1. Thinking about cognition and its central role in entrepreneurship: confessions of a ‘reformed’ behaviorist

Robert A. Baron

ABSTRACT

Cognition is now widely recognized as an important key to understanding central aspects of entrepreneurship – everything from opportunity recognition and alertness, on the one hand, through planning, improvisation, strategy formulation, and even the decision to exit from a new venture, on the other. However, this was not always the case; the present author started his own career as a ‘hard-nosed behaviorist,’ believing that cognition was unobservable and therefore not an appropriate topic for research. Only gradually did he come to recognize its central importance in virtually every aspect of complex human behavior, including entrepreneurship. In order to investigate its role in entrepreneurship, we can draw on several different sources of knowledge (e.g., input from successful entrepreneurs). Among these, however, systematic research offers the most effective approach. Future studies can draw on current knowledge of cognition to investigate a myriad of intriguing issues, including the role of self-regulation in entrepreneurs’ success, and the role of several cognitive factors in entrepreneurs’ high levels of philanthropy – their widely recognized tendency to ‘give back’ by sharing their wealth with others (e.g., universities, charitable organizations).

There’s nothing better [than] when something comes and hits you and you think ‘YES!’

J.K. Rowling

I never made one of my discoveries through the process of rational thinking.

Albert Einstein
INTRODUCTION – AND MY FIRST EPIPHANY

Cognition – the dictionary defines it as ‘the mental faculty or process of acquiring knowledge by the use of reasoning, intuition, or perception,’ and in fact, that’s close to what we usually mean when we use this term in entrepreneurship: basically, it refers to a very broad range of processes involved in perceiving, noticing, storing (retaining), retrieving, processing and using information – input from the world around us or, in many instances, our own internal systems and states. In this introductory chapter, I will try to explain why cognition underlies – or at least plays a key role in – virtually every aspect of entrepreneurship we wish to study and to understand. So the words that follow are indeed those of a ‘true believer’ – someone who does often ‘think about cognition’ and how it can help us gain new insights into the focus of our field, which, at its core, seeks to understand how individuals (or teams of individuals) convert their ideas and vision into reality – how they perform the complex array of tasks involved in ‘making the possible real’ (Baron, 2013).

Before proceeding, though, I want to note that, in one sense, it is somewhat ironic that I have been invited by my colleagues to prepare this opening chapter. Why? Because I was not always convinced that cognition was an important key to understanding entrepreneurship – or any other complex form of human behavior. On the contrary, it was only through an epiphany, or series of personal epiphanies, that I came to hold this view. So, like J.K. Rowling and Einstein (!), I was enlightened along the way!

I now comment briefly on this personal journey and how it unfolded. The story begins many years ago, when I was a graduate student in psychology. My interests had always been in the ‘hard, scientific’ side of that field – I had no desire to become a therapist. Rather, I was a true behaviorist, which meant, at the time, that I accepted the view that psychology should focus only on overt behavior – actions that can be directly observed and measured. Consistent with this view, I applied only to graduate programs that were known for this focus and was very pleased when I was accepted into the program in experimental psychology at Iowa – and, moreover, was offered an assistantship with Kenneth W. Spence, who, at the time, was second only to B.F. Skinner in terms of prominence among behaviorists. I knew Spence’s work and theories, and dimly understood that there was little room for cognition in them; in fact, aside from some work on the nature of memory (which, somehow, was acceptable to behaviorists at the time), the very idea of trying to study human thought was viewed as a total ‘dead end,’ one that would lead the science of psychology badly astray.

So, filled with visions of working with one of the true ‘greats’ in the field,
I set off for Iowa City. Alas! Life is filled with surprises, and a very big one awaited me. I arrived on campus only to learn that Professor Spence had left suddenly that summer, following a set of unhappy events best left unspecified here. Whatever the precise reasons, though, there I was, ‘high and dry,’ with my plans dashed on the rocks of academic politics. What should I do? Head for another university? That would mean being out of school for at least a semester, perhaps a year; or stay, and try to make the best of a bad situation? This, I guess, is where fate – or my true, underlying interests – intervened to start me on the road toward personal enlightenment, and appreciation of the central importance of cognition.

I decided to shift into the Social Psychology program because – somewhat unpredictably – I was quite interested in the ‘new’ theory at the time – cognitive dissonance. Expressing that interest almost ended my graduate career, however, because it was simply too cognitive for the faculty of that behaviorist-oriented department! As things turned out, I never did do research on cognitive dissonance. Instead, inspired by the work of Albert Bandura on observational learning and modeling, I developed interests in a variable well known to entrepreneurship researchers today – locus of control. Placing this in a social-learning context, I developed several ideas (very naïve at the time) to the effect that people who believe that they can control their own outcomes will learn more readily from others (i.e., social learning) than those who do not. That was the topic of my dissertation, and it yielded weak and inconsistent findings – so inconclusive that I never returned to this line of research (although, many years later, this basic idea was much more fully developed by Martin Seligman, under the heading of ‘learned helplessness’). I then shifted my focus entirely, and embarked on the study of human aggression – a topic I pursued for more than 20 years. But looking back, it seems clear that locus of control was basically a cognitive variable, focusing on what people believed they could, and could not, control or influence. So even in my dissertation research, I was well on the way toward my first epiphany: the idea that cognition does indeed matter, and must, in fact, be a central focus of efforts to understand human behavior (see also Bird, Chapter 3, this volume).

After graduation, and as I launched my research on aggression, I gradually began to see that cognition played a key role in such behavior. For instance, I soon learned that how people respond to a provocative action by another depends strongly on the perceived causes of the provocation. Was it intentional? Accidental? Not surprisingly, I repeatedly found that the more such actions were seen as intentional, the stronger the anger – and aggression – they provoked. In short, it was not only the provocative action (e.g., insult) from another person that was important; the recipi-
ent’s interpretation of its causes mattered, too. As Kelly Shaver and others noted many years later, attributions – our explanations for others’ behavior – also play a key role in certain aspects of entrepreneurship, but at the time I was unaware of the field of entrepreneurship (which had not yet emerged), and was incapable of making such connections. Other studies I performed also pointed to the importance of cognitive processes, but in the interests of brevity, I shall not describe them here. I think it is sufficient to say that, gradually, I began to recognize just how central cognition is to almost everything we do, think or feel, and that we cannot understand any form of complex human behavior without understanding its cognitive foundations.

MY SECOND EPIPHANY: THE ‘COGNITIVE REVOLUTION’ IN SOCIAL PSYCHOLOGY AND WHERE IT LED ME

All lives are marked by ‘turning points’ – events that, looking back, had a strong impact on what followed. One of these happened for me in the late 1970s and early 1980s. At that time, the field of social psychology (my ‘home base’ then) was shaken by what later became known as the ‘cognitive revolution.’ The major theme of this ‘revolution’ – which was a kind of paradigm shift in the field – was simply this: ‘We cannot understand human social behavior, and all its complexities, unless we include how people think – what and how they think about others, social situations, and themselves. Lacking such information, we will never gain the insights we seek.’

As this view took hold, the major journals in the field shifted their priorities, so that, soon, only papers that incorporated this new perspective had a chance of gaining acceptance. At first, I struggled to understand this shift and how it related to my own work, but I had one very strong incentive to do this quickly: I was then (and still am) the co-author of a textbook on social psychology (now in its 13th edition), and my co-author, Donn Byrne, being my senior, kindly delegated the task of writing about this new cognitive perspective to me! I proceeded by contacting the leading scholars in social cognition (e.g., Susan Taylor), and, with their expert help, managed to gain a basic understanding of what she and others were attempting to accomplish. The result? I soon found that I agreed strongly with the suggestion that behavior was, and almost always is, intimately linked with cognition. In other words, how and what people do depends, to a major extent, on what and how they think.

Up until that time, I had pursued a career-long interest in affect – the
role of feelings, moods and emotions in many forms of behavior. But now I came to realize that these reactions, too, were strongly and continuously related to cognition (see also Foo, Murnieks and Chan, Chapter 5, this volume; Grégoire, Chapter 6, this volume). As I put it in my social psychology text, ‘Feelings influence thought and thought shapes feelings.’

Perhaps the theoretical framework that most helped me make this transition was one I still draw on today, Bandura’s social cognitive theory. I had been strongly influenced by Bandura’s research on observational learning and modeling (many of my earliest papers were on those topics), but now, when I read his theory (e.g., Bandura, 1986, 1997), I found I resonated strongly with the perspective he proposed. Briefly, Bandura suggested that the relationships between cognitive processes, environmental conditions and complex human behavior are reciprocal in nature. Cognitive processes shape overt actions, and are, in turn, strongly influenced by these actions. Further, these complex reciprocal relationships occur against a backdrop of moderating and mediating environmental variables (Hmieleski and Baron, 2009). As Bandura (1997, p. 25) puts it: ‘What people think, believe, and feel affects how they behave. The . . . effects of their actions, in turn, partly determine their thoughts and affective reactions.’ Further, he adds (p. 129): ‘People regulate their level and distribution of effort in accordance with the effects they expect their actions to have. As a result, their behavior is better predicted by their beliefs than from the actual consequences of their actions.’

Looking back, I cannot imagine a theoretical framework more helpful in prying me loose from my behaviorist origins, and broadening my personal perspective. And, reading this theory, I also came to realize that, as researchers, we should feel free to borrow ideas, theories and research tools from other fields; doing so is certainly preferable to reinventing the wheel – working hard to generate new theoretical frameworks and principles that are, in fact, already available (see, e.g., Shane, 2012; Venkataraman, Sarasvathy, Dew and Forster, 2012, for additional comments on these issues).

From that point on, I began to build cognition into all of my research and theorizing. For instance, when I was shifting from Social Psychology into Industrial/Organizational Psychology, one of my interests was negative feedback, and how to use it – and receive it – effectively (e.g., Baron, 1988, 1990). The results helped me to realize that when people receive criticism from others, their interpretations of the motives behind such feedback are crucial in determining how they respond. Moreover, it quickly became apparent that people give negative criticism to others for many reasons – to assert dominance over them, to shatter their egos, or to enhance their own. In fact, though, the only fully rational reason for
giving negative feedback to others is to help them improve, and to the extent that these other motives intrude, those on the receiving end of criticism will quickly recognize this and respond with anger rather than sincere efforts to improve. In short, consistent with Bandura’s (1997) suggestions, people’s interpretations of (cognitions about) the motives behind others’ actions is a powerful determinant of their subsequent reactions to these actions.

THE NEXT STEP: RECOGNITION OF THE CENTRAL ROLE OF COGNITION IN ENTREPRENEURSHIP

To cut this personal retrospective short, I shall simply add that in the late 1990s, after running my own company for several years, and under the expert instruction of my good friend and colleague Venkataraman, my interests shifted to the field of entrepreneurship. In fact, in our personal conversations Venkataraman often remarked: ‘Robert, you seem to know quite a bit about cognition, and that is a topic that is highly relevant to entrepreneurship as it is currently developing.’ He was being far too kind in his assessment of my knowledge, but since his advice was given in the most constructive terms (!), coupled with my immense respect for him, I listened carefully, and moved in the direction he suggested. Since that time, cognition has remained a major theme in my work – and in the field as a whole. Indeed, as this entire volume suggests, cognition and the processes it encompasses are now an integral part of the field of entrepreneurship, and the terms ‘cognition’ or ‘cognitive’ appear in a substantial proportion of articles published in our leading journals.

Having explained how I moved from the artificial restraints of extreme behaviorism to a much more eclectic and, I hope, inclusive approach, I now turn to very different topics – ones, that, perhaps, will be of more interest to my colleagues than these personal reflections. First, I shall comment briefly on a question that I think is central to our field – and to how it can best acquire the knowledge it seeks. Stated directly, this question is: ‘To what extent can we base our knowledge primarily on what entrepreneurs – even highly successful and experienced ones – tell us? Or should we, instead, rely primarily on data?’ I think even at present this remains a somewhat unresolved issue in the field, but one deserving of careful examination.

Second, rather than try to review the excellent and diverse research that will be reported in this book, I would like to suggest a few additional questions that, I believe, can be addressed from a cognitive perspective but have not, to date, been included in ongoing research. I have chosen
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these to be quite diverse in nature in order to illustrate the tremendously broad range of issues and topics that can be effectively examined from a cognitive perspective. One topic relates to the role of self-regulation in entrepreneurship—and why the cognitive processes individuals use to guide, evaluate and adjust their own behavior may be especially relevant to our field (see also Randolph-Seng, Williams and Hayek, Chapter 4, this volume). The other relates to two questions that I find intriguing: (1) are entrepreneurs, as is widely believed, especially benevolent—more likely to make large donations or engage in other prosocial behavior (actions designed to help various recipients without obvious benefit to themselves) than persons who acquired their wealth in other ways (e.g., inheritance, investments); and (2) if they are, why is this the case—what motives underlie such actions? But first, I shall address the question noted above: what should be the source of our knowledge about entrepreneurship?

ACQUERING KNOWLEDGE: DIFFERENT METHODS, DIFFERENT TOOLS

In one sense, the ultimate goal of our field is, and certainly should be, to help entrepreneurs. To do that, we need reliable, valid knowledge on which to base our recommendations and guidance. But how can we best obtain such knowledge? Basically, three different methods have been and are currently being used: (1) asking successful entrepreneurs to tell us; (2) conducting direct, systematic research on these issues; and (3) importing knowledge from other fields. Although these methods differ greatly, they are, I believe, complementary in nature. In other words, each provides a unique kind of information, so that, together, they all serve to enrich our understanding of the diverse array of factors that combine to generate entrepreneurial success. The fact that they are complementary, however, does not imply that we must give them equal weight. I shall suggest here that we should probably assign most weight to (2) and perhaps (3). I am confident that readers of this book will generally agree, so here I shall try to indicate as clearly as I can why I believe that this is the most appropriate course of action.

Asking Entrepreneurs: Can They Really Tell Us the ‘Secrets of Their Success’?

At first glance, nothing seems more reasonable than asking highly successful entrepreneurs to share with us how, in their view, they achieved the success they enjoy. In fact, they are often asked to do so: for example,
'Tell us, Bill [Gates], Mark [Zuckerberg], Elon [Musk]: why have you been so successful? What did you do so right that others did so wrong?' When asked this question, few famous entrepreneurs refuse to answer. And why should they? They are highly successful, so is it not appropriate for them to comment on how they attained their fame – and wealth? Of course it is; but a more important question is: do they really know why they succeeded? Unfortunately, the answer is just as likely to be 'no' as 'yes,' and for a simple reason: a vast body of research findings indicates that, as human beings, we are not nearly as good as we generally believe at understanding the motives behind our own behavior, or the factors that influenced both it and the outcomes we experienced. In fact, we are often wrong – dead wrong! – when we make such assessments. Memory, for instance, is fallible and easily distorted. Further, research in cognitive science indicates that each time we recall a past event and then re-enter it into memory, it is changed – often in ways that make it more understandable and consistent, but not necessarily more accurate (Koutstaal and Cavendish, 2006). Perhaps even more disturbing, our understanding of why we performed specific actions in the past is uncertain and prone to error. In other words, we are not nearly as expert in understanding our own motives as we often believe. Further, we are not very good at distinguishing between the factors and conditions that actually did influence our thoughts and actions, and ones that did not. Moreover, we often believe that we know more about various topics than we really do – a tendency described by the phrase 'the illusion of knowledge' (Chabris and Simons, 2009). These are very general statements, so perhaps a concrete example will help.

In a classic experiment, one that vividly illustrates the limits of our own understanding of the factors that shape our behavior or thoughts, Nisbett and Wilson (1977) asked college students to memorize a list of word-pairs. Some of these (e.g., ocean–moon) were designed to generate mental associations that would lead to certain outcomes – words related closely to these word-pairs. For instance, after memorizing the lists of words, participants were asked to name a detergent. A very large proportion came up with 'Tide,' which is clearly related to word-pairs such as ocean–moon. When asked if the word-pairs had influenced their answer, however, participants vehemently denied this; instead, they insisted that they had come up with 'Tide' because they like it best, use it all the time, or because it is the most famous brand on the market. Was this true? Evidence indicates it was not, and that the word-pairs had indeed affected their behavior; but – and this is crucial – participants in the research did not recognize this fact. In a follow-up investigation, the same researchers asked participants to choose the best product from an array of products (e.g., the best radio,
pens etc.). Results indicated that participants had a strong ‘right-side preference’ – they chose the items on the right-hand side of the display much more often than ones on the left. When asked if position had any influence on their behavior, however, they reacted with indignation: ‘Of course not!’

If we are not very good at even simple judgments such as these, can we be accurate in reporting the factors responsible for our success – especially since they may have existed or operated years in the past? Readers will, of course, draw their own conclusions, but the weight of scientific evidence is clear: ‘No, we are not very good at these tasks, and often make important errors.’ So, can we believe entrepreneurs when they tell us why and how they succeeded? Perhaps, but a degree of caution seems essential. This does not mean that we should discount such information; far from it. It is often helpful and insightful, and may suggest valuable ideas for research. But these statements should always be evaluated in terms of the evidence concerning their accuracy – evidence gathered in the ways outlined next.

**Conducting Systematic Research**

If we cannot rely on comments by entrepreneurs to solve the mystery of entrepreneurial success, how can we obtain such knowledge? Hundreds of years of scientific progress offer the following answer: ‘Through systematic research that collects actual data on the questions we want to address.’ Rather than simply asking famous entrepreneurs how and why they succeeded, we can delve into these issues by studying large numbers of entrepreneurs and new ventures in order to identify the factors, actions or strategies that are actually related to positive outcomes (financial success or other beneficial results). Conducting such research is far from easy; we must obtain the cooperation of large numbers of entrepreneurs – individuals who are extremely busy running their companies. As Hambrick (2007) notes, this reluctance (or inability) to participate in our research is one reason why it is so difficult to identify the processes through which top executives (including entrepreneurs) influence the fortunes of the organizations they head (upper echelons theory). My own view is that Hambrick is, perhaps, too pessimistic in this respect. By choosing our measures and methods carefully, we can win the cooperation of these individuals. I agree with his view that the practical constraints on conducting such research are indeed often formidable, but also believe that the benefits of conducting systematic research, no matter how challenging this may be, are clear: the data obtained in this manner are generally far less subject to the kind of cognitive biases mentioned above. Perhaps another example will help to clarify this point.
It has often been suggested that entrepreneurs experience very high levels of stress; after all, they face incredibly high workloads, high levels of uncertainty, limited resources and substantial risks. Exposure to these conditions would be expected to generate intense stress, and stress, as a huge volume of research indicates, is often harmful to both performance and personal health. This suggests that perhaps one important ingredient in entrepreneurial excellence is the ability to resist the adverse effects of stress – and, perhaps, even to thrive in its presence. How can we find out if this is true? One way is to ask successful entrepreneurs about their own ability to manage stress; but, as noted above, the information they provide may be highly subjective and not very accurate. Another approach is to conduct research in which a large number of entrepreneurs participate by providing information on the levels of stress they experience and the extent to which they possess skills or characteristics that, we have reason to believe, might help to mitigate the adverse effects of stress.

One such factor is known as ‘psychological capital,’ and involves high levels of self-efficacy (confidence in one’s own ability to successfully complete various tasks), optimism, hope and resilience – the ability to ‘snap back’ after setbacks (Peterson, Luthans, Avolio, Walumbwa and Zhang, 2011). Previous research on psychological capital indicates that it is negatively related to stress: the higher individuals are in this cluster of characteristics, the less stress they experience (Avey, Reichard, Luthans and Mhatre, 2011). To find out if this applies to entrepreneurs, we might ask them to complete measures of psychological capital and stress, and also obtain information on the success of their new ventures – or perhaps on their health and well-being. If psychological capital does indeed provide a ‘buffer’ against the adverse effects of stress, this would indicate that it is one important ingredient in entrepreneurial excellence: entrepreneurs high in this characteristic would be better able to withstand high levels of stress that might ordinarily interfere with their performance or impair their health and therefore, ultimately, the success of their companies. In fact, such research on this possibility has recently been conducted, and offers support for these conclusions (Baron, Franklin and Hmieleski, in press). Findings indicated that the higher entrepreneurs’ psychological capital (as assessed by a brief but reliable questionnaire), the lower the levels of stress they reported. In short, carefully conducted research is one way of gaining knowledge about the essential components of entrepreneurial excellence. Of course, in such research we often collect data reflecting entrepreneurs’ replies to our questions, or responses to carefully designed surveys. But this is still very different from relying on the informal comments of a few highly successful entrepreneurs as the foundation for our conclusions.
Importing Knowledge from Other Fields

One more means of obtaining information about the nature of entrepreneurial success involves importing such knowledge from other fields and branches of management. It seems reasonable to propose that the factors that facilitate personal success in contexts outside entrepreneurship might have similar effects in the entrepreneurial domain. In fact, such ‘importation’ has been very useful. For instance, there is a huge body of evidence suggesting that social and political skills – a wide range of skills that help individuals to get along well with others – have a wide range of beneficial effects. People high in such skills attain greater success in their careers, have more friends, higher-quality social networks, and experience fewer interpersonal problems at work and in their personal lives than persons lower in such skills (e.g., Ferris, Treadway, Perrewé, Brouer, Douglas and Lux, 2007). This knowledge has been ‘imported’ by the field of entrepreneurship, and a growing body of evidence indicates that it is directly applicable to it: the higher entrepreneurs are in social and political skills, the greater their personal success and that of their companies (e.g., Baron and Tang, 2009). Many other examples of such ‘importation’ of knowledge exist, but I hope that this example will suffice to illustrate the value of this approach.

In sum, there are several ways of acquiring useful knowledge about entrepreneurship and the factors that influence it, and all should be viewed as potentially useful. Overall, though, it seems clear that placing greater weight on the results of systematic research (either in entrepreneurship or in related fields) will put us on safer ground than relying on the comments and informal reflections of entrepreneurs, no matter how eloquent and insightful these appear to be. There are simply too many potential sources of error in such information to make it the basic foundation of our field.

LOOKING AHEAD: FINDING (OR CREATING) THE NEXT WAVE OF OPPORTUNITIES FOR COGNITIVE RESEARCH IN ENTREPRENEURSHIP

Predicting the future – even the immediate future – is a very tricky task, as I have often learned to my dismay. My record at predicting the economy, stock market, sports events, trends in fashion or music, the Academy Awards, or anything else, is mediocre at best. In fact, it sometimes seems that only the local weather forecasters consistently do worse than I do! But recognizing the risks of offering predictions about our field, I will suggest a few ways in which it can use cognition and a cognitive perspective to
address intriguing questions that have, to date, received relatively little attention. I have specifically chosen these topics to be very diverse, as a means of illustrating how broad and useful cognition can be as a focal point for our research.

**From Desire to Achievement: The Role of Self-regulation in Entrepreneurship**

You have to learn the rules of the game. And then you have to play better than anyone else.

Albert Einstein

Desire is the key to motivation, but it’s the determination and commitment to an unrelenting pursuit of your goal – a commitment to excellence – that will enable you to attain the success you seek.

Mario Andretti

In essence, both of these quotations refer to ‘self-regulation’ – cognitive processes that individuals use to select, monitor, direct, guide and evaluate their own behavior in order to attain progress toward key goals. Self-regulation, in turn, involves several different components, including the following:

1. **self-control**: performing actions (even if they are not enjoyable) that facilitate progress toward important goals while refraining from actions that are enjoyable but impede progress;
2. demonstrating a combination of focus and persistence (staying focused on key goals and working persistently toward them);
3. managing emotions and impulses – for instance, avoiding rash behavior or decisions, and delaying gratification so as to maximize its magnitude;
4. developing accurate metacognition – acquiring insightful self-knowledge about our own cognition, including, for instance, recognizing what we know and do not know.

Clearly, these processes are important for everyone, but there are several reasons why they may be especially valuable for entrepreneurs. First, in their efforts to create something new, entrepreneurs are generally very much on their own. They do not have supervisors, mentors or coaches, and often find themselves in situations with few if any external rules to guide their actions. This suggests that they must rely heavily – perhaps more heavily than many other people – on self-regulation.
Second, and especially for first-time entrepreneurs, they often find themselves performing tasks and filling roles they have not previously performed or occupied. As a result, it is especially crucial for them to acknowledge what they know and do not know, so that they will seek help when it is truly needed. Third, entrepreneurs, as a group, are very high in optimism and in positive affect (i.e., positive moods and emotions). Although these tendencies are often beneficial, they can also generate harmful effects, e.g., a tendency to ignore relevant negative information; an inclination to engage in quick-and-dirty heuristic thinking when more systematic, careful analysis is essential (Baron, Hmieleski and Henry, 2012); a tendency to act now when, in fact, delay and reflection would be more effective; and a tendency to persist with failing courses of action or strategies – to get trapped in ‘sunk costs’ (e.g., Staw, 1981). For these and other reasons, entrepreneurs must often rely on self-regulation on the way to the success they seek.

How important are these components of self-regulation? Experts on this topic (Baumeister, Vohs and Tice, 2007) have summarized existing data by noting that, after decades of research on the factors that influence success in many different endeavors, only two have been found to play a very general role: intelligence and self-regulation. After more than a century of careful study, quite a lot is known about intelligence, and one basic fact about it is somewhat discouraging: much as we might wish it were otherwise, intelligence is partly shaped by genetic factors and early childhood experiences, both of which cannot be readily changed. In contrast, self-regulation involves a number of specific skills that can be acquired or strengthened. This suggests that efforts to enhance self-regulation can contribute substantially to personal success and achievement, and a growing body of evidence offers strong support for this view: people who develop and practice effective self-regulation often succeed. Indeed, effective self-regulation may be more important in this regard than genetically influenced talent (Baumeister and Tierney, 2011), and that is an optimistic conclusion indeed!

Having commented on the importance of self-regulation generally, I will now focus more specifically on the implications of two key aspects of it for entrepreneurship: self-control and metacognition.

Self-control: doing what we should do, and refraining from doing what we should not
Almost everyone finds certain activities much more enjoyable than others; and sadly, it is often the ones that are bad for us – in the sense of interfering with achieving our key goals – that are the most attractive. A key task individuals face, then, is somehow to regulate their behavior
so that they do the things they should do (exercise regularly, eat moderately, keep careful financial records for their company) and avoid the things they realize they should not do, even if they are enjoyable (e.g., eat high-calorie snacks or desserts, spending on impulse, draw a large salary rather than reinvest profits in a new venture). The everyday term for this capacity is ‘willpower,’ but another – the one generally used in research on this aspect of self-regulation – is ‘self-control’ (de Ridder, Lensvelt-Mulders, Finkenauer, Stok and Baumeister, 2012). Research on self-control has continued for several decades, but has recently become much more sophisticated and informative. One clear finding of such research is that people differ greatly in their capacity to exert self-control (Tangney et al., 2004). Some are able to resist even powerful temptations to engage in actions, have thoughts, or experience emotions that interfere with their plans and goals, while others are much lower in this capacity (Baumeister and Alquist, 2009).

Another finding is that self-control appears to be a depletable cognitive resource: after exerting it in one situation or with respect to one activity (or temptation), individuals’ capacity to exert it again declines. Interestingly, experiencing positive feelings can restore self-control that has been depleted (e.g., Tice, Baumeister, Shmueli and Muraven, 2007). Recent evidence indicates that exerting self-control involves not merely a draining of cognitive resources but also, perhaps, a shifting of attention between different goals (Fujita, 2011) – this issue is still being debated.

Is self-control concerned primarily with doing what we should do (but perhaps do not want to do) or refraining from doing what we should not do (but perhaps want to do)? A review of existing evidence indicates that it operates in both ways (de Ridder et al., 2012). So it both helps individuals to perform actions that assist them in reaching their important goals, and assists them in refraining from actions that block or interfere with progress toward these goals. Further, it appears that people who are high in dispositional self-control (the tendency to exert self-control in many different situations) are especially effective at acquiring ‘good habits.’ For such people, as for everyone else, engaging in actions that are not enjoyable but facilitate goal achievement initially requires the exercise of self-control. However, these actions quickly become ‘automatic,’ and can be performed without further depleting cognitive resources.

Is self-control especially helpful to entrepreneurs? There are several reasons for suggesting that it is. First, high levels of self-control may assist entrepreneurs to select appropriate goals, to direct their actions onto paths that facilitate progress toward key goals, and also to remain focused on these goals over extended periods of time. Further, as suggested by Fujita (2011), individuals with higher levels of self-control are better able to
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shift their focus among various performance goals as current needs and situations shift, and, hence, are better able to manage and attain progress toward multiple goals (Schmidt and Dolis, 2009).

Second, high levels of self-control may assist entrepreneurs to make effective decisions regarding the selection and development of potentially valuable opportunities. Drawing on the structural alignment concept, recent studies (Grégoire et al., 2010; Grégoire and Shepherd, 2012) have conceptualized opportunity recognition as the cognitive process of finding similarities between the superficial features and structural relationships of a new stimulus (opportunity) and those of a relevant source (e.g., information previously stored in memory). Specifically, this research suggests that comparison of superficial features (e.g., characteristics of a new technology; size of a new market space; number of production processes involved etc.) requires less cognitive effort than the comparison of structural relationships, which involve higher-order processing (e.g., potential impact of a new material on a production process or on product function; the potential rate of growth of a new market etc.). High levels of self-control may facilitate efforts to align structural rather than superficial features, and so may result in the identification of higher-quality opportunities (i.e., those with potentially greater benefits). On the basis of this reasoning and previous research, I posit the existence of a positive relationship between entrepreneurs’ self-control and the performance of their new ventures.

Third, a key task faced by founding entrepreneurs is making effective decisions – often under high time pressure. This requires that they focus intently on available information, and extract, from what is often a very diverse range of inputs, the information that is especially pertinent to the decisions at hand. A high level of self-control can facilitate these activities, since it allows entrepreneurs to focus on what is essential while minimizing or ignoring potential distractions. As a result, the quality and speed of their decisions may be enhanced, outcomes that can contribute significantly to new-venture performance. Data relevant to these suggestions have recently been reported by Nambisan and Baron (2013). They found that, among founding entrepreneurs, self-control was significantly related to firm performance, although such effects were not direct – rather, they were mediated by two factors described in upper echelons theory: managerial discretion and job demands. Taking past research and theory into account, I suggest the following hypothesis as one potentially worthy of careful investigation:

\[ \text{Hypothesis 1. Entrepreneurs' level of self-control is positively related to the performance of their new ventures.} \]
Metacognition: understanding and regulating our own thoughts

A second aspect of self-regulation that may be especially relevant to entrepreneurship is ‘metacognition,’ usually defined as cognition about cognition (Efklides, 2008; Flavell, 1979). Basically, metacognition refers to individuals’ understanding and knowledge of their own cognition. Metacognition, in turn, is often divided into several broad categories: metacognitive knowledge – knowledge about ourselves, other persons, tasks, and various strategies for performing them; metacognitive experience – individuals’ awareness of what they experience when performing a task and processing information related to it; and metacognitive skills – deliberate use of specific tactics to control cognition (e.g., Haynie et al., 2010). Perhaps the most relevant of these for the present discussion is ‘metacognitive knowledge,’ which includes individuals’ understanding of what they, personally, know and do not know, as well as their understanding of their own capacity to perform various tasks (Efklides, 2008).

High levels of metacognitive knowledge may be especially useful to entrepreneurs because such knowledge, by helping them recognize their own strengths and weaknesses, may also assist them to focus their efforts on tasks they can actually accomplish and opportunities they can personally develop (McMullen and Shepherd, 2006). Previous research suggests that metacognitive knowledge underlies individuals’ recognition of when to persist in performing a given task through a particular strategy and when, instead, to withdraw because the probability of success by using that strategy is low (McFarlin, Baumeister and Blascovich, 1984). Finally, and just as important, it may help them to stop investing time, effort and resources in tasks or goals unlikely to yield positive outcomes (Haynie et al., 2010) – that is, it may help them to avoid or escape from the trap of ‘sunk costs’ (e.g., Staw, 1981), as mentioned above. Sticking with ineffective courses of action or strategies can be disastrous for new ventures, which usually have limited resources. Because entrepreneurs are high in both optimism and positive affect, they may be more likely to succumb to the lure of sunk costs than other people, since they are confident (perhaps unreasonably so) that ‘all will turn out well in the end.’ Avoiding such potentially costly errors, in turn, may have beneficial effects on new-venture performance. In addition, metacognitive knowledge may assist entrepreneurs in responding to rapid changes in technologies and markets by helping them to grasp the limits of their own knowledge, to appreciate the resources needed to cope with changing conditions, and to formulate new strategies for meeting them effectively (Nambisan and Baron, 2013). On the basis of this reasoning, I suggest the following hypothesis for future research:
Hypothesis 2. Entrepreneurs’ metacognitive knowledge (i.e., their understanding of what they know and do not know) is positively related to the performance of their firms.

While self-control and metacognitive knowledge are important aspects of self-regulation, they are far from the only aspects of this general process. Additional aspects include the capacity to focus persistently on, and exert effort toward, important goals (e.g., Duckworth, Kirby, Tsukayama, Berstein and Ericsson, 2011), delaying gratification to times when its magnitude will be maximized (e.g., Mischel and Ayduk, 2004) and avoiding rash, impulsive actions (e.g., Kruglanski, Thompson, Higgins, Atash, Pierro, Shah and Spiegel, 2000). Overall, these cognitive processes may play an important role in entrepreneurship and deserve investigation in future research.

Cognitive Factors in Entrepreneurs’ Generosity: Is ‘Giving Back’ All There Is?

At the present time, entrepreneurship – and entrepreneurs – are very much in the ‘public eye.’ In fact, the label ‘entrepreneur’ has an almost romantic tinge, similar to the term ‘leader,’ and triggers, in the minds of many persons, very positive images. This favorable aura derives from many characteristics (real or merely assumed), including high levels of creativity, intense energy and, perhaps most important, the capacity to generate wealth both for themselves and for their societies. However, one other factor also seems worthy of mention: entrepreneurs’ well-known and often highly publicized philanthropy. Entrepreneurs are widely perceived not merely as individuals who have earned a large amount of money, but also as individuals who are very generous with their wealth.

Is this perception accurate? There is some evidence that it is. Data on this question have been gathered in several large-scale, longitudinal studies focused on what is generally termed ‘giving by high net worth individuals’ (e.g., Bank of America, 2012; Chronicle of Philanthropy, 2010; Center on Philanthropy, Indiana University, 2008). One aspect of these studies involves comparison of the amounts given by people whose wealth derives from various sources (e.g., inheritance, entrepreneurship, real estate, investments, earned income). For instance, a study of gifts of more than $1,000,000 during the years 2000–2007 indicates that a higher proportion of these gifts were provided by entrepreneurs (33 percent) than by persons whose wealth derived from inheritance (10 percent), investments (6 percent), real estate (4 percent), or partnerships (9 percent; see research from the Center on Philanthropy, Indiana University, 2008).

Results of a more recent investigation (Bank of America, 2012) indicate
that in each of three recent years (2007, 2009, 2011), entrepreneurs made significantly larger donations, on average, than any other group. Another study (Chronicle of Philanthropy, 2010) also reported that companies founded by, and still run by, entrepreneurs donated more than twice the percentage of profits to charity or other causes than large, established organizations: 3 percent versus 1.2 percent.

It is important to note that the data described above are far from conclusive – important questions concerning methodology, selection of samples and dependent measures remain. For instance, it is not clear that the personal wealth of participants was truly equivalent across all groups, or that these groups were matched on other dimensions (age, education, experience). However, taking these limitations into account, this research seems to offer some support for the proposition that entrepreneurs do indeed demonstrate higher levels of philanthropy than other successful people.

But, assuming that this conclusion is valid, the question of why such differences exist remains. Why are entrepreneurs especially likely to perform generous actions, making large donations to universities, museums, research laboratories and many other bodies? In commenting on such actions, many entrepreneurs suggest a strong desire to ‘give back’ to their communities. Further, they often add that, having attained huge financial success, they now feel a powerful obligation to share these benefits with others. Is this really the primary source of their notable generosity? Having commented above on the potential dangers of relying on such informal comments, it seems clear that they probably cannot answer this complex question. Further, existing evidence gathered in several different fields indicates that, like many complex human activities, prosocial behavior (generally defined as actions that benefit others without providing any obvious or immediate benefit to the donor), derives from numerous factors – emotional, cognitive, personal and environmental (e.g., Dovidio, Piliavin, Schroeder and Penner, 2006; see also Grant and Dutton, 2012; Grant and Gino, 2010). Consistent with the scope of this discussion, several cognitive factors that may play a key role in entrepreneurs’ philanthropy (an important aspect of prosocial behavior) will now be suggested.

**Entrepreneurs’ philanthropy and the optimistic bias**

An important aspect of human cognition involves what is known as the ‘optimistic bias’ – a strong tendency to anticipate positive outcomes or results in many situations, including ones in which such outcomes are in fact unlikely. Entrepreneurs have been shown to be high in this aspect of cognition – higher, in fact, than many other tested groups (see, e.g., Hmieleski
and Baron, 2009). This strong tendency to be optimistic may play an important role in entrepreneurs’ high levels of prosocial behavior. Being optimistic, they believe that they will continue to enjoy financial success in the future, and so can readily afford to engage in prosocial behavior – for instance, making large donations to universities or other non-profit organizations. Their optimism leads them to expect that their personal wealth will continue to grow, so they will soon recover the donated resources. On the basis of this reasoning, we propose the following hypothesis:

**Hypothesis 3.** There is a positive relationship between entrepreneurs’ optimism and their tendency to engage in philanthropy (i.e., one important form of prosocial behavior).

**Entrepreneurs’ philanthropy and positive inequity**
Successful entrepreneurs often accumulate huge personal wealth. Contemplating these assets, some, at least, may recognize that other entrepreneurs who have worked just as hard as they have, who are just as talented, and as strongly committed to their new ventures, have experienced far less success, and may have experienced total business failure (Ucbasaran, Shepherd, Lockett and Lyon, 2013). The result may be strong feelings among successful entrepreneurs of being over-rewarded – of having received more, relative to others, than they actually deserve. While no direct empirical evidence concerning this reasoning exists, it is consistent with findings indicating that in organizations that have undergone ‘downsizing,’ the survivors often feel over-rewarded in that they have retained their jobs, while others, who have worked just as hard, have not. This results in feelings of positive inequity, leading to efforts to offset such reactions by working harder than ever. It is also consistent with entrepreneurs’ statements concerning their strong desire to ‘give back’ to their communities. Doing so could, in some instances, be a means of reducing feelings of positive inequity. On the basis of this reasoning, I offer the following hypothesis:

**Hypothesis 4.** There is a positive relationship between feelings of positive inequity on the part of entrepreneurs and the frequency and/or magnitude of their philanthropic (i.e., prosocial) actions.

**Prosocial behavior as a means of reducing guilt: making reparation for prior harmful actions**
When individuals perform actions of which they do not approve, they often experience guilt – negative feelings of self-censure. Research findings indicate that these feelings are most likely to occur when their actions...
have produced harm, in some way, to other persons – that is, guilt arises primarily in situations involving interpersonal behavior. Additional evidence indicates that one result of such feelings of guilt is a strong desire to make reparation – to somehow ‘make up’ for these past transgressions (see, e.g., Baumeister, Stuillwell and Heatherton, 1994). I suggest that such feelings may also be an important source of prosocial actions among entrepreneurs.

Many entrepreneurs realize that, on the way to success, they have engaged in actions of which they do not personally approve. For example, they have ‘cut corners’ in terms of failing to follow ethical standards they accept (e.g., never lie; treat others fairly; do not engage in actions that will harm potential customers; do not falsify financial records), and have, perhaps, engaged in actions bordering on unfair business practices (e.g., obtaining confidential information about competitors’ products or strategies by offering payments to people who can provide them, etc.). Faced with such guilt (negative affective states stemming from cognitive evaluation of one’s own behavior), such entrepreneurs, may – as previous research suggests – seek to make reparation in order to reduce or eliminate these feelings. The result? They do indeed ‘give back’ through generous donations and similar actions. Future research could be designed to test this idea by gathering data relevant to the following hypothesis:

**Hypothesis 5.** There is a positive relationship between the level of guilt experienced by entrepreneurs concerning their past business actions, and the frequency or magnitude of their philanthropic (i.e., prosocial) actions.

**Reciprocity: the cognitive basis for ‘giving back’**

In describing their reasons for engaging in philanthropic actions (e.g., making large donations to various organizations), entrepreneurs often make statements suggesting that they engage in these actions and donations because they want to ‘give back.’ But what precisely do they mean by the phrase ‘giving back’? One possibility is suggested by the fact that reciprocity – the tendency to treat others as they have treated us – is a powerful guiding principle of human behavior. In general, individuals attempt to ‘balance the scales,’ so to speak, by matching their own behavior with that of others toward them. If they have been treated courteously, they reciprocate such actions; and if they have been treated discourteously, they tend to return such rudeness in kind. Similarly, if they have been helped by others, they tend to reciprocate for such actions by engaging in similar actions themselves. Entrepreneurs’ stated desire to ‘give back’ may reflect this powerful principle: having been helped by others in the
past, they feel a strong obligation to reciprocate, either to these persons or to organizations. Thus the entrepreneurs who make large donations to universities are often alumni of these schools, and through their generous actions seek to reciprocate for the training and other benefits they have received – benefits they identify, cognitively, as having contributed to their success. In short, ‘giving back’ may relate to a powerful underlying cognitive process in which individuals examine the benefits they have previously received and attempt to repay these by engaging in philanthropy or other forms of prosocial behavior. On the basis of these suggestions, we offer the following hypothesis:

Hypothesis 6. There is a positive relationship between entrepreneurs’ motivation to reciprocate for past benefits and their current philanthropic (i.e., prosocial) actions.

Other cognitive factors that might play a role in prosocial behavior include the desire to leave a lasting positive impact (Coombs, Shipp and Christensen, 2008), or the desire to surpass others – what is known in the relevant literature as ‘competitive altruism.’ Given entrepreneurs’ high level of competitiveness and strong desire to ‘win,’ this latter possibility seems quite feasible.

In sum, a cognitive perspective – and, in fact, a perspective that takes full account of the complex interactions between affective and cognitive processes – could well provide a valuable means for investigating the foundations of entrepreneurs’ almost legendary generosity – a topic that has not, to date, received systematic attention.

CONCLUDING THOUGHTS

If there is a central theme to this admittedly somewhat rambling discussion, it is this: understanding cognition – how, why and what people think, believe, reason and decide – is central to understanding their behavior and, in fact, everything they do, say or feel, and is, therefore, also central to the field of entrepreneurship. Having made such a sweeping statement, let me close with an illustration of this approach in action.

Many readers are probably familiar with Hambrick’s upper echelons theory – a view mentioned briefly earlier that suggests that CEOs (and, by extension, founding entrepreneurs) exert strong effects on the success and performance of the organizations they head (e.g., Hambrick and Mason 1984; Hambrick 2007). A large body of evidence supports this view, and points to the conclusion that the top people in an organization do indeed
matter in terms of firm-level performance. But as Hambrick (2007) notes, most research on this perspective has focused on demographic variables – such factors as CEOs’ age, experience, field of training and so on. Results indicate that these variables are indeed related to firm performance, but, as Hambrick states, we do not know why this is so. What happens in between CEO characteristics and firm-level performance takes place, in his own words, in ‘a mysterious black box.’ What is needed, therefore, is careful probing of this ‘black box’ to uncover the cognitive and social processes occurring within it – the processes that connect a CEO’s perceptions, decisions and characteristics to firm performance. In recent research, my colleague Satish Nambisan and I (Baron and Nambisan, 2013) have suggested that part of the contents of that ‘black box’ involve self-regulation – the cognitive processes discussed at length in an earlier portion of this chapter. Our initial data provide support for this view, but whether our proposals are correct is not the main point. Rather, it is this: a cognitive perspective can help us to gain insights into the ‘black box’ of human thought and action. We already have part of the knowledge and some of the tools needed to continue this work (e.g., Baron and Ward, 2004; Grégoire and Shepherd, 2012; Mitchell et al., 2007; Tang, Kacmar and Busenitz, 2012); what remains now is the task of applying them effectively. That is the subject of the field of entrepreneurial cognition – and this book. To put it more concretely, to the extent that our field adopts a cognitive perspective as a central one, we will continue to advance toward our major goal: gaining full and accurate understanding of the complex processes through which enterprising individuals convert the possible (i.e., their creativity and the ideas it generates) into the real (Baron, 2013; Shane, 2012).

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