

Entrepreneurial intuition, an empirical approach

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Abstract

Many of today's successful entrepreneurs attribute their success to their intuition, Bill Gates says, "you cannot ignore your intuition." Oprah states, "My business skills have come from being guided by my intuition", and Donald Trump admits in his book, "I've built a multi-billion dollar empire by relying on my gut instinct".

Using the extant literature on intuition in business, this work aims to empirically validate the importance and relevance of intuitive decision making to successful entrepreneurs. This hopefully provides a greater understanding of intuition and decision-making, in the field of entrepreneurship. ++

The population sample chosen was repeat entrepreneurs because a repeat entrepreneurs success is not due to providence alone. They appear to identify opportunities based on cues or signals from the environment that they filter and process through a number of mechanisms.

Using the literature review a priori a questionnaire was developed and a cognitive style instrument (CSI) was used to contrast and compare findings, not only across cases but also across thinking styles. This research then used a multi-method, pooled case study approach using the CSI and the semi-structured interviews to achieve the final results.

Whilst the results show that entrepreneur's have a greater propensity for intuitive decision-making. This does not suggest that they ignore available information; to the contrary, many do rely on their experiences and available information. The results suggest that intuition and rational decision-making are not on the same continuum ie: entrepreneurs are neither one nor the other; they can be both rational and intuitive in their decision-making style.

Keywords: Intuition, rational thinking, repeat entrepreneurs, decision-making styles

Introduction

There is a dearth of literature on entrepreneurial intuition using an empirical approach. Yet, many entrepreneurs attribute their success to their intuition; Oprah states, "My business skills have come from being guided by my intuition," Bill Gates says, "you cannot ignore your intuition", and as Donald Trump admits in his book, "I've built a multi-billion empire by using my intuition".

Examples of entrepreneur's resorting to their intuition include; determining the marketability about a particular product/service, decisions about acquisitions, sell-offs, layoffs, and investments are often made on hunches and gut feelings. Skeptics often say these kinds of decisions are based on market research, prior learning or a deep understanding of the investment and financial worlds.

Entrepreneurship is about individuals who create opportunities where others do not, and who attempt to exploit those opportunities through various modes of organizing, without regard to resources currently controlled (Stevenson & Jarillo 1990). Two factors influence the probability that particular people and not others are able to discover and exploit opportunities: the possession of the information necessary to identify an opportunity and the cognitive style necessary to exploit it (Shane & Venkataraman 2000). □□ This work uses the cognitive style because the perception of opportunity is a cognitive phenomenon (Keh et al. 2002).

Cognition has been defined as all processes by which sensory input is transformed, reduced, elaborated, stored, recovered, and used (Neisser 1967). Cognitive psychology emerged to help explain the mental processes that occur within individuals as they interact with one another and their environment (R. K. Mitchell et al. 2002). □□ Particular styles of collecting and analyzing information (cognitive styles) are more appropriate than others for the conduct of entrepreneurial activities (Allinson & Hayes 1996). The nature of entrepreneurship and the style of the successful entrepreneur will, by necessity, be more intuitive (Allinson et al. 2000). Allinson et al (2000) argue that entrepreneurs tend to bypass rigorous analysis because they are decisive and appreciate the time value of money and the competitive nature of most markets and industries. Entrepreneurs, unlike scientists, are unlikely to make decisions on the basis of orderly time consuming rational analysis (Simon 1987).

If entrepreneurs' are to succeed in today's rapidly changing environment, decisions need to be rapid, too rapid to allow for an orderly sequential analysis of a situation. The major inhibitor to speedy decision-making in this day and age, is the amount of information available through the World Wide Web.

Whilst there has been a significant focus of attention on entrepreneurial attributes, how entrepreneurs make decisions in this fast changing environment has been less researched and, therefore, understood. Most scholars agree that what differentiates an entrepreneur from the rest is their behavior. Nevertheless, attempting to differentiate the behavior of an entrepreneur from others has thus far proven difficult (Keh et al. 2002), (J. R. Mitchell et al. 2005a). Even though there has been a failure to uncover some homogenous traits, practitioners, scholars, and investors in new firms still consider the entrepreneur to be critical to the success of the firm. For this reason it was thought that this avenue of investigation could provide some clarity in differentiating the behavior of repeat entrepreneurs.

Most of the research in this area is either phenomenological, a description of intuition by referring to those who use intuition or, from a psychological perspective. Psychologists argue that cognition occurs automatically outside of consciousness awareness, as does intuition. This research aims to provide a better understanding of, what constitutes intuitive decision-making, and secondly based on the findings to determine if entrepreneurs have a greater propensity for intuitive decision-making?

Literature Review

Understanding how and why entrepreneurs make certain decision requires an understanding of how information is collected and assimilated. There are two ways of knowing, commonly referred to as intuitive or analytical, depicted in table 1 in the appendix.

In analytical decision-making, goals and alternatives are made explicit, the consequences of pursuing different alternatives are calculated and these consequences are evaluated in terms of how close they are to the original goals (Barnard 1938). For entrepreneurs this arises from the use of the standard analysis tools such as business plans, financial models, budgeting systems, due diligence etc.

(Behling & Eckel 1991) argue that rational analysis is over-emphasized yet, many industries are fully committed to the rational approach to problem solving. 'We have learned to analyze everything so that we can avoid the big dumb decisions through good market research, cash flow analysis and budgeting 'if a little is good then more is better' (Behling & Eckel 1991). Even though the conditions under which entrepreneurs operate may sometimes limit or even preclude the use of rational analysis, it is nevertheless the norm in many decisions (Sadler-Smith & Shefy 2004)

(Barnard 1938), (Simon 1987) and (Myers, 2002), argue that intuition is pattern recognition, the application of one's professional judgment to the situation. Simon (1987) makes his point on a Grand Chess Master's ability to make strong moves quickly. He argues that his skill is in his knowledge, through his or her experience of the kinds of patterns and clusters of pieces that occur on chessboards. For a Chess Master a chessboard is not an arrangement of 25 pieces but an arrangement of a half a dozen familiar patterns that previous experience recognizes.

Whilst psychologists agree at the difference between rational and intuitive decision-making, they nonetheless prefer a linear interpretation by regarding intuition as pattern recognition. (Hahn & Chater 1997) proposed three different approaches to recognize patterns that could be regarded as intuition. One such process is the feature-analysis model. This model suggests that their distinctive features identify patterns. In opportunity recognition this may be economic value and newness of a product or service. The drawback with this model is that it is primarily applicable to simple patterns. In contrast, prototype models apply to more complex patterns. Through experience we construct prototype models - what a particular model should look like. For opportunity recognition an entrepreneur may seek central characteristics such as the likelihood of competition, economic value, desirability and other characteristics critical to their prototype. The likelihood of a match would enable an entrepreneur to conclude whether the opportunity is worth pursuing. The final model of pattern recognition emphasizes the importance of specific knowledge. It is known as an exemplar model. An individual would compare existing opportunities with exemplar models of excellent business opportunities. This view of intuition perpetuates the cognitive based perception of this construct.

Intuition

Intuition may be traced to the Latin *intueor* or *intueri*, meaning to contemplate or look within (Zohar & Marshall 2000). The most common explanation is that intuition is the ability of an individual to access stored knowledge and or experiences in their subconscious mind. Myers (2002) adds that intuitive behavior also reflects the individuals' personal history. From the psychology discipline Myers (2002) intuition is perceived as something we do every minute of the day that is the result of unconscious thought. Therefore, my ability to type this work without conscious awareness of every keystroke would be regarded as intuitive behavior.

This fails to take into account many other factors that are considered important to decision making that underlies intuitive thinking as described by many other researches. McCraty et al (2004) propose that intuition is sensing which occurs outside conscious awareness. Using the results of experimental evidence they conclude that the heart and autonomic nervous system contribute to the feeling associated with intuition. They reason that 'it is a direct perception of truths or facts, independent of any reasoning process which is immediately sensed by the body as certainty of knowledge or feeling about the totality of a thing distant or yet to happen, this feeling can include either positive or negative emotions'. It is the entrepreneur's passionate attentional focus that creates a 'quantum interconnectedness', which provides the feeling component of intuition. Whilst the psychological discipline regards intuition as a cognitive based extension of decision making, McCraty et al (2004), (Bradley 2006) and (Radin 1997b) regard intuition as subtle energy, a paranormal phenomenon.

Whilst there are a number of different understandings as to what constitutes intuition, what is not in dispute is that intuition is a method of making decisions that is both holistic and non-linear. Scholars feel uncomfortable with this conceptualization because of the nebulous nature of the construct. It is likely that this results from an inherent assumption that knowledge is recognizable and valuable only when it is explicit, untainted by feelings, and open to conscious thought and introspection (Hodgkinson & Sadler-smith 2003). Mitchell et al (2005) and Myer's (2002) argue that the use of intuition is problematic because there are too many interpretations as to what constitutes intuition and too many factors that influence one's ability to use it, the environment, brain organization, experience, training and the inability to access that information as and when required.

Nevertheless, it is proffered that there is enough evidence from the literature for a consensus as to what constitutes intuitive decision making as outlined in (table 2). The following represents a discussion on the many definitions of intuition in the literature (Barnard 1938). Barnard (1938) was one of the earliest authors in the field. He did not regard the non-logical processes of decision making as magical in any sense, he argued that they are grounded in knowledge and experience.

Researchers conceptualize intuition in many different ways (Behling & Eckel 1991). For instance; the thinker arrives at an answer with little or no awareness of the process by which he or she reached it. Rarely can they provide an adequate account of how they obtained the answer, and may be unaware of just what aspects of the problem situation they were responding to (Bruner 1960).

Myers (2002) writes on intuition's power and importance, and then warns the reader of its perils. He discusses learning, memory recall, and one's interpretation of reality and consciousness as critical elements of intuition. Myers (2002) limits his argument to

psychological perspective of intuition and no evidence is presented to compare the psychological work with any empirical research outside the field of psychology. The following list provides the extent of the literatures intuition dimensions. See Table 2 in the appendix.

Research Method

This research took a multi-method, pooled case study approach using a survey instrument and semi- structured interviews. See Table 2 in the appendix.

Qualitative research was deemed appropriate given the nebulous nature of the construct, and because the outcome of this approach provides an understanding of how and why entrepreneurs make decisions. Moreover, case study research allows the use of literature review in a priori development of propositions to increase the potential for an enhanced effect; neither polar cases nor random selection of respondents was employed. Eisenhardt (1989) argues that neither is necessary because cases should be selected so they can replicate or extend the emergent theory. Furthermore, 'selection of an appropriate population controls extraneous variations and helps to define the limits for generalizing the findings' (ibid p.537). Both Eisenhardt (1989) and (Yin 2003) suggest that the ideal scenario in case study research is to have multiple cases and to select the appropriate number of cases until data saturation is achieved. Multiple cases were chosen because the analytic benefits derived expand the external generalizability of the conclusions (Yin 2003). According to Eisenhardt (1989), what is considered to be 'multiple cases' is as little as four or a maximum of ten cases. Beyond ten cases, Eisenhardt (1989) argues the data becomes unmanageable. Data manageability wasn't an issue as, NVivo a computer based content analysis software system, enables the management of large amounts of qualitative data.

A validated survey instrument, the Cognitive Style Index (CSI) was used to determine the cognitive style, intuitive or analytic approach to decision making. The Cognitive Style Index (CSI) instrument was used because it was an easy to use, self-assessment tool that wasn't too time consuming or cumbersome and didn't require trained individuals to code. Allinson and Hayes (1996) provided the measuring tool, the score-key and the relevant publications, providing evidence of the validity and reliability of CSI.

The CSI is a self-report questionnaire, which consists of 38 questions. The aim of those questions is to ascertain whether a respondent's cognitive style is either analytical or intuitive. The instrument is designed such that a person who is analytical is most likely to achieve a high score - maximum of 76. A person who is inclined to use both intuitive and rational decision-making would achieve a score of 38 (midway), whilst an individual with an intuitive decision making propensity would score less than 38 (Figure 1 in the appendix).

The only element not measured by the CSI was whether or not the decision-maker was influenced by feelings towards a decision – that is, if the decision "felt right or wrong". This was accounted for during the interview process.

Entrepreneurs who completed the CSI were invited to participate in a semi-structured interview in accordance with an agreed protocol. Fifty entrepreneurs were provided with the CSI assessment tool, 33 fit the criteria of repeat entrepreneurs of which sixteen made themselves available for an interview.

It was considered important to select a group of entrepreneurs who had significant business experience, and whose success could not be attributed to circumstances. For this reason, repeat entrepreneurs were chosen. It was postulated that if entrepreneurs have a propensity for

intuitive decision making then repeat entrepreneurs are more likely to have a greater propensity for intuition. It was hypothesized that repeat entrepreneurs would have to deal with a greater level of ambiguity because they have many more decisions to make, particularly if the firms are in diversely different industries.

Fiet et al (2004) urges researchers to focus on repeat entrepreneurs because their success is not due to providence alone. They appear to identify opportunities based on cues or signals from the environment that they filter and process through a number of mechanisms (Krueger 2003). Shapero (1975) uses the analogy of antennae', suggesting that entrepreneurs have their antennae tuned to opportunity recognition frequencies. Furthermore, repeat entrepreneurs are an important population sample because their likelihood of success diminishes dramatically with each new venture. For instance, if 80 percent of new ventures last less than five years (Headd 2001), then the probability of a repeat entrepreneur surviving more than five years in two ventures is only four percent. The probability of surviving in three or more ventures is less than one percent. To be considered a repeat entrepreneur, the entrepreneurs must have employed at least five equivalent full time staff. Each participant was required to have, or have had, at least two successful businesses that were created sequentially or concurrently. Whilst the entrepreneur was required to be the founder and owner of the business, they need not have been the sole founder. Success was assumed to mean that the entrepreneur made a profit - no minimum criteria was laid down as to the level of profitability. Retired entrepreneurs were also included in this research.

Interviews

The interviewees were told that the aim of this research was to develop an understanding of entrepreneurial decision-making. As suggested by Yin (2004), the interviewer adopted a guided conversation rather than a structured query. Therefore open-ended questions were used so the interviewee could express his or her untainted thoughts and practices, and provide the interviewer with an opportunity to explore further any relevant themes.

In order to ensure that there would be no misunderstanding, all interviews were recorded with the permission of the interviewee and later transcribed and validity confirmed by the interviewee. The researcher transcribed the interviews conducted in Australia, whilst the interviews conducted in the United Kingdom (Cambridge) were transcribed by a transcription service.

Content Analysis

Nvivo® is a simple to use content analysis system that allows researchers to map out a project, set up frameworks, organize ideas and establish a range of queries whilst using a Microsoft Windows type user interface. Coding is relatively easy as one merely highlights key passages and assigns codes. An auto-coding option enables researchers to expedite the process. This is then easily collated for later analysis. The coding procedure adopted follows.

Coding Procedure

The following procedure was used in the search and coding:

- Develop a meaning for each node;
- Describe a list of words appropriate to each node;
- Read each transcript and identify passages that relate to each node;
- Code the appropriate passages with the appropriate nodes;
- Place the document aside and review the codes at a later date to determine congruency with original node.

The meaning unit is synonymous with the use of NVivo® which NVivo® refers to as a node. The use of the meaning unit comes from the work of empirical phenomenologist's. The main idea of empirical phenomenology is that a scientific explanation must be grounded in the meaning structure of those studied (Aspers 2004, p.2).

For the meaning unit to be developed, the participant's subjective perspective is the starting point of the analysis. The second important aspect of meaning units is the assumption that the world is socially constructed, an argument which is generally accepted in contemporary social science (Aspers 2004), and that each person has their own language to structure and understand their meanings. This is especially helpful when a number of participants with different experiences and perspectives are involved in the research.

In order to understand the meanings associated with the language used, one must consider what does understanding imply in practice, and how does one reach it? For instance, some interviewees referred to making decisions based on their 'gut feelings'; whilst others said they relied on their 'instincts'. All these terms are synonymous with the concept of intuition. Understanding is accomplished when one understands what the other means (Schulz 1932). Hence, the notion of the meaning unit is crucial in understanding the participant's perspective. Understanding extends to the meaning of passages as well. The Table 3 (appendix) provides examples of how statements that seemingly do not relate to the key meanings are relevant and appropriate in their selection for each node.

Not all statements that are related to meaning units are so vague and difficult to uncover. Indeed, NVivo® provides a word search tool where the node (meaning unit) is typed into a search box and NVivo® conducts a search of the transcripts and marks all words found. This is appropriate where the meaning unit itself is used in the discussion. Focusing purely on the nodes in a word search can have its own difficulties. The following statement was elicited from an entrepreneur when asked whether rational decision making was more appropriate for entrepreneurial decision making: 'I don't believe that starting a business can be done purely on an analytical basis'. In conducting word searches it is important to consider the context in which the node is used.

Table 4 outlines the nodes used for coding. These nodes originated from the literature review. The following tables list the nodes used in the content analysis for each decision making style. The literature review found that intuition included emotion, rapid decision-making and seeing the 'bigger picture'. A number of writers, including Allinson et al (1996) and Kahneman (2003), included terms such as 'difficult to control' and 'unconscious', giving the impression that the behavior is spontaneous. Allinson et al (1996) and Bennet (1998) argued in support for risk taking because they suggest that intuitive types make 'daring conclusive leaps'.

Allinson et al (1996) and Behling and Eckel (1991) agreed that intuitive types are also action orientated, whilst Bradley (2006) argued that the passionate attention of an entrepreneur is the source of intuitive decision-making. Intuition was also included as a node as a general term for instinct, 'gut feeling', and any other term that the interviewees used to explain intuition.

Interview Question Themes

To provide greater research validity it was necessary to determine if any of the factors important to rational decision-making were evident in the interview responses. The Table 4 (appendix) is the factors found to be important to rational decision-making (Hayes & Allinson 1994)

According to the literature review, the following themes (Table 5 - Appendix) were found to be important in providing an understanding of intuitive decision-making. These are the factors that the interviewer was looking for during the interview process.

Results

Cognitive Style Index (CSI)

This section begins with the Cognitive Style Index (CSI) findings and then discusses the content analysis of the transcribed interviews. This work links data to propositions and tests for rival explanations, the strategies most applicable to case study research (Yin 2003). This work aims to determine whether or not, a) repeat entrepreneurs are intuitive (through the CSI and interviews), b) elements of intuition found in the literature represent the factors critical to intuition.

The aim of the first proposition is to discern the propensity of intuitive decision-making using the CSI index. The CSI findings clearly show that repeat entrepreneurs have a greater propensity than general entrepreneurs, and that general entrepreneurs have a greater propensity than managers. The results of the CSI support Proposition One. Repeat entrepreneurs do indeed have a greater propensity for intuitive decision-making as depicted in Figure 2 (Appendix).

The results depicted in figure 2 are of the 30 repeat entrepreneurs whose results were usable. The overall mean score was 24.9 for all 30 entrepreneurs. The broken vertical line depicts the mean score.

Figure 3 (appendix) depicts the range of possible scores and the result of repeat entrepreneurs in relation to that of the managers, as determined by Allinson et al (2000). The range on the top left of the figure 3 shows that the sample of repeat entrepreneurs tested for this research achieved a mean score of 24.9, within a standard deviation of 7.2. The range on the bottom right hand side is the average score of 546 for managers tested by Allinson et al (2000). They scored a mean of 39.9 within a range of 27 – 53 (SD). Whilst there is some overlap between the managers and entrepreneurs, the average for the entrepreneurs is significantly lower than that of the managers. The significance of this diagram is that the mean score for repeat entrepreneurs is outside the standard deviation range of the managers, which indicates that repeat entrepreneurs are likely to have a greater propensity for intuitive decision making. Brigham (2007) also found that entrepreneurs have a greater propensity for intuition than managers.

Allinson et al (2000, p.40) also tested 156 general entrepreneurs, which returned a mean of 34 with a standard deviation of 13.8. Once again, this is lower than the score achieved by managers but not as low as the repeat entrepreneurs. See Figure 4 in the Appendix.

In figure 4 the repeat entrepreneurs (top left) achieved mean of 24.9 within a range of 18 to 32. General entrepreneurs (bottom left) achieved a mean of 33.76 and their scores ranged from 20 to 46. This supports the arguments that repeat entrepreneurs were the appropriate sample for this research. The mean score for both groups of entrepreneurs are in the intuitive range of the

index with the SD for repeat entrepreneurs being lower for repeat entrepreneurs (7.2) than general entrepreneurs (13.8). The trend indicates that entrepreneurs, whether repeat or general, have a lower index than manager's scores.

Interviews

Proposition two tests the validity of proposition one by using the interviews to determine if the entrepreneurial decision makers use the same decision making cues as intuitive decision makers.

The case study interview transcripts were analyzed in order to code for emergent themes. Using a qualitative approach to allow themes to emerge naturally, rather than to attempt to impose a preconceived set of ideas (Krippendorff 1980) on the interviewee. This approach ensures that any unanticipated themes are given the opportunity to emerge from the data and that no undue credence is given a priori to any preconceived ideas.

The transcript data was analyzed thematically and examined in light of the elements and themes drawn from the literature review. The following section discusses the importance of rational decision making, in order to provide the opposing perspective.

Rational Decision Nodes

The content analysis strategy used to test for intuitive nodes was also employed to test for rational decision-making. The content analysis found one node to have significant support and that was risk aversion.

The meaning units found in the lexicon of rational decision making language were logical and analytical (Figure 5 - Appendix). These terms were considered interchangeable. An example of an interviewee who preferred this style of decision making said, 'I think, primarily, one has a model of the world as to what one thinks is useful and where things are going to fit'. When told that intuition seems to be important to some entrepreneur's decision making, an entrepreneur retorted, 'I think in many ways, people who take that approach are fortunate with their timing.'

Risk aversion – a number of interviewees demonstrated a propensity to stick to known methods and accepted ways of thinking, because 'there's a level of risk associated with doing things differently'. Another said, 'I go into the detail when necessary because I like to take the risk out of any equation' and 'you can't just make many of those decisions flying by the seat of your pants, you'll come unstuck if you do, there are too many people that have tried and haven't lasted'.

Intuition Nodes

Whilst a few questioned the validity of intuition the following Figure 6(Appendix) depicts that most of the participants thought it was a valid and valuable approach to their decision making.

The X axis represents the number of hits for each intuition element, whilst the Y axis represents each node. The references represents the number of times each node was found in the content analysis and sources represents the number of participants who referred to the same term.

The node, which attracted the most support, was ‘seeing the bigger picture’; followed by emotion-based decisions, risk taking, action orientation and passionate focus. Figure 6 also illustrates the importance of each node overall. Nodes with less than ten percent hits were not included. It is noteworthy that speedy decision-making wasn’t significant.

‘Seeing the bigger picture’ (holism) was found to be the most important element of intuitive decision-making. Several of the entrepreneurs commented, ‘why do I spend my money in this area, because I think it will be for the common good,’ and ‘there is really genuine belief here that we are contributing, and a real sense that this is a golden opportunity to keep this region strong.’ Another entrepreneur felt that, ‘the public isn’t always right and not all those influences are wholesome and dealing with that is an issue because I do think that [what we do] will ultimately save the planet,’ and yet another commented that, ‘it’s fundamentally about being fair, about doing what is right whilst being firm in negotiating but not screwing someone over’.

‘Listening to one’s heart’, ‘gut feeling’ and ‘instinct’ were all descriptions of the way entrepreneur’s made intuitive decisions. Some entrepreneurs did not use any of those terms. Instead one entrepreneur said, ‘every once in a while I come across one of these ideas where I just know it’s going to work’. Another example came from one of the UK interviewee’s who commented ‘the greatest hiring mistakes I’ve made have been when I hired someone who looked right on paper but didn’t feel quite right’. Another participant who purchased a business that for \$A18m after only two days of consideration said, ‘I can tell you within an hour what is wrong with a business, without [anyone] giving me any facts and figures just give me a trading P & L, I’ll go for a walk and in an hour I’ll tell you. That comes back to part gut instinct, part experience. Gut instinct will lead me where to look first’.

Risk taking was found to be an important element of intuitive decision-making (Allinson et al. 2000). As one entrepreneur said, ‘I encourage the people who work for me to make decisions, do it, and get on with it, and if their wrong they just need to pick themselves up, dust themselves off, and make another decision’. Another participant, who was a founder of one of the world’s biggest telecommunications, said ‘so many people thought that we were mad, [but] I think part of being an entrepreneur is being willing to take risks’. Another entrepreneur said that it was simply part of who he was, explaining, ‘I put myself out on a limb as far as my personal and my professional life, I just enjoy the challenge’. Many of the entrepreneurs regarded risk taking as an important aspect of action. They expressed the view that you must take action, regardless of the risk because; ‘you can’t stop and study every single part of every single thing [otherwise] you’ll never get to make a decision,’ and ‘you have to make a decision, even if it’s the wrong decision’. One Australian entrepreneur said, ‘I’m not very considered about it... I just get out there and I put myself in situations’. Another said; ‘I do not think that you should get into paralysis by analysis. Taking any action is a risk, we take more risks and have a go at most things’.

The interviewees supported this with statements such as; ‘we take more risks and have a go at most things’ and, ‘you cannot analyze things for weeks on end...you have to make a decision, even if it’s the wrong decision you just press on’. Another entrepreneur concurred, with ‘it’s easy to get caught in thinking [something] is insurmountable, most things are achievable if you just start doing them’.

One offered his experience, saying ‘if I like the product, and I like the people, and I think I’m going to have a lot of fun, and I’m not going to lose a huge amount of money, I think I can protect my downside, then... I will go on my gut’. Whilst relying on ‘his gut’ this entrepreneur also considers the negatives, so a component of rationality is present in his decision. Conversely,

a participant who had entered a new industry said, 'I haven't done any market research at all, I just know that it will be a seller, why, because I can feel it'. Another entrepreneur who became involved in a second business said, 'I was doing something where my heart wasn't in it, the head was there but not the heart., I cannot continue if it feels wrong'. This may explain why passionate focus is important for entrepreneurs to engage fully.

Whilst the node of passionate focus achieved significance, it was found to be the least important of the significant elements in the content analysis of the interviews. For one of the female entrepreneurs, 'passion was the key, to create, to complete and to succeed'. She felt that it was her organization's 'crazy enthusiasm that could be contagious and even extend to [her] customers', which she said was critical to their success. Another repeat entrepreneur attributed his multiple successes to the fact that he could 'get interested and passionate about all sorts of different products and services'.

Four of the Cambridge entrepreneurs felt that it was not only important to be passionate about entrepreneurship but 'it's important to share that passion'. In the pursuit of one's passion some entrepreneurs said they would often lose track of time. The following comment is representative; 'The day can finish at five o'clock at night or it can finish at midnight, on many occasions I've looked at my watch and it's a quarter to ten and I've forgotten to go home'. Another entrepreneur said, 'one must be 'tireless' in one's commitment to business, just because you have a hiccup you shouldn't run away with your tail between your legs, it's very much about tackling'. Another added, 'It's very easy to walk away if you're not serious about success, most things are achievable if you just start doing them', and 'once you're in the middle of it sometimes you'd be so busy working on the challenge that the magnitude of the problem wouldn't occur to you'.

Discussion

The aim of this research was to provide a better understanding of intuition by understanding what must occur for intuitive decision making to take place. Secondly, to determine whether entrepreneurs have a greater propensity for intuitive decision making.

The findings from the content analysis of the interviews support the CSI findings, demonstrating that entrepreneurs do indeed use their intuition in making decisions. However, not all the elements that were considered important to intuition or rational decision-making were evidenced in the content analysis. Spontaneity and rapid decision-making did not reach a level of discrimination for intuition. Detail orientation, a preference for routine, and rule following did not achieve a level of significance for rational decision making. Passionate attention did achieve a significant result, but it was not the most important element of intuition.

The results show that entrepreneurs tend to towards self-sufficiency, trusting their own judgment (self-efficacy), they are also able to live with ambiguities and uncertainties, and are willing to make decisions even though they don't have all the information they need at hand. Furthermore, when outcomes are difficult to predict through rational means and they need to make a decision, they respond in a pragmatic way by utilizing their intuitive judgment and making a decision.

The repeat entrepreneur's proclivity for intuition changed very little through the different age categories, yet there was no proportional increase in rational decision making suggesting the intuition and rational decision making may not be on the same continuum. This is in contrast to Allinson and Hayes' (1996) proposition that one's cognitive style is unitary. Thus, entrepreneurs

can be both intuitive and rational in their decision-making approaches. Vance et al (2007) support this view, arguing that in today's highly competitive and turbulent environment, effective decision-making requires both linear and non-linear thinking.

The CSI results indicate that the cohort of repeat entrepreneurs chosen for this study had a clear propensity for intuitive decision making. The repeat entrepreneur's mean score was significantly lower than managers and lower than that of general entrepreneurs, thereby supporting the choice of repeat entrepreneurs as an appropriate sample for this research.

The entrepreneurs involved in the CSI data collection were from the UK and Australia. Their ages ranged from 33 to 67. Their CSI scores were analyzed for age, country of origin and gender. There were only four females in this group. Even though the sample size was too small to offer any definitive arguments based on gender, those who participated had an average score lower than their male counterparts, which is consistent with the work of other researchers which shows that women are likely to be more intuitive than men ((Bierman & Scholte 2002), (Myers 2002), ((Radin 1997a).

The content analysis involved in-depth interviews considering all aspects of intuitive behavior. The CSI is a self-report questionnaire that assumes decision makers are either intuitive or logical, because Allinson et al (1996) regard that logic and intuition are on the same continuum. If that was so, one would expect that those entrepreneurs who rated lower on the intuition scale should have rated higher on logic. This was not evident from the content analysis.

The results thus far indicate that entrepreneurs do not adopt an either/or approach. Whilst there is a propensity for intuitive decision-making, entrepreneurs realize that a rational, risk-averse approach is appropriate and should not be ignored. The aggregate result for the interviewees had 'seeing the bigger picture' as the most significant element, followed by: intuition, emotion based decisions, risk taking, action orientation, and passionate focus.

Intuition has been described as a holistic approach to decision making. Evidence from the content analysis of the interviews showed this element to be the most significant aspect of intuitive decision-making. One entrepreneur said, 'I believe in another dimension, in the interconnectedness of humanity', whilst his partner added, 'Silicon Valley entrepreneur's understand this, people collaborate, not compete. That's why they've been so successful'.

Emotionality has become a significant issue for management scholars. Managers' and entrepreneurs' decision-making is affected by how they feel about particular situations. Entrepreneurs in particular operate in highly dynamic environments, and this type of environment can be very challenging, as many entrepreneurs have to 'make it up as they go along' (Baron 2004). Furthermore, emotions and feelings have been shown to exert a strong effect on creativity the *si-ne qua non* of entrepreneurship (ibid).

The content analysis of the interviews found many instances where feelings or emotions motivated entrepreneurs to make decisions. Interviewees commented, 'unless I feel comfortable with a person I won't do business with them,' and 'fear can be an incredible motivator because [as the owner] you know that if you don't do something about your problem there's no one else to fall back on'.

Risk taking was found to be an important aspect of intuitive decision-making. There is a number of reasons why this is so. In order to appreciate the risk-taking propensity of the repeat entrepreneurs, the following factors should be considered. Risk is a multi-dimensional construct which includes: (a) potential losses; (b) the significance of those losses; and (c) the uncertainty of those losses (Forlani & Mullins 2000). All of the entrepreneurs interviewed were repeat entrepreneurs, with as little as three successful ventures and as many as seventeen.

Entrepreneurs with a history of success will have developed a level of self-efficacy and expertise in creating and managing firms, so that their potential losses are less likely to be of any significance, as many of the entrepreneurs were talking with the benefit of hindsight and a healthy bank balance. As one entrepreneur said, 'it is important to protect your downside' and 'it's not only important to know when to get in but also when to get out'.

Whilst entrepreneurs appeared to be risk takers, this was because they had a history of success and experience to call on. It is also important to remind the reader that although the sample had a propensity for intuitive decision making, rational decision making was also significant, in particular risk aversion. Many of the repeat entrepreneurs spoke about their failures as well as their successes. As one commented, 'I took over as CEO of company with 3,500 employees. When I left, there was only fifteen of us'.

Being a risk taker implies that entrepreneurs are likely to be action orientated because in the process of making decisions they must take action, which will expose them to risk. 'It's OK for me to be impulsive', one entrepreneur said, 'after all it's my money'. Another said, 'you cannot study every single part of everything, otherwise you'll never make a decision and never be successful'.

Many of the entrepreneurs spoke of the need for commitment and focus as keys to success. A number of interviewees spoke of encountering 'hard times', when it would have been very easy to 'walk away', but it was the fear of failure and the desire for success that drove them to persevere. 'You need to be passionate about your business if you want to succeed,' one entrepreneur explained.

Limitations

A larger sample of individuals is required in order to assess the robustness of the findings. This research focused on a unique population sample, repeat entrepreneurs, the next research effort will include a control group such as accountants, engineers and or computer programmers. Individuals who's success is based on sound reasoning and logic and who are employed in roles where rational decision making, such as systems, processes and procedures, are predominant in their day to day work practices and business decisions.

The CSI has been subjected to criticism that has questioned its validity as a tool to measure intuition. The issue of concern is that cognitive style is a complex multi-dimensional framework that cannot be predicated on the unitarist conception of the construct (Hodgkinson & Sadler-smith 2003). According to Hodgkinson and Sadler-Smith (2003) rational and intuitive behavior should not be placed on the same continuum. They argue that having an inclination towards intuitive decision-making does not presume that one is less likely to be rational in their decision-making.

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Tables & Figures (in order)

Table 1 Two Ways of Knowing

Intuition	Analytical
Rapid - enables immediate action	Slow - delayed action
Emotional - attuned to what feels right	Logical - based on what is sensible and reasonable
Mediated by past experience	Mediated by conscious appraisal
Self-evident experiencing is believing	Justified with logic and evidence

Adapted from: (Myers, 2002) p.30

Table 2 Research Approach Table

Approach	Tools	Sample
Self report questionnaire	Cognitive Style Index	33
Case study development	Unstructured interviews	15
Content analysis	Nvivo	15

Figure 1 CSI score's relation to decision-making styles



Table 3 Coding Nodes And Meaning Units

Node (meaning unit)	Related Statement
Intuition	'Every once in a while I come across one of these ideas where I just know it's going to work.'
Risk taker	'I am very much an optimist, very much impulsive, so I generally like to work without too much structure around me.'
Analytical	'I like to work with advisers who can bring you a balanced view of a technology and a market and then relate that to the people.'

Table 4 Rational Decision Making Themes

Rational Decision making	Validation for theme
Risk aversion	A risk-averse individual is less likely to take action based on their intuition because of the perceived level of risk. Therefore those who are more inclined to rational decision making would regard making decisions based on intuition as risky
Detail orientation	An intuitive individual is more likely to be a big picture person who likes to see the totality of a thing/event. The argument being they are less likely to be detail orientated
Prefers routine	A person who feels comfortable with routine is unlikely to make decisions spontaneously. As one does not have control of their intuitive sense, decisions made in this way are inimical to those who prefer routine
Rule follower	Intuitive decisions usually have no sense or underlying reasoning, therefore making a decision in this way requires a leap of faith. This is the antithesis of one who likes to know and understand how the decision was derived, the rules for its counsel

Table 5 Intuitive Decision Making Themes Validation

Intuitive decision making	Validation for theme
1. Emotion-based decisions	Intuitive decisions have an emotional content, in that the decision 'feels right or wrong'
2. Passionate attentional focus	A person's passionate attentional focus creates an emotional connection to an outcome because the individual is attuned to the objects unfolding pattern of activity. This connection, it is argued, provides the feeling aspect of intuition
2. Rapid decision-maker	Intuitive decision making is often referred to as rapid decision maker, in that there isn't an apparent research period of research involved in the decision making approach.
3. 'Seeing the bigger picture'	Many authors argued that intuition as holistic because it includes the ability to comprehend the bigger picture
4. Action orientation	An important element of intuitive decision-making is action orientation that also aligns with risk taking.
5. Spontaneity	Intuitive decisions cannot be created therefore, they seem to be made spontaneously without any forethought.
6. Risk-taker	One who has a propensity for rapid decision making, is spontaneous and action orientated and is likely to make decisions with little no information; some argue this type of decision making as risky

Table 6 Intuitive dimensions and authors

Perspectives	Authors
Holistic decision making, an integration of disparate information	(Bunge 1983) (Bradley 2006), (Allinson et al. 2000), (Bastick 1982) (Vaughan 1989), (Radin 1997b), (McCraty et al. 2004)
Grounded in knowledge and forgotten experience Explicit, observable, rational and logical	(J. R. Mitchell et al. 2005b), (Burke & Miller 1999) (Myers, 2002), (Agor 1984)
Emotionally driven, a vague sense or feeling	(Bradley 2006), (Burke & Miller 1999) (Kahneman 2003) (Radin 1997b), (McCraty et al. 2004)
Paranormal experience	(Bradley 2006) (Behling & Eckel 1991), (McCraty et al. 2004), (Radin 1997b), (Bierman 2000), (Bierman & Radin 1997)
Decision making rule or heuristic	(Riqueleme & Watson 2002)
An unconscious process or pattern that, cannot be expressed in words	(Myers et al. 1998), (Rowan 1986), (Isaack 1981), (Barnard 1938), (Crossan et al. 1999), (Khatri & Alvin 2000), (Sadler-Smith et al. 2003), (Radin 1997b), (McCraty et al. 2004), (Bierman 2000), (Bierman & Radin 1997)
An aspect of organizational or implicit learning	(Lawrence et al. 2005), (Lieberman 2000)
Fast, automatic, effortless, difficult to control	(Kahneman 2003), (Bradley 2006), (Myers, 2002)

Figure 2 CSI Results for All Entrepreneurs

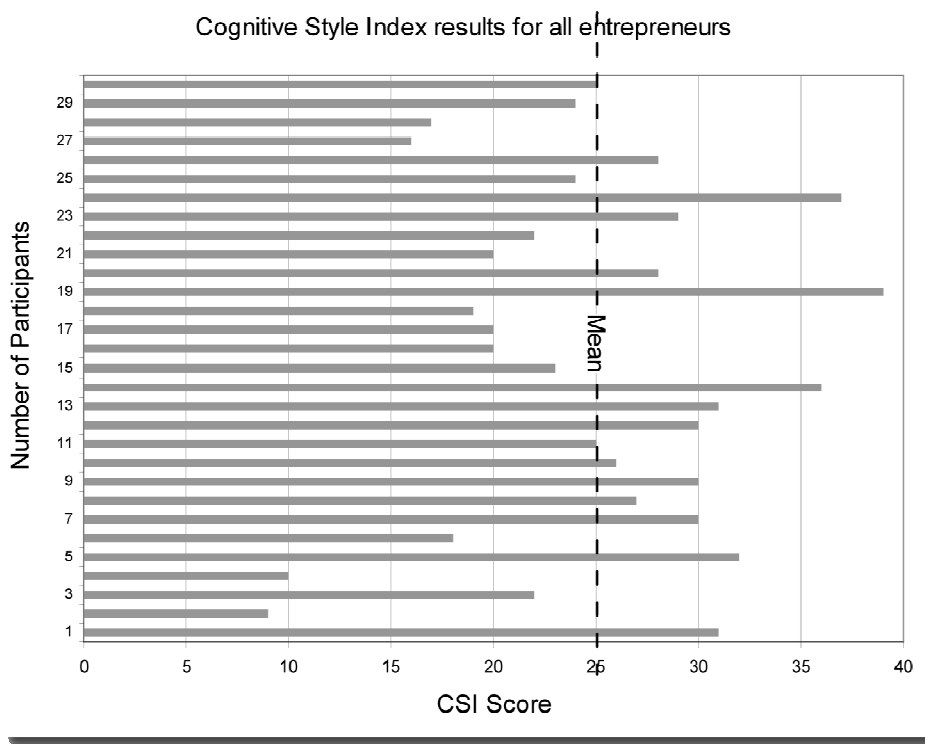


Figure 3. Repeat Entrepreneurs versus Managers

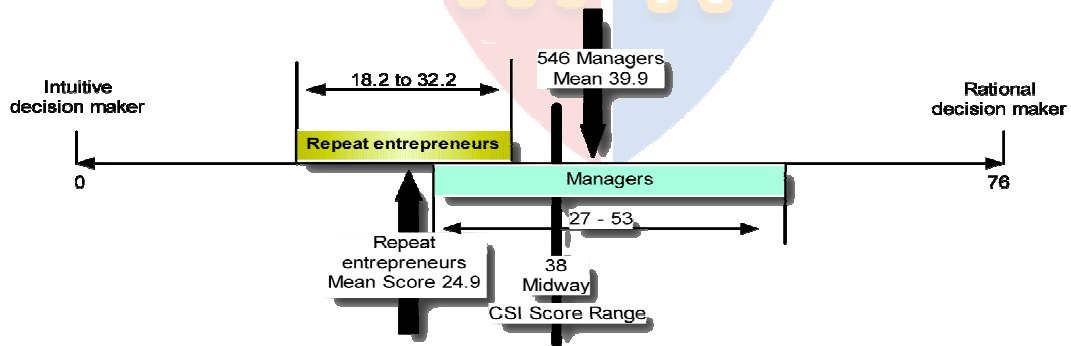


Figure 4 General versus Repeat entrepreneurs

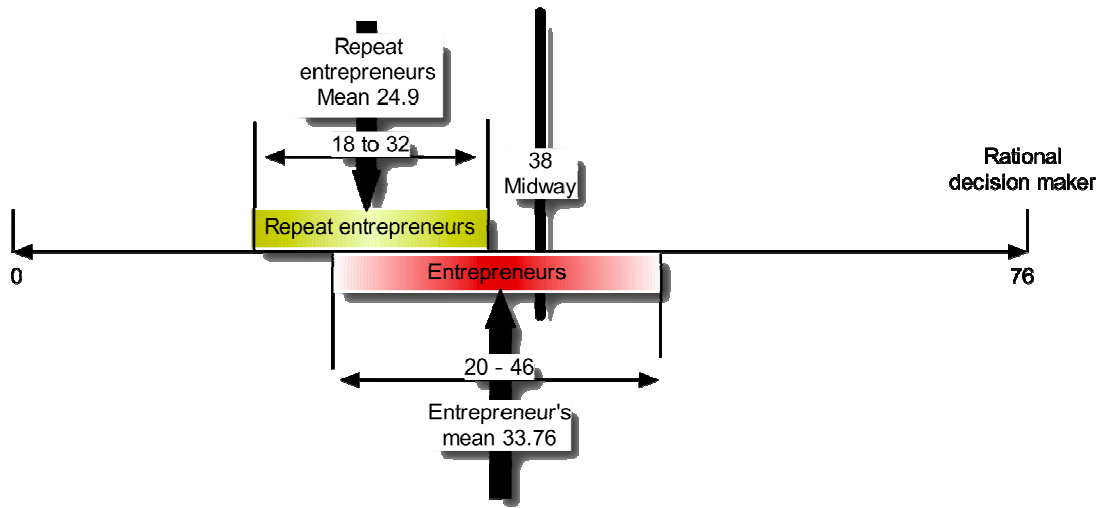


Figure 5 Support for rational nodes

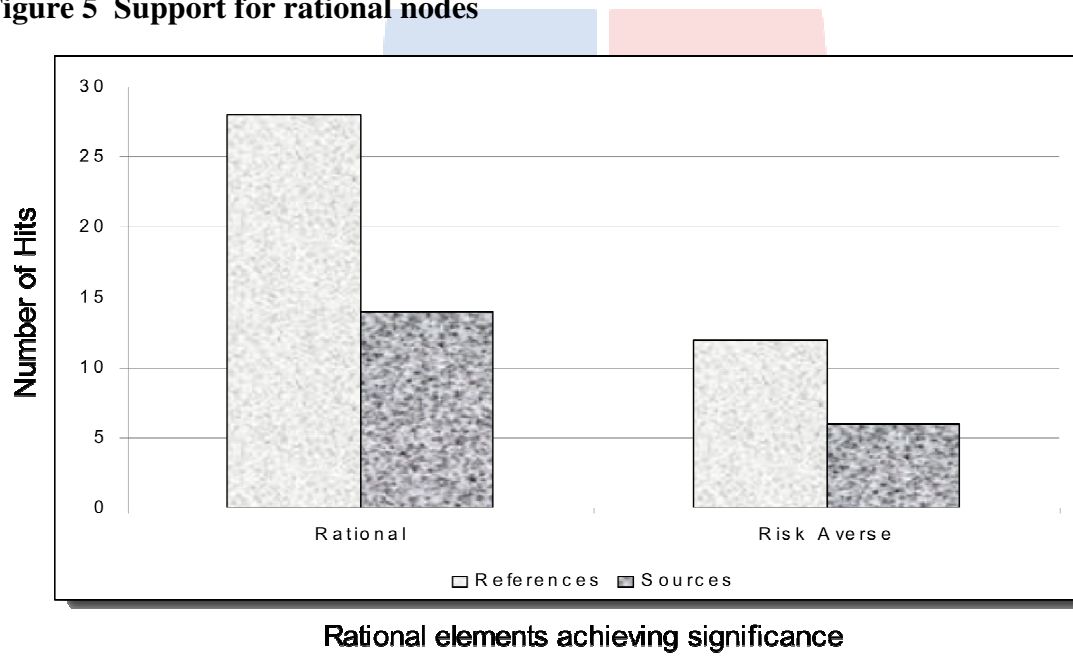


Figure 6 Intuition Nodes Significance

