



Entrepreneurship and psychological disorders: How ADHD can be productively harnessed



Johan Wiklund^{a,*}, Holger Patzelt^b, Dimo Dimov^c

^a Syracuse University, USA

^b Technical University Munich, Germany

^c University of Bath, UK

ARTICLE INFO

Article history:

Received 12 April 2016

Received in revised form

30 June 2016

Accepted 1 July 2016

Keywords:

Entrepreneurship

Performance

ADHD

Mental disorder

Case studies

Theory development

ABSTRACT

Amidst predominant focus on positive traits for entrepreneurship, this paper explores how disorders such as ADHD influence the decision to engage in entrepreneurial action and the success of entrepreneurial action. Based on a multiple case study of fourteen entrepreneurs previously diagnosed with ADHD, our inductive model highlights impulsivity as a major driver of entrepreneurial action and hyperfocus as a major catalyst for its consequences, both positive and negative. By drawing attention to the positive implications of symptoms commonly seen as negative, the paper opens several major avenues for future theoretical development and empirical research.

© 2016 Elsevier Inc. All rights reserved.

1. Introduction

The psychological perspective is one of the building blocks to the study of entrepreneurship. As a quest for ‘positive’ characteristics of aspiring and accomplished entrepreneurs, it defines what data are relevant for empirical examination and, inevitably, overlooks seemingly irrelevant data. For instance, prominent entrepreneurs such as Ingvar Kamprad, David Neeleman, and Richard Branson (to name just a few) have all been claimed to have ADHD (e.g., Archer, 2014) – a fact prior studies in entrepreneurship have ignored. Rather than treat it as inconvenient noise, this paper treats this observation as a potential signal to be explored.

ADHD is a common neurodevelopmental psychological disorder characterized by problems with focus, impulsivity and activity level. It is associated with several negative consequences such as crime and imprisonment, academic underperformance, drug use and social exclusion (Pratt et al., 2002). But people with ADHD may potentially have qualities that make them well suited for entrepreneurship. The remarkable examples above have spurred substantial speculation concerning potentially positive associations between ADHD and entrepreneurship. Little academic research has been carried out on the topic, however. What little exists indicates that there may be some positive associations. Elevated rates of self-employment (Mannuzza et al., 1993; Verheul et al., 2016), higher entrepreneurial intentions (Verheul et al., 2015) and a positive association between ADHD symptoms and entrepreneurial orientation (Thurik et al., 2016) have been noted, but the causal mechanisms linking ADHD to entrepreneurship are still not well understood. Therefore, this research sets out to

* Corresponding author.

E-mail address: jwiklund@syr.edu (J. Wiklund).

explore this question using an inductive, case study approach. It poses the following research questions: *How does ADHD influence (i) the decision to engage in entrepreneurial action and (ii) the success of entrepreneurial action?*

At least three different mechanisms could be at play. First, entrepreneurship may be an occupational choice favored by people with ADHD because they are pushed out of regular employment. ADHD may require adjustments be made to a job which may be harder to accomplish in paid employment than in self-employment. Therefore, self-employment offers people with ADHD the possibility to better capitalize on their strengths while minimizing the impact of their weaknesses which increases the relative utility of self-employment (Verheul et al., 2016; Wiklund et al., 2016). Second, in order to be successful and develop their full potential these individuals must develop coping strategies (Logan, 2009). These strategies can be highly valuable in their subsequent entrepreneurial endeavors. Successfully overcoming the challenges of a mental disorder can provide entrepreneurs with the resilience needed to persevere through the challenges and setbacks faced during the entrepreneurial process (Hayward et al., 2010). Third, recent advances in neuroscience reveal a hereditary neurological basis for ADHD (e.g., Katragadda and Schubiner, 2007). These brain differences have remained in the gene pool throughout evolution suggesting that they represent natural variations (e.g., Ortega, 2009). In many ways it leads to traits and behaviors that are dysfunctional. In some contexts, however, traits associated with the disorder provide advantages. Genetic variations of dopamine receptors in ADHD are associated with increased novelty-seeking and risk taking. This may be directly related to increased propensity for entrepreneurship because it is a context that rewards novelty seeking and risk taking (Nicolau et al., 2011).

Understanding the mechanisms involved in the relationship between ADHD and entrepreneurship is critically important both theoretically and empirically. Against attributions of entrepreneurial action to overwhelmingly “positive” individual characteristics such as self-efficacy, achievement motivation, and human capital, as indicated by recent meta-analytical reviews (e.g., Frese and Gielnik, 2014), it is virtually impossible to find any positive implications of “negative” disorders such as ADHD in the scholarly literature. Given that acting entrepreneurially is crucial in today’s hyper-competitive, high-velocity global business environment, findings that “negative” ADHD characteristics facilitate entrepreneurial action would challenge explicit and implicit assumptions within both these literatures, opening up new avenues for theoretical development.

2. Methods

We employed a multiple case study approach, approaching the largest Swedish support organization for people with ADHD and posting information on their Facebook and home pages. We specified that we were looking for people who had been diagnosed with ADHD and were operating their own firm. We received over twenty responses to our call. Consistent with the principle of theoretical sampling underpinning comparative case study research (e.g., Eisenhardt and Graebner, 2007), we included cases representing great variety in terms of performance and stage of entrepreneurial experience. Validating that candidates met our criteria for inclusion, we ended up with an initial sample of fourteen individuals who had received a formal ADHD diagnosis and were also entrepreneurs (see Table 1 for sample details).

We interviewed each entrepreneur once. Six interviews were conducted face-to-face and eight over the telephone. We did not note any significant differences between the interview modes with respect to the nature or volume of the information provided. The interviews typically lasted between 40 and 60 min and were recorded and transcribed verbatim. The collected data amounted to over 10 h in recorded material and over 110 single spaced pages of text. We promised the respondents anonymity and confidentiality. This encourages respondents to be open and sincere in their responses (Huber and Power, 1985).

The interviews revolved around four major themes: (i) Personal background; (ii) Entrepreneurial journeys; (iii) Nature of their diagnoses; (iv) Diagnosis and entrepreneurship. An interview guide with 38 open-ended questions was used as

Table 1
Individuals included in the study.

Name	Sex	Diagnosis	Age	Industry	Success	Years as entrepreneur
Jimmy	M	ADHD/Autism/Tourettes	20s	Retail	Failed	1
Karen	F	ADHD	60s	Retail	Failed	5+
Neil	M	ADHD	20s	Consultant	Low	3
Jess	F	ADHD	30s	Writer	Low	3
Jenny	F	ADHD/Autism	40s	Education	Low	10+
Ed	M	ADHD/Tourettes	40s	Education	Medium	20+
Andy	M	ADHD	20s	Consultant	Medium	5+
Pete	M	ADHD	30s	TV production	High	10+
Lenny	M	ADHD	50s	Insurance	High	30+
Toby	M	ADD/Asp	50s	Consultant	High	20+
Mary	F	ADHD/Autism	50s	Education	Varied	20+
Johnny	M	ADHD	40s	Construction	Varied	20+
Emma	F	ADHD	30s	Care	Just starting	0
George	M	ADHD	20s	PR	Just starting	0

recommended (Edmondson and McManus, 2007). We took steps to safeguard against memory decay and recall bias. Rather than asking respondents to consider a general abstraction (e.g., how having ADHD influences their work), we asked them to consider a recent incident or event (e.g., instances at work during the past week that would show to an observer that they had ADHD). Interviews focused on facts which are less likely than opinions to be influenced by recall or social desirability biases (Huber and Power, 1985). We also collected data from additional sources to allow for triangulation, reviewing websites and TV and/or newspaper interviews. In two cases, we also interviewed family members. These additional data were used to complement and validate the interview data to build more solid theory (Yin, 2009).

We first integrated auxiliary materials into the interviews to construct individual case studies (Eisenhardt and Graebner, 2007). We then thematically coded text chunks and other bits of information in each case. Our coding scheme initially consisted of categories corresponding to the themes of the interview guide and was constantly revised throughout the analysis as we iteratively compared and contrasted the cases. We reached theoretical saturation, i.e. “the properties and dimensions of the concepts and conceptual relations selected to render the target event are fully described” (Sandelowski, 2008: 875), after analyzing the first eight cases. The remaining six cases validated the total of 23 categories spanning over 100 subcategories. Some categories did not seem causally linked to the other constructs of the model and were therefore not included in the conceptual model. For example, subcategories linked to creativity constituted a recurring theme in interviews. However, neither these subcategories, nor creativity itself, seemed causally linked to other constructs in the model. Therefore, it was excluded from the analyses and the conceptual model. The remaining categories and sub-categories comprised variables and constructs that we deemed as potentially relevant for understanding how ADHD symptoms convert into entrepreneurial action. Interestingly, it is the constructs directly relating to the actual ADHD diagnoses that appeared to be important in explaining entrepreneurial action.

3. Results

The model emerging from our data is illustrated in Fig. 1. It became clear that traits and symptoms associated with ADHD permeated the entrepreneurial journeys of the case entrepreneurs. Impulsivity, activity level and attention style influenced a range of behaviors. *Everybody* mentioned that one of the greatest advantages of being an entrepreneur is that they can adapt work to their energy level – to work when their energy level is high and take time off when it is low irrespectively of the time of the day. Also, several respondents mentioned that they started their business on an impulse because they were bored with their prior jobs, and they found something else they felt passionate about and wanted to pursue. We therefore orient our results to presenting how these symptoms pan out in the entrepreneurial context and their consequences.

3.1. Impulsivity and its implications

In our data, we saw several examples of behaviors driven by impulsivity. These behaviors are consistent with ADHD symptoms and can be categorized into the following three separate and independent dimensions of impulsivity identified by Romer (2010).

First, *acting without thinking* is characterized by rapid decision making in situations that would seem to require extensive analysis and deliberation. Whether acting without thinking yields positive or negative outcomes for the decision maker depends on the complexity and uncertainty of the situation and thus the availability of information that can be analyzed in a productive manner. A common response to uncertainty is anxiety and inaction, and many aspiring entrepreneurs avoid entrepreneurial action despite having entrepreneurial intentions (van Gelderen et al., 2015). People who are high on impulsivity and act without thinking can overcome such paralysis. A negative outcome of acting without thinking relates to making poor decisions that are later regretted. A positive outcome is that it facilitates decision making in complex and uncertain situations.

Several entrepreneurs in our sample displayed acting without thinking, even for important and far-reaching decisions. Johnny shared how he had lunch with a friend earlier in the week that he was interviewed. The friend mentioned that he

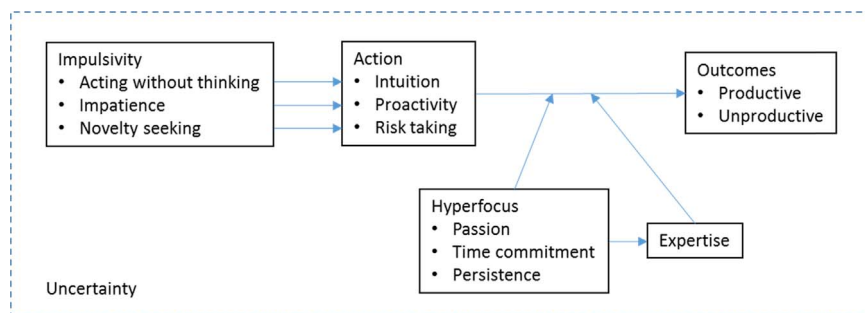


Fig. 1. ADHD symptoms, entrepreneurial action, and outcomes.

was going to retire and intended to sell his business. Johnny decided to buy the business and before the end of the lunch the deal was sealed. Having insights into his ADHD and its symptoms, and receiving professional treatment, Johnny was aware that this was an impulsive decision. Nevertheless, he felt that he was presented with a lucrative opportunity that he did not want to miss out on. Therefore, he felt comfortable with making the decision on the fly despite having little insights into the details of the financial standing of the business he bought. He knew the business was reasonably profitable and trusted that his friend would be honest and asked a fair price. He recalled having made several similar impulsive decisions in the past, some of which have led to poor outcomes and others that had been successful. Reflecting on his decision making, Johnny stated that he was comfortable with committing large sums of money to investments with uncertain outcomes on the basis of gut feel. During his entrepreneurial career that spans more than two decades, Johnny had been very successful at times, owning many businesses, employing several dozens of people and making much money, whereas at other times, his businesses barely survived and he had to adopt a very simple lifestyle to keep his businesses afloat.

Similarly, George noted that he acts without thinking in complex situations. Complexity makes him overwhelmed and causes anxiety. He has problems devising strategies to structure and work through the situation in stages, which is consistent with the disorganization noted in people with ADHD. Instead, he makes decision on the basis of gut feel. Similar to Johnny, he noted that sometimes this leads to poor outcomes but at other times the outcomes are positive. He believes this decision making style helps his productivity in his fast-paced line of work. With more analysis going into decisions, he is afraid his productivity would deteriorate.

Thus, on the basis of these observations, we conclude that in the entrepreneurial context, acting without thinking is associated with greater *intuitive decision making*. Intuitive decision making is judgmental and responds to emotions. It can be contrasted with rational decision making, which is consciously analytical (Simon, 1987). The appropriateness of engaging in intuitive decision making among the entrepreneurs in our sample can be questioned. It would seem, however, that in situations of high uncertainty, a rational decision making style could be associated with inaction because there would simply be limited information to be analyzed.

Second, *impatience* signifies getting easily bored, having difficulties waiting, in particular to begin something, the rapid discount of time, preferring a small instant reward to a larger delayed reward, and the intolerance of delays, all characteristic of people diagnosed with ADHD. When prompted about reasons for starting his own firm, Andy cited boredom with his prior job. The pace was too low and driven too much by his superiors. Working for himself allows him to set his own pace and to initiate new work tasks as he comes across something that he feels is interesting. Similarly, Karen mentioned boredom as a main reason for engaging in new projects and Lenny felt that dealing with several different clients keeps him from getting bored.

Across cases, it appears that impatience is a key trigger for engaging in new behaviors at work. Feelings of impatience serve to initiate new behavior and keep entrepreneurs on constant outlook for new opportunities. As such, it reflects proactiveness which is characterized by the experimentation with and development of new opportunities whenever possible (Rauch and Frese, 2007). Although there are differences in the exact nature of these new behaviors, many of them have extensive implications for the development of the business. Mary mentioned that she had started her first business selling less than ten different products. A few years later, she had introduced 250 new products, employing close to 20 workers. The introduction of new products was driven by her boredom with the status quo and the eagerness to engage in new activity. Thus, an implication of impatience is that activities tend to swell. Rather than waiting to engage in a new activity until previous ones are established and routinized, or extensively evaluated and potentially abandoned if unsuccessful, many sample entrepreneurs engaged in several novel activities simultaneously and constantly generated new ideas.

Paired with the associated problem of delegation of work tasks, there are several implications of the sample entrepreneurs' focus on generating new business opportunities. Several entrepreneurs reported that they do little else but work and sleep, since engaging in multiple activities simultaneously severely taxed their time resources. This is not an unusual situation for entrepreneurs in general and not necessarily an unwanted situation for hyperactive people with ADHD, but it was heavily emphasized in the interviews. Another implication of conducting several novel activities in parallel with limited delegation is increasingly complex work demands. While there are both positive and negative outcomes of impatience in the entrepreneurial context, it is associated with more *proactive action*.

Consistent with a focus on new activities, none of the entrepreneurs in the study were comfortable with accounting and book keeping, which are typically routinized activities. As such, the majority have attempted to delegate these tasks with varying degrees of success because of their impatience. Because Cathy is impatient, she has little tolerance for mistakes or the time it takes to learn to do her books. Thus, she gets irritated and disappointed with those that are supposed to do the book keeping for her. Jenny and Karen reported similar experiences and have gone through multiple accountants with limited success of finding one that fits their standards. After several failed attempts, Mary now conducts the tasks herself with mixed results.

Third, *novelty seeking* includes a tendency to enjoy and pursue activities that are exciting and an openness to trying new experiences, even if they may be risky and dangerous (Whiteside and Lynam, 2001). Relying relatively more on affect than cognition in decision making, impulsive people tend to put more weight on upside potential than on downside risk, which can explain the attractiveness of novelty seeking (Sengupta and Zhou, 2007). Cathy noted that she feels at ease and stimulated in situations that may cause anxiety for others, such as engaging with new prestigious customers. Because of her problems with planning, Mary reported ending up in many unexpected situations. When she arrives to work, people she does not recognize may be waiting for her. She realizes that she has made an appointment but forgot about it. Because she is

used to these situations and enjoys when unexpected things happen, she feels comfortable improvising in these situations. As a hobby, Johnny engages in full contact combat sports. He also seeks to conduct his business in places that are known to be dangerous because he finds it stimulating and because it pays better. He also claimed to enjoy risky business situations that others regard as dangerous. Karen enjoyed new situations and meeting new and different people. Because she has always felt different she has no problem engaging with people from other cultures. In sum, it seems that in the entrepreneurial context, novelty seeking is associated with *risky action*.

Thus, each of the three dimensions of impulsivity seems directly associated with a specific aspect of how entrepreneurial action is being pursued. Acting without thinking is linked with intuitive decision making; impatience is related to proactiveness, and novelty seeking is associated with risk taking (Fig. 1).

3.2. Attention, passion, time commitment, and expertise

People with ADHD have problems focusing on tasks that they do not find interesting (attention deficit) but can exhibit intensive concentration and become completely absorbed by tasks and activities they enjoy and find interesting or pleasurable (Schecklmann et al., 2008), experiencing what some describe as flow (Csikszentmihalyi, 1997). We observed that ADHD entrepreneurs reported such experiences. For example, throughout his life Lenny has had distinct interests on which he has spent extensive amounts of time, energy and effort and which have brought him great joy. Thanks to his complete devotion to these tasks he had become very skilled and regarded himself one of the best in his profession in the country. He also reported, however, that a recurring problem has been to not overdo them. For example, he reported that he can become completely absorbed by crafting customer solutions and the associated PowerPoint presentations, spending exuberant amounts of time on these tasks while forgetting to eat and sleep. Similarly, too intensive physical activity had led to permanent injuries. Remarkably, while being an entrepreneur in this industry for over three decades, Lenny found other aspects of the business far less appealing and has problems motivating himself to engage in them. One solution has been to have a business partner who manages the office and staff and takes care of administration. However, because of personal conflicts with the partner, his business had been dissolved twice and he started over with a different partner.

Pete is very passionate about certain aspects of his work and spends extensive amounts of time on them. Pete's passion for TV production started during high school and he started working as an employee straight after graduating high school. At work, he wanted access to the latest technology but his employer was not willing to invest as soon and extensively as Pete thought appropriate. Pete's decision to start his own business doing TV production was largely influenced by his interest in the rapidly developing technology in his field. After starting his own firm, he constantly invested into the latest technology. Pete has operated his business for well over a decade and is still passionate and focused on the same work tasks, perceiving himself as a leading expert in his area. He does few other things apart from work although he reported feeling that his absorption in work has negative consequences for his social life. Like Lenny, he did not enjoy certain tasks associated with running his own firm (administration and accounting), which he outsources. Intuitively, such hyperfocus may seem to run counter to the idea that people with ADHD get easily bored and look for variation. It should be noted, however, that Lenny provides customized services to a range of customers, and that every project that Pete works on is unique leading him to perceive his work not as repetitive or boring, but full of variation. Thus, hyperfocus is associated with passion, persistence, and time commitment related to certain tasks or activities. Over time, this leads to development of expertise in those specific tasks, as illustrated in Fig. 1.

3.3. Productive action under uncertainty

Entrepreneurs with ADHD are likely to engage in actions that are intuitive, proactive and risky. These characteristics lead to higher propensity for taking action despite high uncertainty surrounding the entrepreneurial task. For our sample of ADHD entrepreneurs, whether this propensity for action was productive or unproductive depended largely on the existence and nature of hyperfocus.¹ Respondents who lacked hyperfocus related to their business activities tended to diversify into new and sometimes unrelated areas. Since successful intuitive decision making in a certain area requires that a person possesses expertise in that area, those who ventured into unrelated activities often made poor decisions by entering into activities that added little value to the business.

For example, Andy described having a hard time seeing projects through to the end. Instead, he needs to be pushed by others in order to complete what he starts. He generally noted that according to his own experience, people with ADHD seek freedom and independence, but once given that freedom have a tendency to get into situations they can't control unless they create their own boundaries. Similarly, while George found the engagement in multiple project stimulating, he reported that it easily creates overload in his brain, leading to stress and anxiety that make him unproductive. Several other respondents attested to their difficulties of organization and problems sorting out complexity, causing stress, anxiety and feelings of being overwhelmed.

Interestingly, while Pete is also enthusiastic when it comes to starting new projects or investing into new technology, all his projects are similar, building on the same technological and artistic competencies. Similarly, his investments all concern

¹ Some scholars regard the inattention associated with ADHD as an attention style. According to such scholars, the broad attention style of people with ADHD is often combined with hyperfocus (e.g., Schecklmann et al., 2008). Thus, hyperfocus is directly related to inattention

technology that further develop his existing operations. Hence, he does not diversify into entirely new areas, which makes it easier for him to draw qualified decisions that lead to adding value to his firm.

Whether acting without thinking is positive or negative depends on the complexity and uncertainty of the situation and thus the availability of information that can be analyzed in a productive manner. If uncertainty is high, analysis would be of limited use and a more instinctive decision making process based on gut feel could be appropriate whereas the opposite applies in situation where information would be readily available (cf. [Saravathy, 2001](#)). In such situations, impulsive individuals who act without thinking would be prone to take action whereas more thoughtful individuals would be less action oriented. A negative outcome of acting without thinking relates to making poor decisions that are later regretted. A positive outcome of this is that it facilitates decision making in complex and uncertain situations. This would be consistent with the literature on intuitive and gut feel decisions, which notes that the outcomes of intuitive decision making can highly detrimental or very productive, depending on the experience and expertise of the decision maker (cf. [Huang & Pearce, 2015](#)). The entrepreneurs in our sample who focused on activities essential to the development of their businesses (e.g., Lenny and Pete) were able to develop relevant expertise and were thus able to engage in productive rather than unproductive action as illustrated in [Fig. 1](#).

3.4. Activity and energy levels

Finally, several respondents noted that they have a higher work capacity, higher energy level and less need for sleep than other (non-ADHD) people they know. For example, Jessica works full-time, studies part-time at the university, and takes care of three small children and her own part-time business. Every morning she wakes up several hours before the rest of her family to work on her current business and to consider the many additional business concepts that she constantly generates. Indeed, when prompted about the implications of having ADHD, several respondents expressed that a higher work capacity than others is one of the greatest pros of the condition. George pointed out that 'normal' people would be envious and wish they had ADHD if they knew of his work capacity. Respondents with a work related hyperfocus are able to channel this work capacity into their work, which further fuels their time commitment to work.

At the same time, all respondents noted that their energy levels vary substantially during the day and one of the largest advantages of operating your own business is that you can work during the hours when your energy level is high, irrespectively at what time that occurs. Many entrepreneurs, however, reported having problems to find sleep during the night and get up and work instead.

4. Discussion

Thousands if not tens of thousands of academic papers have documented the negative implications of having ADHD and there seem to be many. Very few papers have examined or found support for any positive effects of the disorder but some anecdotal evidence suggests that ADHD could have positive implications in entrepreneurship. The present study is a first step towards understanding how ADHD impacts entrepreneurship.

The model we develop in this paper suggests that hitherto unexplored concepts directly related to ADHD are of great importance for understanding the propellers of entrepreneurial action and its consequences. Although entrepreneurship is essentially about action under uncertainty ([McMullen and Shepherd, 2006](#)), implications for individual decision making have not been fully drawn. First, fundamental uncertainty implies that relevant information about future states *cannot* be known. Second, because entrepreneurial outcomes depend on the actions of others (which in turn depend on the actions of yet others), the coupling between entrepreneurial inputs and outputs is very loose at best. These two premises represent an insurmountable challenge to decision making rationality based on the logic of consequences ([Cyert and March, 1963](#)). Under this logic, acting under uncertainty can never be a rational choice.

Our results suggest that ADHD symptoms – despite their otherwise negative connotation – convey a different logic, which seems better attuned to entrepreneurial action. In particular, impulsivity represents a behavioral logic, one of appropriateness rather than consequences ([Cyert and March, 1963](#)). Its key feature is that it involves little or no consideration of what will or might happen; it is driven by an internal sense of what is appropriate to do. For people with ADHD, what is appropriate is to act, not think or wait; to seek novelty. This insight represents a significant opportunity for theoretical development in entrepreneurship because it sheds light on a current dead end in the field. On the one hand, we may deplore impulsivity because it does not seem 'rational'. On the other hand, it is not clear how one can act 'rationally' under uncertainty. The broader question here is about the need to define what constitutes appropriate action without reference to its ultimate consequences. For people with ADHD this comes intuitively. Although they may regret their actions once the outcomes are known, they have an intuitive sense that such actions are appropriate. Interestingly, recent research by [Lerner \(2016\)](#) indicates that stakeholders tend to have a different view than entrepreneurs because entrepreneurs' disinhibition undermined stakeholders' interest in joining them.

This research also provides insights into outcomes under uncertainty. Acting more often under uncertainty pushes outcomes to both tails of the distribution; some things work, while others do not. Our respondents simply built upon what worked. Their intensive focus and honed expertise influence the distribution between positive and negative outcomes. It thus seems that the impulsivity to act facilitates an ongoing process of experimentation, which is taken to various ends

through passion, time commitment, and persistence. Entrepreneurs with ADHD are guided by what is rather than what will be. This poses another profound question for entrepreneurship researchers: Is it possible to get only the positive outcomes to entrepreneurship, while avoiding the negative ones? For entrepreneurs with ADHD, perhaps working in teams or the interaction with stakeholders can help avoid some of the pitfalls in impulsivity and “acting without thinking,” although such support seems difficult to get (Lerner, 2016).

In summary, entrepreneurship research has a strong bias towards looking at positive characteristics of people and positive outcomes. We believe that this bias reflects an implicit model of decision making as oriented towards consequences that is simply not practical in the context of uncertainty and complexity in which entrepreneurial action occurs. ADHD is a disorder diagnosed by medical doctors and research on ADHD has focused on the negatives. Our model suggests that in an entrepreneurial context these same symptoms may have positive implications. It opens up new research possibilities around, for instance, refining the constructs of the model as well as exploring the effects of the type of ADHD diagnosis, medication, and comorbidity. Could ADHD be a human variation pre-adapted for thriving in a qualitatively different context such as entrepreneurship?

References

- Archer, D., 2014. ADHD: The Entrepreneur's Superpower. Forbes. (<http://www.forbes.com/sites/dalearcher/2014/05/14/adhd-the-entrepreneurs-super-power/#63e240c97063>).
- Csikszentmihalyi, M., 1997. *Flow and the Psychology of Discovery and Invention*. HarperPerennial, New York.
- Cyert, R.M., March, J.G., 1963. *A Behavioral Theory of the Firm*. Englewood Cliffs, NJ.
- Edmondson, A.C., McManus, S., 2007. Methodological fit in management field research. *Acad. Manag. Rev.* 32 (4), 1155–1179.
- Eisenhardt, K.M., Graebner, M.E., 2007. Theory building from cases: Opportunities and challenges. *Acad. Manag. J.* 50 (1), 25–32.
- Frese, M., Gielnik, M.M., 2014. The psychology of entrepreneurship. *Annu. Rev. Organ. Psychol. Organ. Behav.* 1 (1), 413–438.
- Hayward, M.L., Forster, W.R., Sarasvathy, S.D., Fredrickson, B.L., 2010. Beyond hubris: how highly confident entrepreneurs rebound to venture again. *J. Bus. Ventur.* 25 (6), 569–578.
- Huang, L., Pearce, J.L., 2015. Managing the Unknowable The Effectiveness of Early-stage Investor Gut Feel in Entrepreneurial Investment Decisions. *Administrative Science Quarterly* 60 (4), 634–670.
- Huber, G.P., Power, D.J., 1985. Retrospective reports of strategic-level managers: guidelines for increasing their accuracy. *Strat. Manag. J.* 6 (2), 171–180.
- Katragadda, S., Schubiner, H., 2007. ADHD in children, adolescents, and adults. *Prim. Care: Clin. Pract.* 34 (2), 317–341.
- Lerner, D.A., 2016. Behavioral disinhibition and nascent venturing: Relevance and initial effects on potential resource providers. *Journal of Business Venturing* 31 (2), 234–252.
- Logan, J., 2009. Dyslexic entrepreneurs: the incidence; their coping strategies and their business skills. *Dyslexia* 15 (4), 328–346.
- Mannuzza, S., Klein, R.G., Bessler, A., Malloy, P., LaPadula, M., 1993. Adult outcome of hyperactive boys: educational achievement, occupational rank, and psychiatric status. *Arch. Gen. Psychiatry* 50 (7), 565–576.
- McMullen, J.S., Shepherd, D.A., 2006. Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. *Acad. Manag. Rev.* 31 (1), 132–152.
- Nicolaou, N., Shane, S., Adi, G., Mangino, M., Harris, J., 2011. A polymorphism associated with entrepreneurship: evidence from dopamine receptor candidate genes. *Small Business Economics* 36 (2), 151–155.
- Ortega, F., 2009. The cerebral subject and the challenge of neurodiversity. *BioSocieties* 4 (4), 425–445.
- Pratt, T.C., Cullen, F.T., Blevins, K.R., Daigle, L., Unnever, J.D., 2002. The relationship of attention deficit hyperactivity disorder to crime and delinquency: a meta-analysis. *Int. J. Police Sci. Manag.* 4 (4), 344–360.
- Rauch, A., Frese, M., 2007. Let's put the person back into entrepreneurship research: a meta-analysis on the relationship between business owners' personality traits, business creation, and success. *Eur. J. Work Organ. Psychol.* 16 (4), 353–385.
- Romer, D., 2010. Adolescent risk taking, impulsivity, and brain development: implications for prevention. *Dev. Psychobiol.* 52 (3), 263–276.
- Sandelowski, M., 2008. Theoretical saturation. In: Given, Lisa (Ed.), *The SAGE Encyclopedia of Qualitative Research Methods*, Sage, Thousand Oaks, CA, pp. 875–876.
- Sarasvathy, S.D., 2001. Causation and effectuation: toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Acad. Manag. Rev.* 26 (2), 243–263.
- Schecklmann, M., et al., 2008. Diminished prefrontal oxygenation with normal and above-average verbal fluency performance in adult ADHD. *J. Psychiatr. Res.* 43 (2), 98–106.
- Sengupta, J., Zhou, R., 2007. Understanding impulsive eaters' choice behaviors: the motivational influences of regulatory focus. *J. Mark. Res.* 44 (2), 297–308.
- Simon, H.A., 1987. Making management decisions: the role of intuition and emotion. *Acad. Manag. Executive* (1987–1989), 57–64.
- Thurik, R., Khedhaouria, A., Torrès, O., Verheul, I., 2016. ADHD symptoms and entrepreneurial orientation of small firm owners. *Appl. Psychol.*
- Van Gelderen, M., Kautonen, T., Fink, M., 2015. From entrepreneurial intentions to actions: Self-control and action-related doubt, fear, and aversion. *Journal of Business Venturing* 30 (5), 655–673.
- Verheul, I., Block, J., Burmeister-Lamp, K., Thurik, R., Tiemeier, H., Turturea, R., 2015. ADHD-like behavior and entrepreneurial intentions. *Small Bus. Econ.* 45 (1), 85–101.
- Verheul, I., Rietdijk, W., Block, J., Franken, I., Larsson, H., Thurik, R., 2016. The association between attention-deficit/hyperactivity (ADHD) symptoms and self-employment. *Eur. J. Epidemiol.*, 1–9.
- Wiklund, J., Yu, W., Marino, L., Tucker, R., 2016. ADHD, impulsivity and entrepreneurship. *Academy of Management 2016 Anaheim Conference*. Anaheim, CA, August 2016.
- Whiteside, S.P., Lynam, D.R., 2001. The five factor model and impulsivity: Using a structural model of personality to understand impulsivity. *Personal. Individ. Differ.* 30 (4), 669–689.
- Yin, R.K., 2009. *Case Study Research: Design and Methods*. Sage, Thousand Oaks.