ENTREPRENEURIAL TRAIT ANALYSIS: EXPLORING LINKS WITH ENTREPRENEURIAL ORIENTATION

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Introduction

In this study we examine the link between entrepreneurial orientation and non-linear entrepreneurial traits. Non-linear traits (NLT) are described (Campbell & Burnett 2008) as pairs that link behaviour with the situation (entrepreneur-opportunity) and are therefore in themselves a measure or predictor of success. Given the established nature of EO and the relatively emergent nature of NLTs this investigation explores the overlap with and links to the extant theory of EO.

Non-Linear Traits and Behavioural Triggers

In our first study, Campbell & Burnett (2008) we used a framework of entrepreneurial traits and characteristics that confirmed that one can establish entrepreneur-environment pairs of NLTs. Pairing the traits with triggers in the environment produced a more realistic model of the new venture landscape and entrepreneurial behaviour.

For example, a NLT "Cool with Chaos" indicates that the differentiating characteristic of entrepreneurs is not so much that they are "Cool", but that under conditions of chaos or rapid change they exhibit a cool level-headedness that distinguishes them quite clearly from others. Another example would be that during periods of Governmental change, entrepreneurship was reported to be ‘thriving’ (European Commission, 2002). It is thus the environment-behaviour link that is seen as crucial in identifying (non-linear) traits that differentiate entrepreneurs from others.

In this present study we wish to explore the presence of similar behavioural triggers for the five EO dimensions identified by Lumpkin & Dess (1996). It is hoped that in so doing, the validity and range of the notion of behavioural triggers will be enhanced, in preparation for more extended and focused future field studies.

Method

According to Lumpkin and Dess (1996) it is useful to explore levels of EO when assessing a firm’s management perspective. Some researchers however, suggest that the relationship between EO and performance may be more complex than previously assumed and suggest that other variables in addition to EO may have a direct effect on firm performance or may moderate the relationship between EO and performance (Aldrich, 1979; Tsai, MacMillan, and Low, 1991; Wiklund, 1999). For example, Utsch et al (1999) found that personality orientations play a role in the emergence of entrepreneurs and entrepreneurial managers. Also Brockhaus and Horwitz (1986)
found connections between EO and personality suggesting that the entrepreneurial characteristics of the people making decisions play a role in e.g. the management of risk.

This study moves a level deeper by investigating the presence of NLT connections using EO dimensions focussed on ‘when’, why’ and ‘how’ entrepreneurs react the way they do. The study uses a qualitative database which covers over 50 successful technical start-ups in various environments the following conceptual framework was developed. Interview data was collected on management styles, such as risk-taking, pro-activeness and innovativeness skills together with other traits and characteristics of the entrepreneurs and their ability to react to change.

An important observation to make is that the EO construct is aimed at firm-level performance with the unit of analysis therefore being the firm. This study wishes to explore EO as a behaviour and to do that, each of the five dimensions are therefore considered separately. In this way for instance Autonomy becomes a personal behaviour of people in the entrepreneurial team rather than just one part of the overall EO construct that is linked to performance at the firm-level.

In addition the EO framework highlights some contingencies that modify the EO ? Performance relationship as a whole. In this study however we examine particular triggers that modify each individual EO dimension, again so that the behavioural aspects are the focus rather than firm-level performance. In doing so it is also important to point out that while each EO dimension is considered as a separate aspect of entrepreneurial behaviour, Lumpkin & Dess (1996) have established that EO is coupled with performance, and in this study we may therefore extrapolate that and work from the basis that each EO dimension is a behaviour associated with successful entrepreneurial outcomes.

**Entrepreneurial Orientation (EO)**

Entrepreneurial orientation is an organisational ‘mindset’. It includes the methods, practices, and decision-making styles that founders or managers use to act entrepreneurially (Lee and Peterson, 2000). Entrepreneurial orientation (EO) models are derived from strategic management research that identifies characteristics of successful management behaviour (Miller and Friesen, 1978, Miller, 1983). Miller (1983) identified three particular key aspects: i) risk-taking, ii) innovativeness and iii) pro-activeness as relating in particular to entrepreneurial behaviour in firms. These were tested further by Miller and Friesen (1983) and Covin and Slevin (1988, 1989, 1991) investigating firm level entrepreneurship. Wiklund (1998, 1999) for example, identified no fewer than twelve studies based on Miller's (1983) and Covin and Slevin’s (1988, 1989, 1991) instruments alone.

Throughout the years, a number of researchers have experimented with EO dimensions in various organisational settings. In particular, Lumpkin and Dess’ (1996, 1997) models using two additional dimensions: i) competitive aggressiveness and ii) autonomy have been used widely. Many studies have shown positive links between the adoption of an entrepreneurial strategic orientation and the performance, growth and financial success of a business (Junehed and Davidsson, 1998; Namen and Slevin, 1993; Wiklund, 1999; Utsch et al, 1999; Zahra and Covin, 1995).
Moreover, the evidence based on longitudinal studies suggests that the effect of EO in the long term is even stronger (Wiklund, 1998; 1999; Zahra and Covin, 1995). Indeed Wiklund (1998; 1999) and later Brown, Davidsson & Wiklund (2001) argue that EO is "the hitherto best established empirical instrument for assessing a firm’s degree of entrepreneurship".

EO dimensions and Non-Linear triggers

The EO framework put forward by Lumpkin & Dess (’96) thus showed how the five EO dimensions all affect firm performance (P). In the format of a formula this would be P = f(EO). Lumpkin & Dess in their original work (1996) identified what they called "key contingencies" which affect this relationship between EO and performance. These general contingencies are grouped as either Organisational or Environmental factors.

However this paper's focus is not directly the firm-level performance but rather on the individual behavioural aspects of the entrepreneurs and their teams. The individual EO dimensions are behavioural in nature and therefore the focal point of this research. By combining the approach used to derive the non-linear traits (NLT) we now seek individual triggers which will either reinforce or suppress each of the 5 entrepreneurial behaviours established as EO dimensions. In this way the dynamic nature of the EO dimensions is teased out, and since entrepreneurship is by nature dynamic (Lichtenstein, Dooley, Lumpkin 2006), the aim is a better characterisation of the complex behaviour of entrepreneurs as they create new ventures.

For example to say that entrepreneurs are continually risk-takers (EO dimension 3) is clearly not always the case, despite it being more so among entrepreneurs than the average person. Following this example this paper seeks to explore questions such as: under what conditions are entrepreneurs more likely or less likely to take risks, or highly autonomous or less so (EO dimension 1), and so on through the 5 EO dimensions.

By understanding the triggers that modulate these behaviours we thus gain a better overall picture of what typical entrepreneurial behaviour is. In this way we are better able to identify sound new venture creation actions when we see them, and thus also guide budding entrepreneurs in the right direction for improving their outcomes.

In the next section we will examine the 5 EO dimensions as behaviours. First we will explore non-linear triggers found in the literature, and then secondly seek to illustrate these triggers by extracting quotes from entrepreneurs from our interview database.

EO dimensions: Non-Linear triggers in the Literature

Autonomy

The need for autonomy entails the desire for personal control and the desire to build something of one's own (Greenberger and Sexton, 1988; Knight, 1987). From an entrepreneur point of view, autonomy thus comes naturally with the taking of personal responsibility and control of the developed venture (Schaper and Volery, 2004, 2007).
“It centres on the independent action of an individual or a team in bringing forth an idea or a vision and carrying it through to completion. In general, it means the ability and will to be self-directed in the pursuit of opportunities. In an organizational context, it refers to action taken free of stifling organizational constraints” (Lumpkin and Dess, 1996: 140).

In western countries, management is expected to have autonomy and responsibility, as lack of autonomy makes organisations more reactive and passive in dealing with stakeholder pressures (Ohanyan, 2002). As such, the concept of autonomy is a key dimension of developing an entrepreneurial orientation.

In this context, it is clear that one of the major triggers for behaving autonomously will be the extent to which organisational constraints allow the entrepreneur this freedom (Macilwain '06, Markman '05). It also follows that the size of the firm will affect this Autonomy dimension, with smaller firms typically having a clear advantage of less administrative encumbrance to deal with (Sørensen & Chang '06). On the other hand Mintzberg & Waters (’85) point out the role that experience plays in supporting the entrepreneur in behaving autonomously.

For the EO dimension of Autonomy, major triggers identified from previous studies are thus:

- Organisational constraints
- Size of the firm
- Experience

### Innovativeness

‘Innovativeness’ means having the capability to be innovative and having an interest in innovation (Patchen, 1965). The term innovativeness thus represents a basic willingness to depart from existing technologies or practices and venture beyond the current state of the art (Kimberly, 1981). There are several ways for entrepreneurs to innovate; including the brainstorming of new ideas, mind mapping, experimentation, prototype development and other procedures that may result in new products, services, or new technologies. Innovation can vary in the degree of "radical-ness" from completely new concepts to small incremental, step-wise improvements (Hindle, 2002). Drucker (2002) suggests that even though not all start-up entrepreneurs would classify or perceive themselves as innovators, many start-ups become successful because they see innovation as the vehicle to move forward. In this context, by making breakthroughs or developing new technologies, innovativeness amongst entrepreneurs are viewed as essential sources of economic development.

Lichtenstein, Dooley, Lumpkin '06 identify innovativeness as a core contributor to the dynamic nature of entrepreneurship, and in terms of triggers they point to a range of elements within the environment in which the new venture is being created. In this way entrepreneurs continually innovate and thus capitalise on changing conditions in the market, technology advances, etc. Key drivers to displaying innovativeness are also to be found when entrepreneurs have a confidence in the knowledge of the market (Chang '03) or of some detail expertise (Quinn '85) which gives them the ability to innovate away from the norm, the latter being especially true of technology-based ventures.
Entrepreneurship authors thus identify key triggers that modify the EO dimension of Innovativeness as:

- Detail expertise
- Factors in the new venture environment
- Market knowledge

**Risk-taking**

The concept of risk-taking has become an integral part of strategic management styles and is frequently associated with entrepreneurial behaviour, specifically with regards to tolerance to ambiguity. Underpinned by a risk-taking philosophy that cultivates a climate tolerant of failure, entrepreneurs possess a willingness to ‘give things a try’ (Frederick, Kuratko, and Hodgetts, 2007). In the context of entrepreneurial orientation and management strategy, Baird and Thomas (1985: 231-232) identified three types of risk: i) venturing into the unknown, ii) committing a relatively large portion of assets and iii) borrowing heavily. The first conveys a sense of uncertainty about the future, a sense of ‘getting lost’ and may apply to personal (or family) risk or organisational risk. The second is related to financial analysis, i.e. risking the return on investment (ROI) of personal sums invested by the entrepreneur or external investors in the enterprise or risking a financial loss. The third is related to negative outcomes when loans are taken from a lender. According to Lumpkin and Dess (1996) these notions of the heavy commitment of resources and high leverage from borrowing are both typically elements of entrepreneurship and risk-taking.

This dimension of risk-taking is arguably the EO aspect of most debate. Sometimes it appears that entrepreneurs are almost reckless in the risks they are willing to take – other times they shrink back to the safety of tried-and-tested. The aspects on which this behaviour hinges range quite widely, but all have to do with the entrepreneurs' ability to reduce the extent of unknowns they face. In some cases this will be derived from a careful analysis based on scarce information (Sørensen & Chang '06) and in others this will rely on specific expertise which can be sourced either internally or through the entrepreneurs' rich networks of domain specialists (Phan '06). Janney & Dess '06 introduce the aspect that risk-mitigation is often difficult to observe (clearly entrepreneurs would like to keep it that way). This can be especially true when trade-offs among a range of options is considered or when market conditions are especially risky (Brockhaus '80). Similarly when competition is so strong, or technology advancing so fast that inaction itself presents a risk (Khilstrom & Laffont '79), taking on board some level of risk may be an imperative the entrepreneur simply cannot avoid.

Key triggers to the EO dimension of Risk-taking identified from the literature are therefore:

- Information, Analysis
- Expertise, Networks
- Trade-offs
- Market conditions
- Inaction presents a risk
Pro-activeness

Pro-activeness refers to a high degree of initiative which Schumpeter (1934) emphasised as the key to innovation and entrepreneurship development. Also Wiklund (1999) emphasised that pro-activeness gives firms an ‘edge’ and ability to introduce new products and services to the market ahead of competitors, thereby gaining a competitive advantage. In addition, studies show that proactive leaders shape their environment rather than react to it (Miller and Friesen, 1978) and that entrepreneurs show higher degrees of initiative than other groups in the population (Frese et al, 1997).

Since pro-activeness involves moving forward boldly, this EO dimension will depend in large measure on how clear "the road ahead" in fact is. In fact Brown, Davidsson & Wiklund (2001) note the ambiguity in this dimension, perhaps for the very reason that this behaviour is so dependent on environmental triggers before it emerges. Naman & Slevin (1993) however make the point that a clarity of vision does not imply a lack of turbulence in the new venture environment, rather it is the entrepreneur's skill that comes to the fore in being able to plot a clear course for the nascent firm despite this upheaval. Neubaum (2004) identifies the interesting aspect that ethical considerations also modify the entrepreneur's pro-activeness, thus defusing the sometimes stereotypical or populist view that entrepreneurs proactively pursue profits at all costs.

The key triggers for this Pro-activeness dimension of EO behaviour are thus:

- Clarity of Vision
- Market conditions
- Ethical considerations

Competitive aggressiveness

Although small firms are often flexible and innovative they commonly have limited competitiveness in other strategic dimensions such as financial resources (Lofsten and Lindelof, 2003; Porter, 1985; Wiklund, 1999) and thus need to optimise whatever advantage they may have. These advantages may in fact be related to their smaller size, being able to mobilise resources much more quickly than their established counterparts. Also, being an established market player sometimes blinds one to new insights and opportunities, and again this adds to the nascent venture's potential for a competitive edge.

For this EO behaviour to come to the fore, it needs to be triggered by some clear advantage over the competitors in the market (Delahaye 2005), and superior technology can advantage a new venture either indirectly (in its processes) or directly by incorporating that technology in its products (Arthurs & Busenitz 2006). As noted before, the triggers to entrepreneurial behaviour are non-linear, and can therefore sometimes lead to a reversal of the typical EO behaviour. To quote Lin & Chen (2006):

"Inter-organizational co-operation rather than competition to exploit the value of knowledge through new product innovation lies at the heart of the knowledge-based
economy." It is thus clear that the best opportunities are sometimes to be had by going in the opposite direction to the norms we expect from an Entrepreneurial Orientation. This is of course entirely in keeping with the dynamic nature of entrepreneurs and the environments in which they create wealth.

The main triggers for the EO dimension of Competitive aggressiveness identified from the literature are thus:

- Clear advantage
- Superior technology
- Collaboration opportunities

**EO dimensions: Non-Linear triggers identified in the Interview database**

Now that a range of triggers to EO behaviour have been identified from the literature, the database of interviews with entrepreneurs will be searched to see whether these trends can be confirmed by entrepreneurs in practice.

To do this, the meanings described and illustrated by Lumpkin and Dess (1996) are used as the basis for generating a number of synonyms to use as search-terms within the database. For the 5 EO dimensions these synonyms are:

- Autonomy: Independence, pioneer
- Innovativeness: new, initiative, disruptive
- Risk: (firm-level risk), unknown
- Proactive: initiative, vision, future, imagination, first mover,
- Competitive aggressiveness: competitors, challenge, response

The quotes identified from the text are organised in Table 1, and the triggers identified previously from the literature are included for easy reference.
Table 1: Five EO dimensions and their non-linear Triggers*

<table>
<thead>
<tr>
<th>EO dimension</th>
<th>Triggers (Lit)</th>
<th>Entrepreneurs' Quotes from interview database</th>
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<tbody>
<tr>
<td>Autonomy</td>
<td>The VC arm's very independent, and they can go and they can decide whether they want to send it the next step on, to commercialise it.</td>
<td>... turnover is great but rather than focussing on that... We keep control over what we have, not grow, and change culture, and so on</td>
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<td>This allowed mobility of ideas and products, and lower costs.... Being independent, the design teams could now support themselves....</td>
<td>Counter-example: They had this mistake of trying to control their own selling, through their own people - I think they thought they'd get a larger cut - and that came short...</td>
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<td>Innovativeness</td>
<td>...we had a product which was very innovative. They were still very much around very basic nuts and bolts type systems. Whereas ours were all remote control, integrated, turn on the lights, open garage doors - very integrated security ... so I think that was a big thing.</td>
<td>Innovativeness necessary, not sufficient: ...it would have been very difficult to persuade overseas companies – larger companies – to rely on a product of a one man show, despite how brilliant or how innovative the product was.</td>
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<td>Risk taking</td>
<td>&quot;If you looked at it from the point of view of gambling, then I'd be about 3 on a scale of 10, because when it comes to gambling, I'm not a gambler. I know this technology inside out, what I risk is whether people want it now...&quot;</td>
<td>&quot;I developed the product to a fairly advanced stage, so they [investors] actually got on where the risk was very low, extremely low... the risk already minimized.</td>
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<td>When not to take a risk: So there are certain barriers to entry that we definitely look at – we don't want to make higher-frequency stuff, we don't want to risk... if Ericsson's in there we probably don't want to be in there.</td>
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<td>Pro-activeness</td>
<td>...to have the drive to do something... things like the passion. That like tills your petrol tank all the time, that's energy, positive energy pumping into you – the passion.</td>
<td>...we knew it was something that we had to consider in the future ...today we can do that, we are very proud of the product.</td>
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<td></td>
<td>Sometimes patience is called for, rather than quick action: ...I don't know whether it relates at all, but those 3 points [mission/vision statement] over there, it took a year to get to the simplicity of those 3 points.</td>
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<tr>
<td>Competitive- aggressiveness</td>
<td>... the guys that really took that home automation to their heart took the competitors out wherever they were -big time - selling more than just an alarm system - selling the remote control, wireless, the whole scenario.</td>
<td>...so even if the product was beautiful and whatever else, we were really fortunate that the competition was so poor...</td>
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<td></td>
<td>Very early days, in fact were doing a product that our competitors wouldn't have even thought about touching or doing.</td>
<td>Mark Shuttleworth ...probably had a competitive advantage being in South Africa – lower cost, not restricted by US restrictions, same time-zone as Europe, all that kind of thing...</td>
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<td>Counter-example: (co-operation would've been better) Now sure, they were kind of competitors... but they were only about 20 minutes away from each other. And you'd think that if they're both struggling they'd both pool their resources, [and] because they both were very naïve about their market, not really knowing what their market was.</td>
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*: to the extent that these triggers are present, they either reinforce or suppress the EO dimension, or occasionally even reverse the dimension (e.g. risk-taking turns to risk-aversion, co-operation replaces competitiveness, etc.).
Results and Implications

From the results in Table 1 it is clear that there is wide-ranging support for the notion that, when considered as individual behavioural aspects, the EO dimensions are anything but static. Instead it is plain that they are in fact dynamic, and vary according to a range of triggers that come from the new venture environment itself.

In identifying a focussed range of triggers for each EO dimension it also becomes possible to tease out each of these as an entrepreneurial behavioural characteristic. Importantly, by coupling the behaviour with a non-linear trigger, this brings it in line with the notion that behaviour is not a stand-alone entity or static in nature, but dependent on the environment within which the behaviour occurs. Shaver & Scott (1991) expressed this as B=f(P,E) illustrating that behaviour is a function both of the person and the environment.

This was illustrated before in our previous work (Campbell & Burnett 2008) by combining entrepreneurial traits with their non-linear triggers. We have now gone a step further and identified similar triggers for the well-established dimensions of Entrepreneurial Orientation. The presence and the importance of these non-linear behavioural triggers is thus better founded, and lays the basis for more targeted field studies in future.

Other than seeking to develop further levels of research within the context of extant theory by connecting EO dimensions to trigger events and reactions, at a more conceptual level the findings indicate that using non-linear definitions for entrepreneurial orientation show a more objective description and explanation of entrepreneurial success, since this accounts for not only the EO dimensions, but crucially to what extent they fluctuate depending on triggers from the environment, thus capturing the dynamism and change that characterises the exploitation of new venture opportunities (Baron 2002).

In addition, the results have important implications for entrepreneurship education and research, since a non-linear extension of entrepreneurial orientation, inherently captures the interaction between the entrepreneur and the entrepreneurial process, leading in turn to an updated perspective that better describes our observed reality of entrepreneurship (Mitton 1989).
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