has appeared in all the field's leading journals. In 2008, Professor Baron received the *Academy of Management Journal's* Best Reviewer Award, and in 2009, the Academy of Management Entrepreneurship Division's Thought-Leader Prize. In 2013, he won the Helena Yli-Renko Research Impact Award for the most cited entrepreneurship paper in the Social Sciences Citation Index 5 years after its initial publication, and in 2023 he was awarded the prestigious Foundational Paper Award by the Entrepreneurship Division of the Academy of Management.

1.2.2 Michael Frese

Professor Michael Frese was a student at the University of Regensburg and Free University of Berlin and received his Ph.D. from Technical University Berlin. He currently holds appointments at Asia Business School (Malaysia) and Leuphana University of Lüneburg (Germany). Prior appointments include NUS Business School (Singapore), the University of Gießen, the University of Pennsylvania, Ludwig Maximilian University in Munich, and the University of Amsterdam. As a visiting professor, he has lectured in, e.g., the USA, Sweden, Zimbabwe, Brazil, China, and Uganda.

Professor Frese's research spans a wide range of basic and applied topics within organizational behavior and work psychology. He has authored over 250 book chapters and over 180 peer-reviewed journal articles, and in the same way as with Professor Baron, he has published in all the field's leading journals. He has edited/authored over 30 books and special issues, including edited books such as *Goal-Directed Behavior: The Concept of Action in Psychology*, *Success and Failure of Microbusiness Owners in Africa: A Psychological Approach*, and *The Psychology of Entrepreneurship* (SIOP Organizational Frontiers Series). He has served on the editorial

boards of several leading journals and served as field editor (until the end of 2016) of the *Journal of Business Venturing*. Professor Frese was also President of the International Association of Applied Psychology, and, in 2020, was elected to be a member of the German Academy of Sciences, the oldest Academy in the world.

Professor Frese has received a number of awards. In 2015, he received the Distinguished Scientific Contributions Award from SIOP and the Entrepreneurship Division of the Academy of Management's Greif Award for the most influential entrepreneurship publication of the previous 5 years (Rauch et al., 2009). In the following year, he received the Distinguished Career Contributions Award of the German Psychological Association (Leipzig), the Dedication to Entrepreneurship Award from the Entrepreneurship division of the Academy of Management (Anaheim), and the Emerald Africa Academy of Management Trailblazer Award (Nairobi, Kenya). Later he received the 2018 Distinguished Scientific Contributions Award of the International Association of Applied Psychology (Montreal), the 2020 Path-to-Scale Award by Innovation for Poverty Action (IPA), and the 2021 Lifetime Achievement Award of Organizational Behavior Division, Academy of Management. He has presented approximately 90 invited congress keynote addresses and has been a consultant and lecturer to the management of companies across various industries (e.g., banking, automobile, utility, and telecommunication), with more than 500 popular talks given and consulting jobs done.

2 Robert A. Baron's contributions

2.1 Overall ideas

For over 25 years, Professor Robert A. Baron has been an ambassador of the socio-cognitive perspective in entrepreneurship research. Beginning with his 1998 article in the *Journal of Business Venturing* (Baron, 1998), he has sought to introduce robust research findings from both cognitive and social psychology to entrepreneurship to articulate potential research avenues still being developed and rediscovered to this day. Moreover, he has done so by using what is now seen as his trademark, plain-spoken,

pedagogical approach, minimizing technical jargon and ensuring that every concept is understood by novice and expert alike.

With co-author Gideon Markman, Professor Baron followed up his initial 1998 foray into entrepreneurship by turning his attention to distinguishing social competence and skills from social capital (Baron & Markman, 2000, 2003; Markman & Baron, 2003) as well as how and why they enhance the success of entrepreneurs. In 2004, Baron returned to exploring the implications of the cognitive perspective for entrepreneurship (Baron, 2004), articulating three questions that have come to serve as recurring themes throughout his research:

- (1) Why do some persons but not others choose to become entrepreneurs?
- (2) Why do some persons but not others recognize opportunities for new products or services that can be profitably exploited?
- (3) Why are some entrepreneurs so much more successful than others?

He then offered a tour through the wilds of psychology, identifying theories and robust findings optimally suited to shed light on these questions. On this tour, counterfactual thinking made an appearance among other heuristics and biases discussed in relation to why some entrepreneurs are more successful than others. Additionally, Baron introduced the notions of opportunity recognition as pattern recognition, a theme he subsequently developed further (Baron, 2006; Baron & Ensley, 2006).

A couple of years later, we see Baron (2008) return to his roots, as he proposed the benefits of studying the role of affect in the entrepreneurial process. Until this paper, the field had been focused primarily on "cold" entrepreneurial cognition, mainly in terms of information processing, but after this work, we find a new openness among scholars to discuss the "hot" effects of feelings and moods on both cognition and the entrepreneurial process. Baron (2008) not only explained how and why affect matters to entrepreneurship but also educated entrepreneurship researchers about the different psychological mechanisms through which this influence may be felt. Finally, in a paper with co-author Keith Hmieleski (Hmieleski & Baron, 2009), Baron once again employed a social cognitive perspective, but this time to examine the

role of entrepreneurial optimism in new venture performance. Despite Professor Baron's self-professed belief in the power of positivity, he and his co-author find a negative relationship between entrepreneurs' optimism and the performance (in terms of revenue and employment growth) of their new ventures.

The papers highlighted above, and many others not mentioned, establish a clear pattern of scholarship to advance our understanding of how entrepreneurial psychology affects entrepreneurial performance.

2.2 Heuristics and biases and the emergence of entrepreneurial cognition

Among Professor Baron's many contributions to entrepreneurship, one would be remiss not to point out the immense role of his research in rekindling interest in the psychology of entrepreneurship. Despite some noteworthy papers by highly accomplished scholars (e.g., Krueger, 1993; McClelland, 1965; Miner et al., 1989; Shaver & Scott, 1992), several over-simplified searches for *the* personality trait responsible for determining who would or would not become an entrepreneur had caught researchers' imaginations to a detrimental degree. In a necessary but perhaps overly effective attempt to facilitate a course correction, William Gartner (1988) reminded entrepreneurship researchers that entrepreneurial behavior also deserved their attention and, in so doing, inspired an overreaction by entrepreneurship researchers in which psychology research in entrepreneurship largely fell out of vogue as the psychology of the entrepreneur was, to a large degree, thrown out with the bathwater of the traits approach. For a time, "rates" replaced "traits," as researchers in the field took Howard Aldrich's (1990) cue and channeled their energies toward examining the conditions under which new organizations were more likely to emerge or exit. As a result, many scholars interested in research questions in entrepreneurship at the micro- (individual level) or meso-level (individuals affecting the social system in which they were embedded or vice versa) appeared to be adrift without a clear community or scholarly conversation with which to contribute.

Encouraged by the then editor-in-chief of the *Journal of Business Venturing*, Sankaran Venkataraman, Robert Baron published his 1998 article on cognitive mechanisms in entrepreneurship, which Professor Venkataraman often identified as a potentially

fruitful path forward in his promotion of entrepreneurship as a distinctive domain of research (Venkataraman, 1997; Shane & Venkataraman, 2000). On the heels of Busenitz and Barney (1997), which had also just been published in the *Journal of Business Venturing*, Baron (1998) provided the impetus needed to facilitate a common discussion about the beneficial (and not-so-beneficial) effects of heuristic entrepreneurial decision-making, thereby providing the momentum needed for the emergence of the research community of psychologically inclined entrepreneurship researchers to form around the topic of entrepreneurial cognition. Seizing the moment, Ronald K. Mitchell and Lowell Busenitz hosted entrepreneurial cognition conferences in 2002 at the University of Victoria and in 2005 at Western University that discussed many of the ideas and psychological constructs introduced to entrepreneurship by Baron (1998) as well as Baron (2004), which further unpacked the cognitive perspective's potential to answer the basic "why questions." Baron's reputation as a world-class psychologist helped to legitimize these initiatives, as Mitchell's and Busenitz's scholarship and community-building helped to foster the subsequent career success of several entrepreneurial decision-making scholars (e.g., Maw Der Foo, Denis Gregoire, Keith Hmieleski, Jeffery S. McMullen, Saras Sarasvathy, and Dean Shepherd, to name only a few of many).

2.3 Social competence, skills, and capital

One of Professor Baron's hallmarks as an entrepreneurship researcher has been his ability to integrate abstract theorizing with practical examples. Unlike some of his contemporaries, from whose theories he lucidly draws, the decision-makers of Robert Baron's papers never devolve into thinly veiled biological algorithms. Even Amos Tversky and Daniel Kahneman, whose work inspired much of the early research in entrepreneurial cognition, can sometimes suffer from an over-abstraction as the researchers become fascinated with their studies' implications for economic theory. In contrast, Baron's background in social psychology, combined with his practical experience outside academe and his seeming commitment to an authentic representation of human psychology, appears to have protected him from straying too far from describing a thought process that anyone can

identify with, whether they have been an entrepreneur or not. Moreover, for those of us with entrepreneurial experience, the thoughts, feelings, and values described in his work and attributed to the entrepreneurs engaged in the process of creating new value and new ventures can feel almost autobiographical.

This feature of his research is perhaps best illustrated in three papers with Markman (Baron & Markman, 2000, 2003; Markman & Baron, 2003). Baron and Markman were colleagues at Rensselaer Polytechnic Institute (RPI) at the time. Together, they made an important distinction between social skills and social capital, which until that time had been largely neglected by entrepreneurship scholars. Baron and Markman propose and demonstrate empirically that social capital structurally positions people for success, but the agency still matters as social skills—specific competencies that help individuals interact effectively with others—further influence success. Thus, a high level of social capital built on a favorable reputation, relevant previous experience, and direct personal contacts may indeed be necessary to gain access to venture capitalists, potential customers, and other stakeholders, but once one is “in the door,” it is now up to him or her to make the most of the opportunity through their face-to-face interactions with others. This can include the ability to make favorable first impressions, to adapt to social situations, and to read and persuade others. Finally, social skills can expand social networks and thus further build social capital.

Unlike the heuristics and biases emphasized in cognitive psychology, this stream of research was decidedly social in the sense that the psychology discussed was as much about others as oneself as the entrepreneurs seek to navigate a social world in hopes of exercising agency within and over the social structures in which they are embedded. Although it may not be obvious, Professor Baron’s social psychological influence in this regard arguably primed entrepreneurship scholars to be more open to some of the more micro-sociological arguments introduced later in the decade by theorists of entrepreneurial action (e.g., McMullen & Shepherd, 2006), structuration (e.g., Sarason et al., 2006), and institutional theory (e.g., Hardy & Maguire, 2008).

2.4 Opportunity recognition as pattern recognition

In the wake of Shane and Venkataraman’s (2000) advocacy piece, which encouraged the study of

entrepreneurship as the nexus of individuals and opportunities, scholars began to study the process by which entrepreneurs identify these opportunities for new business ventures. Once again, Professor Baron sought to draw upon his knowledge base from cognitive psychology (Baron, 2006), this time to explain how entrepreneurs use their cognitive frameworks acquired through experience to “connect the dots” among changes in, e.g., technology, demographics, markets, government policies—i.e., to perceive patterns between seemingly unrelated events or trends in the external world. These patterns become the ideas for new products or services upon which new ventures are built. Baron’s, 2006 framework sought to bring search, alertness, and prior knowledge together to identify interrelations between elements known to be important factors in business formation to explain why some persons, but not others, were better at identifying specific opportunities highlighting how training might enhance this ability. In a paper with Michael D. Ensley (also at RPI at the time), Baron (Baron & Ensley, 2006) demonstrated pattern recognition as a key component of opportunity recognition, finding that the prototypes of experienced entrepreneurs are more clearly defined, richer in content, and more concerned with factors and conditions that are related to starting and running a new venture than the prototypes of first-time entrepreneurs.

In his consummate fashion, Professor Baron’s research on opportunity recognition as pattern recognition is profound in its communicative prowess. Although the idea of opportunities as a configuration of interrelated elements had been discussed heavily at conferences among scholars who were interested in opportunity recognition and the expression “connect the dots” was a common vernacular in practice, Baron once again used his command of the psychology literature, combined with his pedagogical bent for a clear and practical explanation, to help these worlds collide in the most productive of ways. Out of it came a robust, theoretically grounded explanation of opportunity recognition that was as much about the interrelated dimensions of the opportunities as the cognitive abilities entrepreneurs used to identify those opportunities.

2.5 Entrepreneurial affect

After a long swim in the cold waters of cognition as information processing, Professor Baron returned to

his roots in 2008 to offer a conceptual framework for the role of affect in the entrepreneurial process. Baron (2008) sought to explain how affect (individual's feelings and moods) influences aspects of their cognition and, hence, elements of the entrepreneurial process. This seemingly obvious observation was almost entirely absent from entrepreneurship theory prior to Baron's framework. Not only did he have to import a considerable amount of conceptual and empirical research from psychology to propose the myriad ways in which affect influences entrepreneurship, but also, before he could do so, he had to make a case for why affect was relevant to entrepreneurship at all. This provides a modicum of insight into the depth of the field's commitment to a rational and informational orientation toward studying the entrepreneurial phenomenon at the time. Baron's affect framework signaled a shift toward a more behavioral approach to the topic, a shift that had already begun in some of the entrepreneurship journals, but which was still lagging in management journals. His success in introducing affect into a theoretical discussion about entrepreneurship in the *Academy of Management Review* once again helped legitimize scholarly interest in the topic and created the fissure necessary for theory on more behavioral entrepreneurship topics such as entrepreneurial passion (Cardon et al., 2009) to gain traction at mainstream management as well as entrepreneurship journals.

2.6 Entrepreneurial optimism

Professor Baron's final contribution involves optimism, namely entrepreneurial optimism. This research was conducted with his protégé and long-time collaborator Keith Hmieleski. Although Baron and Hmieleski wrote several interesting psychological papers together (e.g., Baron et al., 2016; Hmieleski & Baron, 2008), their work of entrepreneurial optimism, conducted years after Hmieleski's time at RPI, is particularly noteworthy for two reasons. First, optimism is clearly a trait exhibited by Baron, and if it is not a personality trait, then it is a psychological state in which he spends most of his professional time. Indeed, the power of positive thinking appears to be a personal philosophy as much

as a research topic for Robert A. Baron. Despite his commitment to positivity, however, Hmieleski and Baron (2009) find that, even though entrepreneurs are generally high in dispositional optimism—the tendency to expect positive outcomes even when such expectations are not rationally justified—the relationship between their optimism and performance in new ventures is negative.

Moreover, past experiences creating ventures and industry dynamism only make matters worse. This deserves to be pointed out because it reveals an admirable tendency in Baron's scholarship. He clearly believes in the power and positive effect that entrepreneurship and its exemplification of an agentic approach to life can have, but he does not let that belief blind him to contradictory facts when encountered. This is exactly the kind of passionate scholarship or "ideology" that Joseph Schumpeter, one of the economic founding fathers of entrepreneurship theory, praised and encouraged at his presidential address to the American Economic Association (McCraw, 2007, p. 483). As researchers, we benefit by pursuing our visions and aspirations of what could or should be, but as scientists, we are expected to do so with the scrutiny and skepticism of the scientific method. Baron's research and attitude exemplify the positive and empowering effect that scientific skepticism perhaps ironically offers when properly executed.

Professor Baron's commitment to positivity extends beyond his own scholarship to encompass that of others. Not only was he an enthusiastic proponent of entrepreneurship scholarship, but he was also an enthusiastic proponent of entrepreneurs and entrepreneurship. He is an optimist and an encourager by nature, but as any good psychologist and scientist understands, torturing the data to support our preconceived notions only undermines the truth we hope to reveal, leading to false inferences that would damage rather than help entrepreneurs. Baron has repeatedly shown he understands this tension better than most by exhibiting strong beliefs, matched in conviction only by his commitment to test their veracity to the best of his ability, an ability which, fortunate for entrepreneurship scholars and the entrepreneurship students who benefit from their research, is exceptionally high.

3 Michael Frese's contributions

3.1 Overall ideas

Like Robert A. Baron, Professor Michael Frese demonstrated his first signs of academic interest in entrepreneurship in the 1990s, years after establishing himself as a renowned organizational behavior and work psychologist. His first publication on entrepreneurship came in 1995 in the wake of the collapse of the Soviet Union and examined the topic in Eastern Europe (Frese, 1995). Unlike Professor Baron, who exhibited a penchant for theoretical psychology and a more radical pivot in academic identity from psychology almost exclusively to entrepreneurship research, Professor Frese demonstrated a more gradual integration of entrepreneurship as a topic of interest into his more applied approach to work psychology. His interest in small-scale business owners appeared to grow as it was pursued more and more in conjunction with his doctoral students—most notably Andreas Rauch and Michael Gielnik—with both of whom he developed a long and productive relationship of collaboration.

In 1999, Frese published a study about becoming a small-scale entrepreneur in post-socialist East Germany (Utsch et al., 1999) and in 2000 he began looking at the psychological success factors of entrepreneurship in Africa (Frese, 2000; Frese & de Kruijff, 2000), noting the need for small-scale business owners to plan as well as execute (Frese et al., 2000). Around this time, he also began to regularly take stock of what was empirically known about the practice of entrepreneurship and to document cumulative evidence about psychological approaches to entrepreneurship (Frese et al., 2012). Most of his psychological research during this period focused on the need for more personal initiative at work (Fay & Frese, 2001; Frese & Fay, 2001), capturing the *zeitgeist* of an era in which Germany was reunifying and workers of former Soviet-controlled states were having to make the difficult transition from viewing their work as a process to one that was outcome-oriented—i.e., demanding results and personal responsibility for those results (Speier & Frese, 2007). By this point, Frese appears to have become deeply committed to the belief that employees could become more entrepreneurial and that by doing so they might better

weather the difficult transition from communism to capitalism.

In the years that followed, each of the aforementioned research thrusts went from trickling tributaries to flowing streams of research as Professor Frese increasingly emphasized the need for individuals to develop an entrepreneurial orientation toward their work in whatever context it occurred (Unger et al., 2011). Indeed, Frese—as an action theorist—doubled down on his personal initiative concept (Campos et al., 2017; Fay & Frese, 2001; Frese, 2007; Frese & Fay, 2001; Frese et al., 1996, 1997; Glaub et al., 2014; Solomon et al., 2013), using action theory both for the approach to entrepreneurship (Frese, 2009; Frese & Sabini, 1985; Frese & Zapf, 1994; Van Gelder et al., 2007), and to his approach to training entrepreneurs (Campos et al., 2017; Frese et al., 2002, 2016; Krauss et al., 2005; Unger et al., 2009). In doing so, he highlighted the need for action regulation in entrepreneurship, balancing execution with planning, and a more balanced, self-regulatory approach to goal pursuit in entrepreneurship research (Bledow et al., 2009; Gielnik et al., 2014, 2015a, b; Keith & Frese, 2005; Rosling et al., 2011; Van der Linden et al., 2003). Finally, we see Frese's commitment to an applied orientation manifest in his growing desire to take stock of what is known about the psychology of entrepreneurship, initiating a series of highly impactful meta-analyses (Rauch & Frese, 2007a, b; Rauch et al., 2009) and reviews (Frese & Gielnik, 2014, 2023; Rauch & Frese, 2000).

3.2 Personal initiative

In 1996, Professor Frese and colleagues introduced the notion of personal initiative (P.I.)—"a concept akin to entrepreneurship and organizational spontaneity" (Frese et al., 1996) contrasting workers in East and West Germany to find that control over and complexity in work affected changes in personal initiative, providing evidence that being entrepreneurial by exhibiting personal initiative at work is likely to be more a matter of occupational socialization than selection. In 1997, Frese further validated the personal initiative construct, showing that it correlates with partners' assessments, need for achievement, action orientation, problem-focused and passive emotion-focused coping, career planning, and

executing plans, but not job satisfaction (Frese et al., 1997). Both small-scale entrepreneurs and unemployed people who got jobs more quickly in East Germany had higher personal initiative. With the help of Doris Fay (Fay & Frese, 2001; Frese & Fay, 2001; Frese et al., 2007), he continued to develop the concept of P.I., fleshing out its nomological net. In the years to come, he began to examine whether training small business owners in Africa in personal initiative could help improve their performance, and finding that it does, subsequently documents the varied contributions of the components of the training (Campos et al., 2017; Glaub et al., 2014; Solomon et al., 2013). A fundamental theme of Frese's research throughout his career, this concept of personal initiative has continued to provide him, his students, and the entrepreneurs and employees they study, a valuable tool that continues to pay theoretical and practical dividends to this day (Frese, 2021).

3.3 Action theory and entrepreneurial action

In 1994, Professor Frese wrote a chapter with his colleague, Dieter Zapf, entitled "Action as the Core of Work Psychology: A German Approach." The chapter took stock of much of the work that Frese and others had done to that point on and began weaving them together into a general theory of work behavior. In it, Frese and Zapf (1994) define action as "goal-oriented behavior that is organized in specific ways by goals, information integration, plans, and feedback and can be regulated consciously or via routines" (p. 271) and pointed out that their theory differed considerably from others found in industrial and organizational psychology at the time, yet resembled in many ways the self-regulatory psychology then being advanced in English for the first time by Carver and Scheier (1982) and Anderson (1983). As native-German speakers, however, they point out that their inspiration came from theories that appeared in German work psychology, which predated those found in English (e.g., Volpert, 1971; Hacker, 1973).

Even a skim of this impressive chapter should quickly reveal to any well-read social scientist that, at this point, Professor Frese had begun explicitly articulating a view of psychology that was consistent with cybernetic systems theory such that the individuals he studied could and should be understood as engaged in a dynamic pursuit of hierarchical goals. Accordingly,

his subjects could be seen as making administrative preparations and constant adjustments as their attempts at execution were facilitated or thwarted by the environment in which this action occurred. One does not require much experience working with or as an entrepreneur to see how and why Frese's cybernetic approach applied so well to the process of entrepreneurial action. Fortunately for the reader, there was no need to wonder or wait with bated breath to find out whether Frese's framework was useful to entrepreneurs. As an applied psychologist, Frese could not help himself and subsequently tested it among samples in varied work settings (Campos et al., 2017; Frese et al., 2002; Krauss et al., 2005; Unger et al., 2009), including business owners in the Fiji Islands (Van Gelder et al., 2007). Frese's efforts resulted in unequivocal support for his belief in the power of action theory and Kurt Lewin's (1951) often-cited maxim, "There is nothing so practical as a good theory."

After accumulating empirical evidence for action theory from myriad settings, Professor Frese (Frese, 2009; Frese & Sabini, 1985) explicitly articulated action theory's potential as a psychology of entrepreneurship, making five key assertions:

- (1) A psychology of organization is incomplete if we do not understand how organizations get started—which is usually the doing of one entrepreneur or a group of entrepreneurs;
- (2) Any theory of entrepreneurship should use active actions as a starting point—entrepreneurship is the epitome of an active agent in the market (rather than a reactive agent);
- (3) Action theory facilitates understanding of the psychology of entrepreneurship;
- (4) The theory boasts empirical work that helps us understand entrepreneurial success; and
- (5) The theory allows for intervention that can help entrepreneurs to be successful at growing an organization.

These five assertions reflect Frese's approach to scholarship as much as they do the theoretical product in which that scholarship has culminated. They exhibit a commitment to studying important practical problems, using approaches and theories supported by empirical evidence that has been conducted in the field and which offer the potential not

only to document what works but to intervene whenever possible to help entrepreneurs improve their performance.

3.4 Evidence-based entrepreneurship

Related to his personal initiative concept and his action theory framework, a recurring theme that Professor Frese emphasizes throughout his research is the need to balance doing with planning. This recurrent theme repeatedly encourages a more balanced, self-regulatory approach to goal pursuit in entrepreneurship—one that seeks to consider planning and perseverance (Van der Linden et al., 2003), emotional control and metacognition (Keith & Frese, 2005), and the value of ambidexterity in balancing exploration and exploitation (Bledow et al., 2009; Rosing et al., 2011). The need for balance in action regulation emerges from Frese's empirical research (Frese, 2021), which over time takes on a life of its own. That is, his strong commitment to empirical evidence gives birth to a final theme in his research that is worthy of discussion: evidence-based scholarship.

When not conducting his own primary research through fieldwork, Professor Frese has often reached his conclusions empirically but indirectly by conducting meta-analyses with colleagues (e.g., Rauch & Frese, 2007a; Rauch et al., 2009; Rosing et al., 2011; Unger et al., 2011) or conceptually by conducting thorough narrative reviews of the literature (Gielnik et al., 2014, 2015a, b). Regardless of the technique employed, we see a recurring pattern of evidence-based scholarship and an intense effort to repeatedly take stock of what is known about the psychology of entrepreneurship in hope of conducting informed research that can push the knowledge frontier forward by seeking to use the state of the art to help entrepreneurs improve their ventures and lives.

Professor Frese's tireless efforts to advance an evidence-based approach to entrepreneurship (and work psychology in general) in his effort to facilitate entrepreneurial training and development while introducing an applied psychological approach to the field of entrepreneurship were largely without precedent. Along with several colleagues, Frese articulated his view on the subject, arguing that evidence-based entrepreneurship (EBE) is "a strategy to overcome

the gap between knowledge developed in the field of entrepreneurship and its use in practice" (Frese et al., 2012, p. 12), adding "evidence constitutes the best summary of knowledge based on several sources of information (several studies, several different research groups, several different methodological approaches, among them the best methods available) which clearly goes beyond individual experience and a few isolated studies."

The previous passage articulates Professor Frese's belief in the value of meta-analysis, but primarily as a component of a normative perspective toward how research on entrepreneurship should be conducted. Frese conveys his commitment to the belief that entrepreneurship research can be advanced through a programmatic and evidence-based approach to science. It should be noted, however, that Frese rarely gets dogmatic about his advocacy of EBE. Instead of ideologically advocating EBE as the only legitimate form of scholarship, we find a scholar who practices what he preaches and simply appears eager to share his gospel with other entrepreneurship researchers out of concern for the plight of his subjects of inquiry. In other words, he appears to advocate EBE because of his concern for entrepreneurs and his belief that the approach provides research that truly helps them improve their performance.

4 Conclusion

The analogous journeys and influence that Professor Baron and Professor Frese have exhibited are akin to a concept from evolutionary biology: homoplasy. Homoplasy is the development of bodily structures within different species, which resemble each other and have the same functions but did not have a common ancestral origin. These structures arise via convergent evolution and are thus analogous, not homologous to each other. One might view these two psychologists through a similar lens. Despite Baron emerging from the theoretical end of the psychological continuum and Frese from the applied end, both were eventually drawn to entrepreneurship because they liked using psychology to help people exert agency to improve their lives, their ventures, and their worlds. Drawing from the German tradition, Frese highlighted contextual challenges more salient to Europe and other

parts of the world. In doing so, Frese became integral to facilitating the development of the academic ecosystem dedicated to understanding the psychology of entrepreneurship across Europe. In contrast, Baron's background and education were decidedly American. Committed to exploring how theory could be advanced, he sought to refine it through extension to new contexts. In so doing, Baron became integral to the development of the academic ecosystem of the psychology of entrepreneurship in North America. Despite different backgrounds, geography, and incentive systems, however, the two researchers arrived at a very similar place by 2007, as noted in several joint projects (Baum et al., 2007a, b).

Professors Robert A. Baron's and Michael Frese's research has been crucial in bridging entrepreneurship and psychology allowing for development of much of the entrepreneurship domain's micro- and meso-level research. Prior to Professor Baron's efforts, the baby of psychology had largely been thrown out with the bathwater of an over-simplified personality trait approach to determining who would and who would not become an entrepreneur. In contrast, Baron re-introduced psychology as one possible explanation of entrepreneurial performance while concurrently recognizing the power of choice, such that thought could influence action and performance without necessarily having to determine its outcome. He educated the field on the latest theoretical developments in psychology and encouraged scholars interested in the field's microfoundations to pursue their interests. Last but not least, his excellent reputation as a first-rate scholar in psychology helped not only to legitimize the study of psychology within our field, but also to legitimize the emerging field itself by encouraging followers to employ conceptual frameworks at the knowledge frontier of psychology.

Professor Baron was transitioning from psychology to the field of entrepreneurship, so was his highly accomplished European counterpart, Professor Michael Frese. Frese's commitment to applied psychology initiated an evidence-based approach to entrepreneurship that sought to wrestle with how individuals might be educated and trained to exhibit greater personal initiative in their work and improve their performance. With many countries in Europe, including East Germany, transitioning to a free market economy, the need was acute. Along with his

students, Professor Frese helped document empirical findings related to the psychology of entrepreneurial performance and demonstrated the power of an action approach to entrepreneurial education and training in several highly challenging contexts, including developing economies throughout Africa. His research has helped to develop the field's behavioral understanding by tackling the actual problems of entrepreneurial practice and in doing so has demonstrated that applied psychology does indeed matter to advancement of the theory and practice of entrepreneurship.

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References

- Aldrich, H. E. (1990). Using an ecological perspective to study organizational founding rates. *Entrepreneurship Theory and Practice*, 14(3), 7–24.
- Anderson, J. R. (1983). *The Architecture of Cognition*. Harvard University Press.
- Baron, R. A. (1998). Cognitive mechanisms in entrepreneurship: Why and when entrepreneurs think differently than other people. *Journal of Business Venturing*, 13(4), 275–294.
- Baron, R. A. (2004). The cognitive perspective: A valuable tool for answering entrepreneurship's basic "why" questions. *Journal of Business Venturing*, 19(2), 221–239.
- Baron, R. A. (2006). Opportunity recognition as pattern recognition: How entrepreneurs "connect the dots" to identify new business opportunities. *Academy of Management Perspectives*, 20(1), 104–119.
- Baron, R. A. (2008). The role of affect in the entrepreneurial process. *Academy of Management Review*, 33(2), 328–340.
- Baron, R. A., & Ensley, M. D. (2006). Opportunity recognition as the detection of meaningful patterns: Evidence from comparisons of novice and experienced entrepreneurs. *Management Science*, 52(9), 1331–1344.
- Baron, R. A., & Markman, G. D. (2000). Beyond social capital: How social skills can enhance entrepreneurs' success. *Academy of Management Perspectives*, 14(1), 106–116.

- Baron, R. A., & Markman, G. D. (2003). Beyond social capital: The role of entrepreneurs' social competence in their financial success. *Journal of Business Venturing*, 18(1), 41–60.
- Baron, R. A., Franklin, R. J., & Hmieleski, K. M. (2016). Why entrepreneurs often experience low, not high, levels of stress: The joint effects of selection and psychological capital. *Journal of Management*, 42(3), 742–768.
- Baum, J. R., Frese, M., Baron, R. A., & Katz, J. A. (2007). Entrepreneurship as an area of psychology study: An introduction. In J. R. Baum, M. Frese, & R. A. Baron (Eds.), *The Psychology of Entrepreneurship* (pp. 1–18). Lawrence Erlbaum Associates Publishers.
- Baum, J. R., Frese, M., & Baron, R. A. (Eds.). (2007). *The Psychology of Entrepreneurship*. Psychology Press.
- Bledow, R., & Frese, M. (2009). A situational judgment test of personal initiative and its relationship to performance. *Personnel Psychology*, 62(2), 229–258.
- Bledow, R., Frese, M., Anderson, N., Erez, M., & Farr, J. (2009). A dialectic perspective on innovation: Conflicting demands, multiple pathways, and ambidexterity. *Industrial and Organizational Psychology*, 2(3), 305–337.
- Braunerhjelm, P., & Henrekson, M. (2009). Awarding entrepreneurship research: A presentation of the Global Award. *Entrepreneurship Theory and Practice*, 33(3), 809–814.
- Busenitz, L. W., & Barney, J. B. (1997). Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decision-making. *Journal of Business Venturing*, 12(1), 9–30.
- Campos, F., Frese, M., Goldstein, M., Iacovone, L., Johnson, H. C., McKenzie, D., & Mensmann, M. (2017). Teaching personal initiative beats traditional training in boosting small business in West Africa. *Science*, 357(6357), 1287–1290.
- Cardon, M. S., Wincent, J., Singh, J., & Drnovsek, M. (2009). The nature and experience of entrepreneurial passion. *Academy of Management Review*, 34(3), 511–532.
- Carlsson, B., Braunerhjelm, P., McKelvey, M., Olofsson, C., Persson, L., & Ylinenpää, H. (2013). The evolving domain of entrepreneurship research. *Small Business Economics*, 41(4), 913–930.
- Carver, C. S., & Scheier, M. F. (1982). Control theory: A useful conceptual framework for personality–social, clinical, and health psychology. *Psychological Bulletin*, 92(1), 111–135.
- Fay, D., & Frese, M. (2001). The concept of personal initiative: An overview of validity studies. *Human Performance*, 14(1), 97–124.
- Frese, M., & Sabini, J. (Eds.). (1985). (*republished in 2021 as classic texts*). Goal Directed Behavior: The Concept of Action in Psychology. Taylor & Francis.
- Frese, M. (1995). Entrepreneurship in East Europe: A general model and empirical findings. In C. L. Cooper & D. M. Rousseau (Eds.), *Trends in Organizational Behavior* (pp. 65–83). Wiley.
- Frese, M. (2000). *Success and Failure of Microbusiness Owners in Africa: A Psychological Approach*. Bloomsbury Publishing.
- Frese, M. (2007). The psychological actions and entrepreneurial success: An action theory approach. In J. R. Baum, M. Frese, & R. A. Baron (Eds.), *The Psychology of Entrepreneurship* (pp. 151–188). Mahwah, New jersey: Lawrence Erlbaum Associations.
- Frese, M. (2009). Towards a psychology of entrepreneurship—An action theory perspective. *Foundations and Trends in Entrepreneurship*, 5(6), 437–496.
- Frese, M. (2021). An Action Theory (AT) approach to the psychology of entrepreneurial actions and entrepreneurial success. In M. M. Gielnik, M. Frese, & M. Cardon (Eds.), *New Perspectives on the Psychology of Entrepreneurship* (pp. 182–209). London: Taylor and Francis, Routledge.
- Frese, M., & Fay, D. (2001). 4. Personal initiative: An active performance concept for work in the 21st century. *Research in Organizational Behavior*, 23, 133–187.
- Frese, M., & Gielnik, M. M. (2014). The psychology of entrepreneurship. *Annual Review of Organizational Psychology and Organizational Behavior*, 1(1), 413–438.
- Frese, M., & Gielnik, M. M. (2023). The psychology of entrepreneurship: Action and process. *Annual Review of Organizational Psychology and Organizational Behavior*, 10(1), 137–164.
- Frese, M., & Zapf, D. (1994). Action as the core of work psychology: A German approach. In H. C. Triandis, M. D. Dunnette, & L. Hough (Eds.), *Handbook of Industrial and Organizational Psychology* (pp. 271–340). Consulting Psychologists Press.
- Frese, M., Kring, W., Soose, A., & Zempel, J. (1996). Personal initiative at work: Differences between East and West Germany. *Academy of Management Journal*, 39(1), 37–63.
- Frese, M., Fay, D., Hilburger, T., Leng, K., & Tag, A. (1997). The concept of personal initiative: Operationalization, reliability and validity in two German samples. *Journal of Occupational and Organizational Psychology*, 70(2), 139–161.
- Frese, M., Van Gelderen, M., & Ombach, M. (2000). How to plan as a small scale business owner: Psychological process characteristics of action strategies and success. *Journal of Small Business Management*, 38(2), 1–18.
- Frese, M., Chell, E., & Klandt, H. (Eds.). (2000). *Psychological Approaches to Entrepreneurship*. Psychology Press.
- Frese, M., Brantjes, A., & Hoorn, R. (2002). Psychological success factors of small scale businesses in Namibia: The roles of strategy process, entrepreneurial orientation and the environment. *Journal of Developmental Entrepreneurship*, 7(3), 259–282.
- Frese, M., Garst, H., & Fay, D. (2007). Making things happen: Reciprocal relationships between work characteristics and personal initiative in a four-wave longitudinal structural equation model. *Journal of Applied Psychology*, 92(4), 1084–1102.

- Frese, M., Bausch, A., Schmidt, P., Rauch, A., & Kabst, R. (2012). Evidence-based entrepreneurship: Cumulative science, action principles, and bridging the gap between science and practice. *Foundations and Trends in Entrepreneurship*, 8(1), 1–62.
- Frese, M., Gielnik, M. M., & Mensmann, M. (2016). Psychological training for entrepreneurs to take action: Contributing to poverty reduction in developing countries. *Current Directions in Psychological Science*, 25(3), 196–202.
- Frese, M., & de Kruif, M. (2000). Psychological success factors of entrepreneurship in Africa: A selective literature review. In M. Frese (Ed.), *Success and Failure of Microbusiness Owners in Africa. A Psychological Approach* (pp. 1–30). Westport, CT, USA: Quorum Books.
- Gartner, W. B. (1988). “Who is an entrepreneur?” is the wrong question. *American Journal of Small Business*, 12(4), 11–32.
- Gielnik, M. M., Krämer, A. C., Kappel, B., & Frese, M. (2014). Antecedents of business opportunity identification and innovation: Investigating the interplay of information processing and information acquisition. *Applied Psychology*, 63(2), 344–381.
- Gielnik, M. M., Frese, M., Kahara-Kawuki, A., Waswa Katono, I., Kyejjusa, S., Ngoma, M., Munene, J., Namatovu-Dawa, R., Nansubuga, F., Orobia, L., & Oyugi, J. (2015a). Action and action-regulation in entrepreneurship: Evaluating a student training for promoting entrepreneurship. *Academy of Management Learning & Education*, 14(1), 69–94.
- Gielnik, M. M., Schmitt, A., Spitzmuller, M., Klemann, D. K., & Frese, M. (2015b). I put in effort, therefore I am passionate: Investigating the path from effort to passion in entrepreneurship. *Academy of Management Journal*, 58, 1–20.
- Glaub, M. E., Frese, M., Fischer, S., & Hoppe, M. (2014). Increasing personal initiative in small business managers or owners leads to entrepreneurial success: A theory-based controlled randomized field intervention for evidence-based management. *Academy of Management Learning & Education*, 13(3), 354–379.
- Hacker, W. (1973). *Allgemeine Arbeits-und Ingenieurpsychologie*. VEB Deutscher Verlag der Wissenschaften.
- Hardy, C., & Maguire, S. (2008). Institutional entrepreneurship. In R. Greenwood, C. Oliver, K. Sahlin, & R. Suddaby (Eds.), *The Sage Handbook of Organizational Institutionalism* (pp. 198–217). Sage.
- Henrekson, M., & Lundström, A. (2009). The Global Award for Entrepreneurship Research. *Small Business Economics*, 32(1), 1–14.
- Hmieleski, K. M., & Baron, R. A. (2008). When does entrepreneurial self-efficacy enhance versus reduce firm performance? *Strategic Entrepreneurship Journal*, 2(1), 57–72.
- Hmieleski, K. M., & Baron, R. A. (2009). Entrepreneurs’ optimism and new venture performance: A social cognitive perspective. *Academy of Management Journal*, 52(3), 473–488.
- Keith, N., & Frese, M. (2005). Self-regulation in error management training: Emotion control and metacognition as mediators of performance effects. *Journal of Applied Psychology*, 90(4), 677–691.
- Krauss, S. I., Frese, M., Friedrich, C., & Unger, J. M. (2005). Entrepreneurial orientation: A psychological model of success among southern African small business owners. *European Journal of Work and Organizational Psychology*, 14(3), 315–344.
- Krueger, N. (1993). The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability. *Entrepreneurship Theory and Practice*, 18(1), 5–21.
- Lewin, K. (1951). *Field Theory in Social Science—Selected Theoretical Papers by Kurt Lewin* (Edited by D. Cartwright). Harper & Row.
- Markman, G. D., & Baron, R. A. (2003). Person–entrepreneurship fit: Why some people are more successful as entrepreneurs than others. *Human Resource Management Review*, 13(2), 281–301.
- McClelland, D. C. (1965). N achievement and entrepreneurship: A longitudinal study. *Journal of Personality and Social Psychology*, 1(4), 389–392.
- McCraw, T. K. (2007). *Prophet of Innovation: Joseph Schumpeter and Creative Destruction*. The Belknap Press of Harvard University Press.
- McMullen, J. S., & Shepherd, D. A. (2006). Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. *Academy of Management Review*, 31(1), 132–152.
- Miner, J. B., Smith, N. R., & Bracker, J. S. (1989). Role of entrepreneurial task motivation in the growth of technologically innovative firms. *Journal of Applied Psychology*, 74(4), 554–560.
- Rauch, A., & Frese, M. (2000). Psychological approaches to entrepreneurial success: A general model and an overview of findings. *International Review of Industrial and Organizational Psychology*, 15, 101–142.
- Rauch, A., & Frese, M. (2007a). Let’s put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners’ personality traits, business creation, and success. *European Journal of Work and Organizational Psychology*, 16(4), 353–385.
- Rauch, A., & Frese, M. (2007b). Born to be an entrepreneur? Revisiting the personality approach to entrepreneurship. In J. R. Baum, M. Frese, & R. A. Baron (Eds.), *The Psychology of Entrepreneurship* (pp. 73–98). Psychology Press.
- Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice*, 33(3), 761–787.
- Rosing, K., Frese, M., & Bausch, A. (2011). Explaining the heterogeneity of the leadership-innovation relationship: Ambidextrous leadership. *The Leadership Quarterly*, 22(5), 956–974.
- Sarason, Y., Dean, T., & Dillard, J. F. (2006). Entrepreneurship as the nexus of individual and opportunity:

- A structuration view. *Journal of Business Venturing*, 21(3), 286–305.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217–226.
- Shaver, K. G., & Scott, L. R. (1992). Person, process, choice: The psychology of new venture creation. *Entrepreneurship Theory and Practice*, 16(2), 23–46.
- Solomon, G., Frese, M., Friedrich, C., & Glaub, M. (2013). Can personal initiative training improve small business success? A longitudinal South African evaluation study. *The International Journal of Entrepreneurship and Innovation*, 14(4), 255–268.
- Speier, C., & Frese, M. (1997). Generalized self efficacy as a mediator and moderator between control and complexity at work and personal initiative: A longitudinal field study in East Germany. *Human Performance*, 10(2), 171–192.
- Unger, J. M., Keith, N., Hilling, C., Gielnik, M. M., & Frese, M. (2009). Deliberate practice among South African small business owners: Relationships with education, cognitive ability, knowledge, and success. *Journal of Occupational and Organizational Psychology*, 82(1), 21–44.
- Unger, J. M., Rauch, A., Frese, M., & Rosenbusch, N. (2011). Human capital and entrepreneurial success: A meta-analytical review. *Journal of Business Venturing*, 26(3), 341–358.
- Utsch, A., Rauch, A., Rothfufs, R., & Frese, M. (1999). Who becomes a small scale entrepreneur in a post-socialist environment: On the differences between entrepreneurs and managers in East Germany. *Journal of Small Business Management*, 37(3), 31–42.
- Van der Linden, D., Frese, M., & Meijman, T. F. (2003). Mental fatigue and the control of cognitive processes: Effects on perseverance and planning. *Acta Psychologica*, 113(1), 45–65.
- Van Gelder, J. L., De Vries, R. E., Frese, M., & Goutbeek, J. P. (2007). Differences in psychological strategies of failed and operational business owners in the Fiji Islands. *Journal of Small Business Management*, 45(3), 388–400.
- Venkataraman, S. (1997). The distinctive domain of entrepreneurship research. In J. A. Katz (Ed.), *Advances in Entrepreneurship, Firm Emergence, and Growth* (Vol. 3, pp. 119–138). JAI Press.
- Volpert, W. (1971). *Sensumotorisches Lernen*. Zur Theorie des Trainings in Industrie und Sport. Limpert.

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