Simple Heuristics in Entrepreneurial Opportunity Recognition

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ABSTRACT
This paper reports a multiple case study of heuristics in entrepreneurial opportunity recognition. I interviewed thirty founder-managers about opportunity recognition, their related decision-making processes, and other factors. I then performed qualitative analysis of the interviews using thematic coding and cross-case analysis. The results show that entrepreneurs use simple heuristics to make effective judgements about new opportunities. The results also suggest that, contrary to much of the literature on heuristics in decision-making, the simple heuristics used by entrepreneurs in opportunity recognition are not inherently prone to extreme bias or cognitive error. I discuss the implications for future research.

KEYWORDS
Entrepreneurship, Opportunity Recognition, Heuristics, Decision-Making

THEORETICAL BACKGROUND
Opportunity recognition has been identified as one of the defining tasks of entrepreneurship (Alvarez & Busenitz, 2001; Lowell W. Busenitz et al., 2003; Shane & Venkataraman, 2000). In fact, recent research suggests that entrepreneurs may be distinguished by the cognitions they use in opportunity recognition, such as counter-factual and scenario thinking, pattern recognition, and heuristics defined as cognitive short-cuts (Baron, 2004; Gaglio, 2004; Palich & Bagby, 1995). At the same time, entrepreneurs typically recognise and select new opportunities in uncertain environments with limited resources and information, and where they are constantly faced with dynamic situations (Alvarez & Busenitz, 2001; Bhide, 2000). In order to pursue goals in these environments, scholars have argued that entrepreneurs need to be competent under stress and uncertainty (Bandura, 1997; Casson, 1997; M. Simon, Houghton, & Aquino, 2000), and especially in their use of heuristics (Alvarez & Busenitz, 2001). In this multiple case study, I explore some of the simple heuristics that entrepreneurs use in opportunity recognition.

In classical economics and formal decision theory, heuristics are typically associated with irrationality and cognitive errors, and strenuous attempts are made to minimize their impact and relevance (Kahneman, 2000). Even some leading scholars who recognise the
inevitability and utility of heuristics in decision-making share that view (Thaler, 1999). However, other scholars of behavioral decision-making advocate a more naturalistic, psychological, and ecological approach to decision-making, and reject the classical ideal of rationality (Schwartz, 2002). For example, working within such a behavioral paradigm, Gigerenzer (1996) and his colleagues have identified what they refer to as Fast and Frugal Heuristics. These are simple heuristics that people use when they need to make rapid adaptive decisions, or have limited time and information. These scholars have identified a number of forms of Fast and Frugal Heuristics, including simple stopping rules and one-reason decision-making (Gigerenzer, Czerlinksi, & Martignon, 2002). From this perspective, heuristics are natural and effective decision means, and not inherently associated with cognitive errors and extreme bias. These scholars view bounded rationality and limited cognitive capacity as natural features of human cognition, and not as imperfections relative to classical ideals.

However, in much of the literature on entrepreneurial opportunity recognition, heuristics continue to be studied from the classical perspective assuming they are inherently biased and error-prone (Baron & Ward, 2004). Scholars have therefore focussed on problematic heuristics such as overconfidence, representativeness errors, and belief in the law of small numbers (Forbes, 2005). Moreover, there is evidence to suggest that such heuristics do occur within entrepreneurial opportunity recognition (Lowell W Busenitz & Barney, 1997). Yet that may only be part of the story. If one adopts a behavioral perspective, and does not assume that heuristics are always related to bias and error, then other forms of heuristics may be found, such Fast and Frugal Heuristics (Gigerenzer et al., 2002). In this study, I adopt that perspective to explore simple heuristics in entrepreneurial opportunity recognition.

METHOD

Questions of method have been topical in the recent entrepreneurship literature. Numerous scholars have called for more qualitative case studies to explore the situational complexities of issues such as opportunity recognition (Bruyat & Julien, 2001; Gartner & Birley, 2002; Hindle, 2004). This study responds to that call by conducting a multiple case
study. The primary method is semi-structured interviews. The unit of study is the founder-manager entrepreneur as an agent of opportunity recognition. Multiple case studies of this kind are recognized as a way to develop new theory in social and management studies (Eisenhardt, 1989; Yin, 1994). Some case studies probe phenomena holistically and at great depth. In that kind of case study, researchers tend to commence with broad propositions, approach the research site agnostically, and seek to gather thick descriptions (Creswell, 1998; Strauss & Corbin, 1998). Other case studies can be narrow in scope and seek to explore a process or phenomenon that is embedded within cases, rather than viewing the case holistically. In addition, the cases may be randomly or purposively selected (Morse, 2003; Yin, 1994). In this study, the cases are narrowly defined and purposively selected, and used to explore opportunity recognition as an embedded process.

**Sampling**

The first issue related to sampling is one of definition, for there are a number of definitions of ‘entrepreneur.’ Indeed, the lack of consensus on this point continues to hamper research into entrepreneurship (Shane, Locke, & Collins, 2003). Some researchers focus on the individual as the founder of new ventures. From that perspective, an entrepreneur is a person who plays a significant role in those processes, whether as a founder or an employee (Shane et al., 2003). I also define an entrepreneur as a founder-manager of a new venture to exploit a growth opportunity. This approach is almost identical to that adopted in at least two other recent studies of opportunity recognition (Allinson, Chell, & Hayes, 2000; Forbes, 2005).

In this study, the participants were purposively selected to represent a range of industry sectors and stages of company growth, and were primarily drawn from high technology growth sectors. In total, 30 entrepreneurs were interviewed. They represented a range of industry sectors including health and biotechnology, information technology, services and retail cases. The final group covered a range of ages, education levels, periods of tenure, and included seven women. All were fluent speakers of English. Because the sample was drawn from one national
geographic region, namely Sydney in Australia, key regulatory and environmental conditions were held constant. The cases are summarized in Table 1.

Table 1. Summary of Entrepreneur Cases

<table>
<thead>
<tr>
<th>Company Age Years</th>
<th>Industry Sector</th>
<th>Gender</th>
<th>Role Tenure Years</th>
<th>Highest Education</th>
<th>Personal Age Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5 (13)</td>
<td>Biotech (11)</td>
<td>Female (7)</td>
<td>&lt; 1 (1)</td>
<td>Certificate (1)</td>
<td>20-29 (1)</td>
</tr>
<tr>
<td>6-10 (11)</td>
<td>ICT (14)</td>
<td>Male (23)</td>
<td>1-2 (5)</td>
<td>1st degree (8)</td>
<td>30-39 (8)</td>
</tr>
<tr>
<td>11-15 (3)</td>
<td>Services (2)</td>
<td></td>
<td>3-5 (13)</td>
<td>2nd degree (17)</td>
<td>40-49 (12)</td>
</tr>
<tr>
<td>16-20 (2)</td>
<td>Retail (3)</td>
<td></td>
<td>6-9 (4)</td>
<td>Other (4)</td>
<td>50-59 (8)</td>
</tr>
<tr>
<td>21+ (1)</td>
<td></td>
<td></td>
<td>10+ (3)</td>
<td></td>
<td>60+ (1)</td>
</tr>
</tbody>
</table>

N= 30. The number of cases for each category value is given in brackets.

Data Collection and Analysis

I conducted semi-structured interviews with all 30 entrepreneurs lasting approximately one hour each. I used the same interview guide for all interviews. It covered topics including opportunity recognition and decision-making under various kinds of stress. At the end of each interview, the interviewees were invited to talk openly about any related topics. All the interviews were recorded and transcribed, and then analyzed by myself into themes and codes. Next I performed iterative cross-case analysis. However, because the study focused on embedded processes within cases, I did not construct individual case studies or case narratives for each participant. A subset of the coded interviews was crosschecked by an independent colleague who had not previously participated in the study.

RESULTS

The results show that entrepreneurs used a range of simple heuristics in opportunity recognition. These heuristics allowed them to make decisions relatively quickly, and especially in situations of limited time and information. In particular, they used a number of discrete heuristics to manage risk factors in decisions about new opportunities. The following simple
heuristics were identified: (1) does the opportunity fit our core strategy (Strategic Fit); (2) do I know the market (Market Knowledge); (3) what is the worst that could happen (Worst Case); and (4) do I trust the other party (Trusting Others). These heuristics can be described as simple ‘stop’ or ‘go’ rules, comparable to the Fast and Frugal Heuristics discussed earlier (Gigerenzer, 2001). The data analysis showed that those heuristics were used in choosing which new opportunities to explore or quickly reject. The analysis also uncovered that some of these heuristics were especially significant in assessing and managing risk in new opportunity recognition. The first stage of the analysis was a cross-case analysis using matrix intersections between those codes referring to simple heuristics, opportunity recognition and risk assessment. The results of that cross-case analysis are summarized in Table 2.

Table 2. Summary of Interview Analysis

<table>
<thead>
<tr>
<th>Type of Heuristic</th>
<th>Opportunity Recognition</th>
<th>Decision Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic Fit</td>
<td>18 (37)</td>
<td>9 (13)</td>
</tr>
<tr>
<td>Worst Case</td>
<td>1 (2)</td>
<td>15 (24)</td>
</tr>
<tr>
<td>Trusting Others</td>
<td>8 (10)</td>
<td>4 (5)</td>
</tr>
<tr>
<td>Market Knowledge</td>
<td>6 (10)</td>
<td>3 (4)</td>
</tr>
</tbody>
</table>

N = 30 interviews. Number of coded interviews is shown for each type of heuristic. The figures in brackets show the total number of coded references.

**Heuristic 1: Does the Opportunity Fit Core Strategy**

This heuristic was commonly used as a simple test to decide whether or not an opportunity was worth considering at all. As one of them said, “Normally it’s something that you feel would, in my case, would align itself with the strategy. It’s normally something where you can see it’s going to bring good strategic value to the company basically.” Another variant of this heuristic was to compare an opportunity with the vision of the company or entrepreneur. Some also spoke of their vision and core strategy driving opportunity search. However, if an opportunity did not fit the core strategy or vision, then it would typically be rejected, and
especially if negative information emerged, such as major risks or doubts about partners. In this way, many of the interviewees made fast decisions about the potential risk of a new opportunity. If it did not fit the core strategy, then it was seen as a greater risk to the business, and they were more likely to forego the opportunity. As one explained, she aimed “to get the things that I know are core, and again that comes back to a risk thing.” On the other hand, in situations where this heuristic resulted in a more positive answer, and the opportunity did fit the core strategy, then the degree of it would be used to decide the amount of time and effort that should be dedicated to exploring an opportunity in a more systematic fashion, and how quickly. Furthermore, if the fit with the core strategy or vision was very strong and the opportunity was urgent, then some entrepreneurs would proceed with an opportunity solely on the basis of that strong fit.

**Heuristic 2: Do I Know the Market**

This heuristic was widely used by all entrepreneurs as well. Once again, it was used as a simple decision rule about whether to explore an opportunity or not. As one entrepreneur said, “But it all comes down to the fact that I wouldn’t do that unless I knew particularly the market and why I was there in the first place.” Interestingly, some used terms such as ‘gut feel’ and ‘vision’ in relation to knowing a particular market and recognizing opportunities in it. As one interviewee said that, “at the end of the day it boils down to judgment you know, so I’m quite keen to go with gut feel. It’s like I said this is how I feel about it, you know my feeling about it is this; I have a good feeling about that, I don’t have a good feeling about this.” Such intuitions were typically based on prior experience and expert knowledge. They were also factors relating to the first heuristic as well, that is, assessing fit with core strategy and vision. Many of the entrepreneurs were able to identify and assess strategic fit based on an intuitions about a market derived from experience and expert knowledge. In this way, the first and second simple heuristics reinforced each other. In other cases, however, the entrepreneur would need to search for additional information or advice in order to assess strategic fit or a market, and in that case, they would not rely on these simple heuristics.
Heuristic 3: What’s the Worst that could Happen

This heuristic was primarily used to assess risk in opportunity recognition. If the answer to the question ‘what’s the worst that could happen?’ suggested that the worst case was unacceptable, then the opportunity would be quickly rejected. In that way, the heuristic served as a simple rule to reject some opportunities quickly, or as a simple rule to stop further information search and risk analysis. As one person said, “is this going to bring the company down if you make a mistake, or is it going to be something that’s not hugely relevant.” Alternatively, if the answer was more positive, and the worst case was acceptable, then the opportunity might be explored further, assuming it passed other simple tests relating to strategic fit and market knowledge. In that way, the worst case heuristic was sometimes used to justify more detailed and systematic risk analysis on those opportunities where the risk was deemed to be acceptable. However, if the worst case entailed relatively minor losses, then many entrepreneurs would use this heuristic as the basis for adopting an opportunity that fitted their strategy or vision. That is, if the fit with core strategy was strong, they knew the market, and the worst case was acceptable, then they may proceed to adopt the opportunity without further risk assessment. In this respect, entrepreneurs sometimes used simple heuristics in combination with each other. As one said, “So you look for that fit and look for fit with strategy, fit with values, fit with the kind of business you know we are in, either because it’s complementary or because it’s supportive.”

Heuristic 4: Do I Trust the Other Party

The heuristic was regarded as critical because of the reliance young companies have on third parties. Many of the entrepreneurs explained that with limited resources and high uncertainty, they had to trust their collaborators to provide honest and reliable advice and support. Therefore, if they felt they could not trust a party that was critical to a new opportunity, then most would quickly reject it despite other promising evidence. One entrepreneur remarked, “I’ve turned down doing business with people that I didn’t respect or didn’t think…like somebody was a rogue and a charlatan regardless of how good the
opportunity was, I wouldn’t do it.” On the other hand, if the party could be trusted, then that enabled the opportunity to be progressed with confidence.

**The Role of Bias**

Importantly, few occurrences of these simple heuristics were associated with extreme bias and related cognitive errors. In fact, these heuristics were often related to deliberate attempts to avoid such problems. As one of the entrepreneurs explained, “there is passion and emotion in this business, so in a sense you have to have some passion to take that risk, and that’s often obviously the hallmark of an entrepreneur. So in a sense you’ve got to keep playing tricks to yourself and making sure there are some checks and balances.” A number made similar remarks, and especially in situations where strong emotions were involved and they wanted to avoid the negative influence of affect intrusion in opportunity recognition. They recognized the cognitive risks associated with heuristics that were employed with limited time and information. Therefore many of the entrepreneurs took deliberate steps to make sure they were not using these simple heuristics in a biased fashion. For example, they would seek objective advice from trusted sources, or use the heuristics more often as simple ‘stop’ rules, and less often as ‘go’ rules. For example, as one said, “On the negative side you know I’d probably be a bit more inclined to follow your instincts, because the downside is, you want to be covering your downside in a sense all the time. Being entrepreneurial and naturally optimistic, it’s probably more of a question of trying throttle back from clearly being positive, and force yourself to look more at the things that could go wrong.” That is, this person would reject an opportunity based on a simple heuristic, but would often seek confirmatory evidence before adopting an opportunity, even if it passed the strategy test and other simple heuristics.

These findings suggest that the focus on negative biases may be over-stated with respect to heuristics in entrepreneurial opportunity recognition (cf., L.W. Busenitz, 1999; M. Simon & Houghton, 1999). Too often, that is, scholars have assumed the classically inspired critique of heuristics as less than rational. However, as Herbert Simon (1979) argued many years ago, the classical ideal of unbounded rationality and affective neutrality is an idealistic
view that often bares little resemblance to observed human cognition and behavior. Indeed, this study suggests that entrepreneurs are more often aware of potential biases, and use deliberate tactics to avoid the cognitive errors that may arise when such biases influence heuristics. In that respect, the study supports the general argument that simple heuristics can be effective and appropriate decision means.

**IMPLICATIONS**

In terms of its theoretical implications, this study suggests new avenues of research into the use of heuristics by entrepreneurs in opportunity recognition. In particular, it suggests that researchers should question the classical skepticism about heuristics, and recognize that they can function as effective and accurate cognitive strategies and decision means. Confirmation of that proposition will clearly require more empirical research, including a range of methodological approaches, such as detailed case studies that utilize mixed qualitative and quantitative methods as well as multi-method studies (Bruyat & Julien, 2001; Gartner & Birley, 2002). However, if proven, this could lead to a better understanding of opportunity recognition and entrepreneurial cognition as a distinguishing feature of the field.

**LIMITATIONS**

Given the non-random, small non-population sample used in this study, the results cannot be used to make any claims about the general population of entrepreneurs. The results are suggestive only, yet they clearly indicate promising areas for future research. Furthermore, I employed only one of the possible definitions of ‘entrepreneur,’ so the findings are limited to the category of founder-managers. Finally, because the data were gathered from entrepreneurs and companies based in one geographic region, the results are somewhat limited in applicability to different markets and cultures. That is because cultures have particular attributes that can influence aspects of organizational design, cognition and decision-making (Freeland, 1997; Morris & Fu, 2001).
CONCLUSION

Opportunity recognition is one of the primary features of entrepreneurship, and it often occurs in uncertain, dynamic situations. Heuristics enable entrepreneurs to function effectively in those situations, and to recognize, reject, and adopt opportunities despite the pressures of limited time and information. However, to date, most studies of entrepreneurial cognition have associated heuristics with bias and cognitive errors. Whereas the simple heuristics identified in this study enable entrepreneurs to make rational decisions about which opportunities to reject and which ones to explore further. In that respect, entrepreneurs should not be seen as irrational or in error when they employ simple heuristics in opportunity recognition, but as effective actors in challenging environments.
REFERENCES


