

## ENTREPRENEURIAL ALERTNESS AND PAYING ATTENTION

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This article uses theoretical approaches from cognitive psychology to examine the basis for entrepreneurial alertness and to connect it to existing theories of attention in strategic management and decision-making. It thereby provides a theoretical basis for understanding how entrepreneurial alertness leads the individual to pay attention to new opportunities. A model is developed to show how attention and entrepreneurial alertness work together to support the recognition or creation of opportunities. Entrepreneurial alertness is believed to be a manifestation of differences in the schemata and cognitive frameworks that individuals use to make sense of changes in the environment. This suggests that entrepreneurial alertness mediates the impact of observed phenomena upon the situated attention of individual decision-makers.

*Keywords:* Entrepreneurial alertness; attention; decision-making; schema theory.

### INTRODUCTION

The actions of individual entrepreneurs can have dramatic and wide-ranging effects on industries, markets, and the overall economy. These can range from the simple exploitation of a temporary arbitrage opportunity in a specific localized market, to the radical innovation that creates entire new industries by destroying that which existed before. This can lead to the commercialization of the fruit of R&D efforts, the satisfaction of marketplace needs, and the creation of high-value jobs. These many benefits all owe their genesis to an individual entrepreneur who notices some change or phenomenon and discerns within that change an opportunity for profit.

Thus the ability of an individual to be alert to opportunity is a critical first step in the entrepreneurial process.

Entrepreneurship research has been largely focused on basic questions of why it is that only some people have this ability see new business opportunities (Venkataraman, 1997; [Shane and Venkataraman, 2000](#)). It has been widely recognized that the personality and individual characteristics of the entrepreneur somehow play an important role in firm strategy and performance ([Kickul and Gundry, 2002](#); [Di Zhang and Bruning, 2011](#)). In particular, empirical research has repeatedly observed that individual people can differ widely in the critical ability to recognize new business opportunities within a given external situation or create opportunities by enacting new internal conceptions. Some see attractive new opportunities everywhere all the time, while others see nothing but complacency with the status quo and obstacles to change. It appears that some people simply are more alert and attentive to potential opportunities, while others lack this alertness and fail to see opportunities or to attend to the ones they do see.

Israel Kirzner refers to this ability as ‘entrepreneurial alertness’, the ability to notice opportunities without having to search for them. Once noticed, these opportunities can then be evaluated for potential and subsequently developed and exploited for benefit. The alertness to opportunities therefore is a critical step in the entrepreneurial process. Yet, despite the centrality of this alertness to opportunities, our understanding of the nature of entrepreneurial alertness — its mechanisms and its connection to subsequent aspects of the entrepreneurial process — is still quite limited ([Ardichvili et al., 2003](#); [Tang et al., 2011](#)). As a result, Kirzner has recently reiterated the need for further research into alertness ([Kirzner, 2008](#)). At present we particularly lack a consensus conceptualization of entrepreneurial alertness, why some individuals have more than others, and how it influences the entrepreneurial process.

To make continued progress in this area, researchers may need to draw upon broader theoretical background than just existing theories of entrepreneurship. In particular, [Short et al. \(2010\)](#) have identified a need to adopt the perspective of other fields to develop a more comprehensive theory of opportunity spotting, including this initial alertness to the existence of opportunity. They suggest that an approach based on cognitive psychology may provide greater insights into how the mental features of the individual entrepreneur influence the ability to see opportunities. Moreover, it is now recognized that the seeing of opportunities is not limited to the recognition of exogenous opportunities arising from external environmental

conditions, but that opportunities may also be discovered or newly created from the enactment of internal subjective meanings and conceptualizations (Alvarez and Barney, 2007). Similarly, it can be expected that entrepreneurial alertness may involve both an awareness of external environmental conditions and the cognitive processes of internal sensemaking.

In the realm of strategic management, researchers have made some use of a cognitive perspective in initial explorations into the role of attention in management decision-making and firm performance (e.g., Ocasio, 1997; Davenport and Beck, 2001). This research has emphasized the importance of individual cognitive factors in managerial decisions and the resulting firm performance. Yet these two streams of research — entrepreneurial opportunity spotting and the role of attention in decision-making — have largely developed independently. There is still a need for more research concerning the psychology of attention in entrepreneurial opportunity spotting. The close affinity of these two research approaches suggests that entrepreneurial alertness may be somehow connected with the question of managerial attention — what gets attended and what gets ignored. To that end, the present research is an attempt to examine entrepreneurial alertness and individual ability to spot opportunities from the perspective of attention and managerial decision-making.

The argument proceeds as follows. First, there is a brief review of the literature on attention and managerial decision-making that highlights the role that structural constraints play in what gets noticed and attended to. A review of the cognitive psychology literature on schema theory then describes a mechanism for differential sensemaking by individuals, and highlights its potential connection to the concept of entrepreneurial alertness. From these two bases a theoretical argument is then developed to connect them. This argument culminates in the presentation of a novel model connecting schematic alertness with the structural factors that direct the attention of individuals, to explain how opportunities come to the awareness and attention of so-called ‘alert’ entrepreneurs.

## **LITERATURE REVIEW**

According to Kirzner, entrepreneurial alertness refers to ‘the ability to notice without search opportunities that have hitherto been overlooked’ (Kirzner, 1979: 48), ‘a motivated propensity of man to formulate an image of the future’ (Kirzner, 1985: 56), ‘an attitude of receptiveness to available, but hitherto overlooked, opportunities’ (Kirzner, 1997: 72), or ‘a sense of

what might be ‘around the corner’, i.e., the sense to notice that *which has hitherto not been suspected of existing at all* (Kirzner, 2008: 12). These four different definitions are all intuitively illustrative and suggestive. But they lack a firm theoretical basis to explain how this ability, propensity, attitude, or sense operates to bring opportunities to the attention of the entrepreneurial individual. Kirzner’s conception of the ‘alert’ entrepreneur attempts to explain why some individuals are able to see entrepreneurial opportunities that may be subsequently exploited. But it is silent on exactly *how* the attention of these entrepreneurial individuals is drawn to a prospective opportunity.

### **Alertness and Attention**

The entrepreneurial process begins with the occurrence of changes in the environment, such as technological innovations or demographic shifts that have potential to change the value of products and resources in some market (Kirzner, 2008) or changes in the subjective conceptualization and meaning of these factors to a prospective entrepreneur (Alvarez and Barney, 2007). If these changes are large enough they may be noticed by individuals and may therefore lead to the pursuit of opportunities within these changes, through entrepreneurial exploitation. But this sequence of events requires individuals who are paying attention and are immersed in the appropriate knowledge flows (Kaish and Gilad, 1991; Shane, 2000).

The potential role of individual attention and cognitive differences suggests the use of an approach based on the psychology of strategic management, and particularly that of Herbert Simon (1947). Simon’s view was that the challenge of matching of problems, solutions, and actors within an organization is constrained by the limited attention capacity of individual decision-makers, and that organizations therefore allocate and channel environmental stimuli to the attention of individual decision-makers. Simon developed this view within the context of general strategic management in large organizations, but it is also forms the basis of the challenge faced by entrepreneurs who must evaluate the potential of new opportunities (Murphy *et al.*, 1991; Gifford, 1998) and must then match available resources with what the market demands (Shane and Venkataraman, 2000).

This allocation is constrained both by limitations in the cognitive capacity of the individual and by structural influences in the environment. Of these two types of constraints, the role of cognitive-capacity is understood to suggest that the allocation of attention is primarily constrained by bounded rationality and the routines of individual actors (March and Simon,

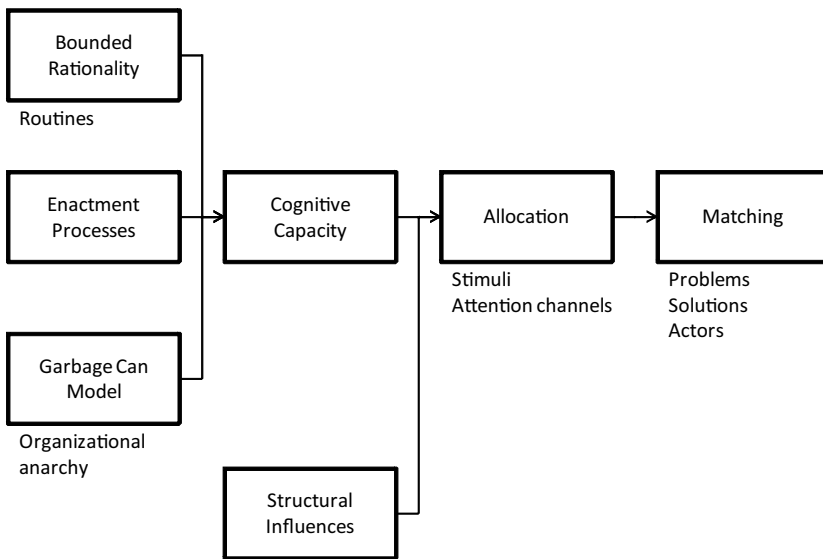
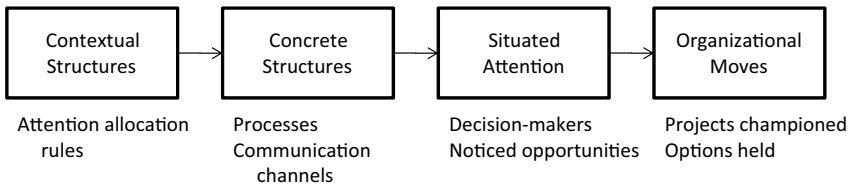


Figure 1. Attention, Constraint, and Problem-Solving.

1958), the enactment of social scripts (Weick, 1979) and the loose coupling of the ‘garbage can’ model of organized anarchy (Cohen *et al.*, 1972). The role of structural constraint has been considerably less developed in the literature. Figure 1 summarizes how these various influences come to bear on the challenge of matching problems, solutions, and actors.

### **Structural Constraints to Attention**

In contrast to the cognitive-capacity constraints of decision-makers and their effects on attention allocation, the structural constraints are much less well-understood. Ocasio (1997) presents an initial argument wherein structural influence follows three steps: (1) the existing allocation rules of the organization (both formal and informal) influence the distribution of the attention of actors among potential channels, (2) this organizational allocation combines with contextual factors to instantiate a ‘situated’ attention, and (3) this results in a specific focus of attention for each actor, ready to notice and respond to environmental changes. Employing a more precise terminology, Barnett (2008) then improves upon this model by revising, renaming, and clarifying the steps: (1) contextual structures (e.g., culture and informal attention allocation rules) influence whether opportunities are enacted, (2) these enacted opportunities are then processed



Based on Ocasio (1997) and Barnett (2008)

Figure 2. Structural Influences on Attention.

through concrete structures (e.g., business processes and communication tools) which allocate the opportunities to specific attention channels, and (3) actors within those channels use their situated attention to evaluate the opportunities and determine the appropriate organizational response. Figure 2 provides the visual representation of a combined Ocasio-Barnett perspective on structural influence.

The enactment of this situated attention is the key organizational requirement for noticing environmental change; the organization is dependent on a situated or contextualized attention of individuals to bring the change forward for evaluation by the constrained cognitive capacity of the individual decision-makers. It is at this point that attention provides the foundation necessary to spot any opportunities latent in the change (Hayek, 1952; Kirzner, 1973). Thus, it must be at this point that entrepreneurial alertness somehow comes into play. Figure 3 illustrates an initial moderation model for the interaction of entrepreneurial alertness and the general attention-processing of individuals. But the model of Figure 3 does not yet clarify the nature of this entrepreneurial alertness, nor the mechanism by which it mediates the relationship between environmental change and

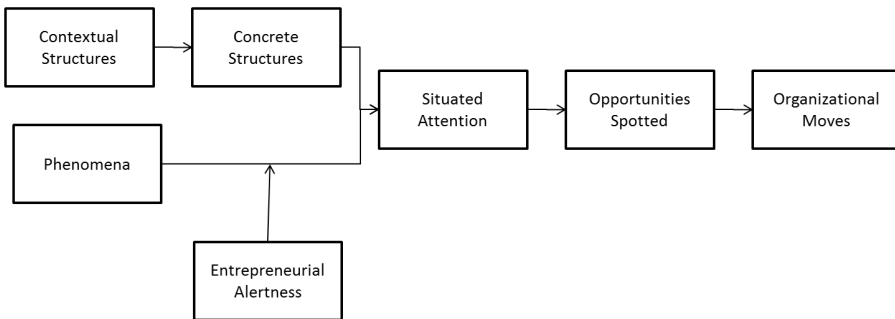


Figure 3. Entrepreneurial Alertness and Situated Attention.

the attention of decision-makers. For this, we must turn to the theory of schema.

## **Schema Theory**

Neisser's theory of schema (1967) proposes that human beings attempt to simplify their representations of the world by applying mental frameworks or categorizations that define actors and roles, the relationships among them, and the potential actions they may take. They therefore allow us to easily make sense of a situation and to communicate this meaning to others in a clear and compelling fashion — what Gioia and Chittipeddi (1991) refer to as 'sensemaking' and 'sensegiving'. These are particularly useful to us because they reduce the attentional burden of making sense of the world, as it can then happen automatically without conscious effort (Neisser, 1976). The mental framework, or 'schema', shapes or directs our interpretation of sensory phenomena. The invoked schema causes us to apply a particular image or mental model that ascribes meaning to what is happening, which we can then use to guide our subsequent reactions or behaviours. Through these actions we explore the objective external and subjective internal environments and gain additional information, such as the degree to which these explorations conform to the causal expectations inherent in the activated schema. Finally, this new information is incorporated part of the 'prior knowledge' that can influence the invocation of particular schemata in future situations (if the choice of invoked schema turned out to be astute or not) or can cause revision or modification to schemata (if the new information reinforces or contradicts the structure of existing schemata).

Phenomena around us change constantly, and when they do, we invoke schemata to understand the meaning and relationships among the various sensory stimuli. For example if someone is walking in the park with an animal on a leash, these characteristics can cause us to apply a 'dog-walking' schema to make sense of the scene. As a result we recognize the animal must be a dog even if it is some breed that we've never seen before, and we can use the invoked schema to make predictions about the future behaviours of the dog and its owner in response to any actions we might take because the schema describes roles and responsibilities for the actors, the relationships among these roles, and the range of possible actions they may take. In another example, when you are in a busy restaurant it is neither necessary to keep conscious track of the actions of every patron nor to negotiate a way of transacting with the waiter to get food in exchange for

money, because the ‘restaurant schema’ stipulates the roles and behaviours for every participant, leaving you free to focus your attention on making your meal selection and enjoying it when it arrives.

People may differ dramatically in how they interpret and react to the same phenomenon, depending on their surrounding contexts and on the content of the particular schema they apply to the situation. They may possess very different schemata, or may choose to select different schemata to interpret and make sense of the situation. For example, within the restaurant context your schema and mine may differ significantly based on our own prior experiences in restaurants, so our expectations and actions might also differ; if you happen to have worked as a waiter before, your schema is also likely to be more complex and developed than my naive patron version, making you aware of a greater range of relationships and possible actions. We might also differ in how a given set of observable characteristics invokes one particular schema and not another. Similarly, the approaching dog in the park might invoke in me a schema in which I am likely to pet the dog and compliment it to the owner. But if you have recently returned from the Iditarod dog-sled race, your reaction might be to expertly assess the gait and sled-pulling capacity of the approaching dog. The invocation of a ‘sled-racing’ schema, rather than ‘pet the dog’, has been primed by your recent experience.

Our schemata are also not static entities, but are constantly being updated in the face of new information about the world. In particular, when some phenomenon does not accord with our existing schema we must make some changes to incorporate this new reality, the extent of which depends on how fundamentally the new phenomenon disagrees with our existing schemata (Neisser, 1967). If the change is very minor, it can be assimilated through simple accretion of new attributes of a schema (if, on meeting a new dog in the park, I am surprised that this one has no tail to wag I adjust my ‘dog’ schema to indicate that ‘tail’ is a frequent yet merely optional attribute of a dog). If the change is more substantial it may be necessary to make a more substantial accommodation or tuning of schemata (perhaps it is a ‘working’ dog assisting a disabled person, such that the relationship of who is looking after whom is no longer simply unidirectional, and their appearance in the park cannot be assumed to be simply recreational). And if the change goes to the root of my schema a complete restructuring of it and related schemata might be necessary (perhaps something bizarre occurs, like the human is wearing the collar and leash and is being ‘walked’ by the dog, which forces me to completely re-examine many of my preconceptions about the behaviours of humans, the capabilities of dogs, and the different possible relationships between them).



Because schemata are subject to this constant updating and refinement as we learn new things, they broadly reflect the prior knowledge, experience, and culture of individuals. In the case of entrepreneurs, their unique prior knowledge, experience, and culture may dispose them to possessing and applying schemata that differ from those of other people. This potential for schematic difference may be viewed as a significant example of entrepreneurial information asymmetry ([Hayek, 1945](#)) and may explain the observed influence of entrepreneurs being embedded into specific information corridors ([Shane and Venkataraman, 2000](#)) and the mechanism of entrepreneurial learning when they are developing new opportunities ([Sanz-Velasco, 2006](#)).

## **THEORY DEVELOPMENT**

A first foray into examining the potential role of schemata in entrepreneurial alertness was made by [Gaglio and Katz \(2001\)](#). They argued that entrepreneurial alertness may be due to the presence of a specific schema in the minds of some individuals. They proposed that, when this schema is activated, it causes individuals to interpret the world in a manner that highlights the latent business opportunities. While making a solid initial step towards understanding how individual cognitions might underlie alertness, their restrictive categorization of entrepreneurial alertness as a single schema was somewhat unsatisfactory because it did not provide any explanation of how this ‘alertness schema’ is developed nor why it is possessed and activated by some entrepreneurs more than others — in effect, the mystery of entrepreneurial alertness was replaced by the mystery of the alertness schema, and so we still did not know the mechanisms and origins of entrepreneurial alertness. [Valliere \(2011\)](#) then built on their initial groundwork, by arguing that entrepreneurial alertness arises from differentiated attributes and connections among many pre-existing schemata, not the creation of a single new ‘special’ schema. The phenomenon of entrepreneurial alertness can be explained by simply enhancing existing cognitive schemata to include more attributes reflective of entrepreneurial opportunity potential (such as associated revenue stream and profit potential). Regardless which of these competing models is correct, it seems clear that the phenomenon of entrepreneurial alertness must involve sensemaking through the application of particular schemata.

Figure 4 illustrates this schematic application as the underlying mechanism of ‘entrepreneurial alertness’. It suggests a fully mediating role that

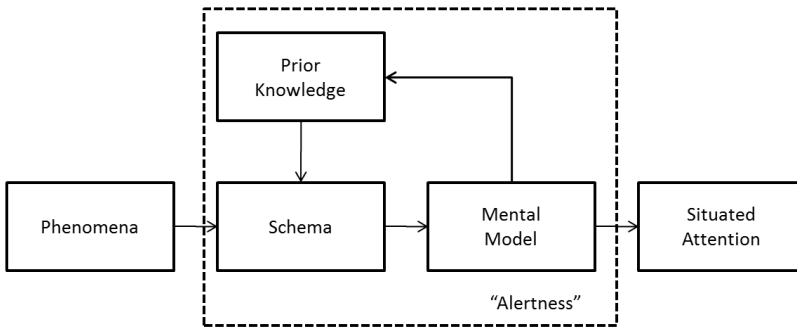


Figure 4. Entrepreneurial Alertness is Schema Application.

entrepreneurial alertness plays between noticed change and the situated attention that recognizes or infers any latent opportunities. This is the essential element in addressing the theoretical gap in Kirzner’s perspective on alertness — how the phenomenon of entrepreneurial alertness arises from the cognitive processes of individual attention.

### A Model of Schematic Alertness

From this outline of schema theory we can conclude that the application of a particular schema to a phenomenon affects the sense we make of it and the meaning we ascribe to it, and since many individuals differ in their schemata, they may therefore ascribe different meaning to the same phenomenon — either because the invoked schema differs in its detailed economic attributes for the two individuals or because the stimulus invokes completely different schemata in the individuals.

From the perspective of the models presented so far, this means that the ‘moderating’ entrepreneurial alertness of Figure 3 is actually a functioning instantiation of schematic sensemaking in which phenomena are transformed into new meaning through the application of schemata, and that this meaning is available to the individual attention situated in contextual and concrete structures. By integrating these theoretical perspectives, Figure 5 presents the full and final model of how the application of schemata combines with the structural influences of the Ocasio-Barnett view to create a situated attention that is alert to entrepreneurial opportunities.

This final model of the alert entrepreneur can be understood by starting the middle, where the attention allocation effects seen above in Figures 2 and 3 act to structure the entrepreneur in a context where one is open to new business opportunities and one participates in concrete activities such

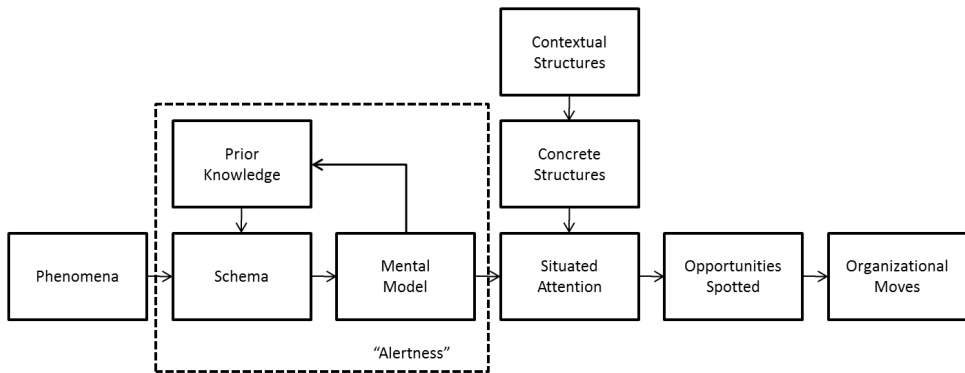


Figure 5. Entrepreneurial Alertness, Attention, and the Spotting of Opportunities.

as gathering market intelligence or assessing currently available resources. The entrepreneur thereby presents a situated attention ready to investigate and evaluate the opportunity potential of any phenomena that are brought to it. The left side of the model illustrates how the ‘alert’ entrepreneur also, by virtue of prior knowledge and the priming effects of experience, applies entrepreneurial schemata to make sense of phenomena in a way that highlights potential value creation, by forming mental images of the phenomenon that are rich in opportunities. But most importantly, it is only when these mental images are combined with the situated attention of the individual that their latent opportunities can be spotted and can become the basis for entrepreneurial actions and the resulting organizational moves. Fundamentally this model therefore suggests the following general proposition:

*P0: The ability of individuals to spot opportunities depends on the interaction of two factors: the influence of structural constraints on the allocation of attention, and the possession and application of entrepreneurial schemata.*

The structural constraints represent contextual and concrete elements that influence the allocation of attention by individuals in the firm. The ability to spot opportunities is therefore increased when these contextual and concrete elements direct the allocation of individual attention towards the availability of opportunities. Specific propositions arising from these contextual influences include:

*P1: The ability of individuals to spot opportunities will be higher when social and cultural norms support autonomy of thought and action.*

The presence of these norms permits and encourages entrepreneurs to think differently from others, and in particular, to pay attention to things that others may consider being unworthy of attention.

*P2: The ability of individuals to spot opportunities will be higher when the firm is more oriented toward markets than products.*

This orientation encourages entrepreneurs to pay attention to the needs of the world outside the firm, more than the operational needs within the firm.

*P3: The ability of individuals to spot opportunities will be higher when there has been recent change in the composition of the founders or top management team.*

The presence of new people who may be less socialized to the shared mental models of the team makes it more likely that some members of the founder team may be paying attention to different things.

Similarly, specific propositions arising from concrete influences include:

*P4: The ability of individuals to spot opportunities will be higher when formal environmental scanning processes are observed.*

In contrast to the passive influence of proposition P2, the observance of formal processes is an active method of influencing entrepreneurs to take the time and energy needed to pay attention to the phenomena around them.

*P5: The ability of individuals to spot opportunities will be higher when environmental dynamism is lower and there is less urgency in the application of formal attention rules.*

The positive effect proposed in P4 is possible only when entrepreneurs actually have the time and energy available to direct to observing attention allocation rules. As argued by [Sullivan \(2010\)](#), the pressures of industry characteristics and the urgency of change can cause the simplification or abandonment of attention allocation rules.

The entrepreneurial schemata represent the influences on sensemaking in response to phenomena experienced by individuals in the firm. The ability to spot opportunities is therefore increased when individuals possess and apply their entrepreneurial schemata to make sense of phenomena. Specific

propositions arising from the possession and application of entrepreneurial schemata include:

*P6: The ability of individuals to spot opportunities will be higher when there is greater diversity in the experience and cognitive processes among the founders or top management team.*

Individuals with different prior knowledge and experience will possess different schemata with different detailed attributes — any one of which may be critical in the spotting of a particular opportunity.

*P7: The ability of individuals to spot opportunities will be higher when they have greater practice with spotting opportunities, such as with serial entrepreneurs.*

To spot the opportunity within a phenomenon requires that the appropriate entrepreneurial schema be activated in response to the phenomenon. Educational psychology has long established that the association of schemata to stimuli is developed and strengthened by repeated practice.

*P8: The ability of individuals to spot opportunities will be higher when they have higher levels of entrepreneurial intent.*

Intentionality can ‘prime’ the activation of related schemata, so that an entrepreneurial schema may be invoked to make sense of a phenomenon that represents only a very small stimulus — i.e., a very subtle opportunity can be spotted.

The model further suggests that it is the interaction effect of these two factors, rather than their individual direct effects, that has primary effect on the ability of entrepreneurs to spot new opportunities. The ability to spot opportunities is therefore higher when both of these factors are present, than when one factor is present and the other absent. A specific proposition arising from this interaction is therefore:

*P9: The ability of individuals to spot opportunities will be higher when they possess entrepreneurial schemata and they are immersed in structures that direct the allocation of their attention towards spotting opportunities.*

On the one hand, entrepreneurial schemata will be of little value in spotting opportunities if the individual is in an adverse attention structure (e.g., too busy, or perverse incentives that militate against seeking opportunities).

And on the other hand, supportive structures will be of little value to individuals who do not possess or apply entrepreneurial schemata (e.g., lack of knowledge, or lack experience in seeing opportunity in similar phenomena). Both factors are necessary to a high degree of opportunity spotting.

## DISCUSSION

Entrepreneurial alertness is a critically important link between innovation, opportunity spotting, and socio-economic benefit. Without alert entrepreneurs to discover potential opportunities innovations can contribute very little to the benefit of society. Greater alertness is essential to producing more entrepreneurs and to having those entrepreneurs become more successful in spotting and exploiting the most promising economic opportunities. But the goal of developing greater entrepreneurial alertness requires a clear and unambiguous perspective on what exactly this alertness is and how it fits with our extant knowledge of entrepreneurial skills and the cognitive processes of entrepreneurs of various types (Pyysiäinen *et al.*, 2006).

The model presented above is an attempt to provide a theoretical basis for the concept of entrepreneurial alertness, and to thereby suggest a mechanism that connects the psychology of the individual entrepreneur with the attentiveness needed to discover or enact opportunities. It provides a specific description of the cognitive nature of entrepreneurial alertness and its relationship to the attention-channelling of Simon and others, one which integrates prior theoretical perspectives of entrepreneurship, prior knowledge, experience, environmental scanning, and entrepreneurial cognition. This article has argued that entrepreneurial alertness is the possession and activation of different schemata in response to environmental stimuli. These schematic differences are sufficient to account for individual differences in the ability to see opportunity lurking in a given phenomenon.

The model, while a conceptually simple extension to existing theories, has the virtue of integrating disparate threads of research. First, by treating 'entrepreneurial alertness' as the possession and application of a different set of schemata, it resolves definitional variations in the literature (e.g., ability to notice, a motivated propensity, or an attitude of an individual). These differences can now be seen to be observations of the *effects* of the application of different schemata, and not the underlying psychological

underpinning at all. Secondly, the model provides a perspective that integrates theories of attention, cognitive processing, and structural constraints with theories of opportunity spotting and evaluation. In doing so, it contributes to the connection of entrepreneurship with the existing strategic management literature.

With this broader theoretical basis, the model provides a basis for an improved understanding of the effects of experience and prior knowledge and experience on the ability of entrepreneurs to spot opportunities (Shane, 2000; Ucbasaran *et al.*, 2003), and on the observed difference in the opportunity-spotting abilities of novice and expert entrepreneurs (Chi and Feltovich, 1981; Krueger, 2003). In both cases the differences can now be attributed to attending to materially different schemata — in developing their level of expertise, the expert entrepreneurs have modified and enhanced the schemata that they use to make sense of phenomena and are situated to attend to the business opportunities that may lay within phenomena.

It is hoped that this attention perspective on entrepreneurial alertness may form a base on which future research can begin to develop recommendations for the practical task of developing greater entrepreneurial alertness in individuals. Achieving such a goal will require more specific knowledge about the contextual and concrete drivers of situational attention in entrepreneurs to increase alertness (Tang, 2008). With such future research we will be in a better position to recommend specific strategies and practices to develop increased levels of alertness in entrepreneurs.

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