

6-10-2010

EXPERIENCE, HEURISTICS AND LEARNING: THE ANGEL INVESTMENT PROCESS

Donald J. Smith
Discovery Investment Fund Limited

Richard T. Harrison
Queens University Belfast

Colin M. Mason
University of Strathclyde, colin.mason@glasgow.ac.uk

Recommended Citation

Smith, Donald J.; Harrison, Richard T.; and Mason, Colin M. (2010) "EXPERIENCE, HEURISTICS AND LEARNING: THE ANGEL INVESTMENT PROCESS," *Frontiers of Entrepreneurship Research*: Vol. 30: Iss. 2, Article 3.
Available at: <http://digitalknowledge.babson.edu/fer/vol30/iss2/3>

This Paper is brought to you for free and open access by the Entrepreneurship at Babson at Digital Knowledge at Babson. It has been accepted for inclusion in Frontiers of Entrepreneurship Research by an authorized administrator of Digital Knowledge at Babson. For more information, please contact digitalknowledge@babson.edu.

EXPERIENCE, HEURISTICS AND LEARNING: THE ANGEL INVESTMENT PROCESS

*Donald J. Smith, Discovery Investment Fund Limited, Scotland, UK
Richard T. Harrison, Queens University Belfast, Northern Ireland, UK
Colin M. Mason, University of Strathclyde, Scotland, UK*

ABSTRACT

This paper extends the literature on the investment decision-making of business angels. Using insights from entrepreneurial learning theory we explore whether angels learn from experience, how they learn and what they learn. These issues are addressed using Verbal Protocol Analysis, a methodology for examining decision-making in real time, on three groups of business angels with differing levels of investment experience, and follow-up interviews with these angels. This reveals some differences in the speed of decision making and the emphasis given to various investment criteria. The relatively limited extent of the contrasts can be attributed to two factors. First, angel learning has been in terms of their approach to investing rather than fundamentals. Second, this learning has had more effect on how they conduct their due diligence on opportunities that pass their initial screening than on the initial screening stage itself. Learning from other investors is important.

INTRODUCTION

There is now a small but significant literature on how business angels make their investment decisions (see Mason, 2006; Riding et al, 2007 for reviews). These studies are of three types. The first type is process studies. Riding et al. (1993) and Haines et al. (2003) have identified a number of discrete stages in their investment decision, similar to that used by venture capital funds (Fried and Hisrich, 1994), comprising: deal origination, deal evaluation – which can be divided into initial screening and detailed investigation, negotiation and contracting, post-investment involvement and exiting. The second type are criteria studies which examine the criteria which angels use to evaluate investment opportunities. This category can be further divided into three sub-categories. One sub-category of studies provides a generalized retrospective view of angels' investment criteria with responses normally gathered through postal surveys commonly use (e.g. Mason and Harrison, 1994; 2002). The limitations of this approach are that they do not distinguish between the type of investment opportunity or between factors used at the screening stage and the detailed evaluation stage. Post-hoc rationalisation is also problematic. Another sub-category is case studies of how individual investors or specific angel groups make their investment decisions. For example, Mason and Harrison (1996) examined deals rejected by a UK business angel investment group. The third sub-category is real time studies which have emerged in response to the weaknesses in the generalized retrospective approach. Mason and Rogers (1996; 1997) used verbal protocol analysis – essentially asking respondents to 'think out loud' as they perform a task, in this case undertaking the initial screening of an investment opportunity. Others have used conjoint analysis – an analytical tool primarily used in marketing, to study factors that influence purchasing decisions based which is based on asking respondents to make a series of trade-offs (e.g. Landström, 1998; Ludvigsen, 2009). A variant on these verbal protocol studies are studies which have examined the real time reactions of investors to oral presentations by entrepreneurs (Mason and Harrison, 2003; Clark, 2008). Finally, some studies have sought, using various methodologies, to compare the investment decision-making processes and investment criteria of business angels and other types of investor (e.g. Mason and Stark, 2004).

A major gap in this literature on angel investing is the effect of experience on investment decision-making. Indeed, previous studies implicitly assume angel investors know what they are doing and that their approach to investing does not change with experience. As a first contribution to addressing this omission we apply insights from the entrepreneurial learning literature to explore the process of learning in angel investing. The paper has three objectives. First, we address the following questions. Do angel investors learn from experience? If so, how do they learn? And how does this learning influence their approach to investing? Second, we discuss the extent to which angels, whether experienced or novice, use heuristics as the basis for vicarious learning from the experience of others. Third, we ask how investors without prior investment experience learn. Many angels make only a small number of investments and this may not be sufficient to derive the necessary experience to improve their investment ability. Reflecting on March et al.'s (2003) analysis of learning from samples of less than one we explore how inexperienced angels (with one or fewer investments) learn from experience and convert infrequent events into interpretations that form the basis interpreting subsequent knowledge-shaping experiences. Evidence on these issues has the potential to make a valuable contribution to angel education.

Entrepreneurial action is predicated on learning, and in recent years there have been a number of models developed to account for how entrepreneurs learn (Harrison and Leitch 2005, 2008). These variously emphasise learning through the accumulation of experiential knowledge (Politis 2005; Cope 2005), the role of learning asymmetries that offer opportunity exploitation advantages (Corbett 2005, 2007; Rae and Carswell 2001) and the accumulation, assimilation and use of entrepreneurial knowledge (Wang 2008; Levesque et al 2009). Much of this research is based, directly or indirectly, on adaptations of Kolb's (1984) experiential learning theory, which sees learning as a cyclical process of learning from experience through reflection and conceptualisation to action and thence on to further experience (Kaye 2002).

Two developments in the learning and decision-making literatures provide the basis for our discussion in this paper. First, we acknowledge that while learning is an individual phenomenon acquired experientially, there is a significant role played by vicarious learning from the experience of others. Second, and related to this, recent attention has been directed to the importance of heuristics and their influence on entrepreneurial learning (Holcomb et al 2009) when there is uncertainty about the nature of information and/or about the conditions that enable or hinder certain outcomes. If investors learn from experience – that is, they tend to choose actions in the future that parallel successful actions in the past (Politis 2005) – then we need to understand the nature of the imprinting impact of these past behaviours. The role of past experience, how it is acquired and the impact of this on the learning process is, therefore, a major focus of research attention.

HOW BUSINESS ANGELS EVALUATE INVESTMENT OPPORTUNITIES

Previous business angel studies have provided some level of insight into how they evaluate investment opportunities. When they first become aware of an investment opportunity their first question is to consider how well it 'fits' with their own personal investment criteria. This may include location, amount sought, knowledge of an interest in the sector and ability to add value. Angels then undertake a quick review of those opportunities which fall within their personal investment criteria. Their aim at this point in the decision-making process is simply to assess whether the proposal has sufficient merit to justify the investment of time to undertake a detailed assessment. Mason and Rogers (1996; 1997) observe that angels approach this stage with a negative mindset, expecting that the opportunity will be poor (because of the opportunities that

they have previously seen) and looking for reasons to reject it. This approach has been termed ‘three strikes and you’re out’ (Mason and Rogers, 1996; 1997) and is supported by evidence that the rejection of opportunities is generally based on several factors rather than a single deal killer (Mason and Harrison, 1996). The market and the entrepreneur are the key considerations at this stage. Less significant are the product/service and financial factors. Indeed, angels exhibit considerable scepticism about the value of financial information in the business plan of start-ups. Nevertheless, investors want to see that there is the potential for significant financial return, that the principals are financially committed and what the money that is invested will be used for. Some angels will be flexible, willing to treat these criteria as compensatory (e.g. a strong management team would compensate for a distant location), whereas others will regard them as non-compensatory (Feeney et al, 1999).

The purpose of the initial screen is to filter out ‘no hoppers’ in order to focus their time on those opportunities that appear to have potential. These are subject to more detailed appraisal. The investor will read the business plan in detail, go over the financial information, visit the premises, do some personal research to gather additional information on market potential, competition and so on, and assess the principals. Indeed, getting to know the principals personally (by a series of formal and informal meetings) is the most vital part of the process (May and Simmons, 2001). This stage has received little attention from researchers. According to May and Simmons (2001: 101) “it might consist of a few phone calls and a visit or two, or weeks of meetings, documents flying back and forth and questions, questions, questions.” However, it would appear that most angels emphasise their intuition and gut feeling rather than performing formal analysis (Haines et al, 2003). At this detailed evaluation stage the importance of people factors becomes critical (Riding et al, 1995), with investors emphasising management abilities, an understanding of what is required to be successful, a strong work ethic, integrity, honesty, openness and personal chemistry (Haines et al, 2003; Mason and Stark, 2004). Indeed, angels give greater emphasis to these issues than venture capital fund managers (Mason and Stark, 2004). This emphasis on the people reflects the long and personal nature of the angel-entrepreneur relationship. Rewards, realism of the projections and potential also assume greater importance while ‘investor fit’ becomes less of a consideration (Riding et al, 1995).

Angels typically reject most of the opportunities that they see. In their Canadian study Riding et al (1993) found that 72.6% of opportunities were rejected at the initial impressions stage, a further 15.9% were rejected following more detailed evaluation, and as this stage proceeds another 6.3% were eliminated, a cumulative rejection rate of 94.8%. Thus, business angels proceed to the negotiation stage with only 5% of the investment opportunities that they receive.

In the remainder of this paper we seek to extend this literature on investment decision-making by business angels by exploring whether business angles learn from experience, how they learn and how this learning is reflected in their approach to investing. We do so, first, by comparing how investors with differing levels of investment experience approach the appraisal of investment opportunities, and second, by asking investors to reflect on their learning.

METHODOLOGY

This paper uses verbal protocol analysis, a technique which involves respondents ‘thinking out loud’ as they perform a particular task, in this case reviewing a potential funding opportunity. The technique has been used successfully to examine the decision-making process of both venture capitalists and business angels (Hall and Hofer, 1993; Zacharakis and Meyer, 1995; Mason and Rogers, 1996; 1997; Mason and Stark, 2004) and has also been applied in a variety of other

contexts (see Ericsson and Simon, 1993). The verbalisations of respondents are recorded, transcribed and then content analysed by means of a coding scheme devised for the specific research questions.

This methodology provides a more reliable and much richer understanding of the decision-making process of investor and the criteria used to evaluate investment opportunities than is possible from approaches that use questionnaires, surveys and interviews (Shepherd and Zacharakis, 1999). Self-reported, retrospective data are subject to conscious or unconscious errors associated with *post hoc* rationalisation and recall bias. There are also cognitive perceptual limitations, with evidence that venture capitalists have limited insights into their decision-processes (Zacharakis and Meyer, 1998; Shepherd, 1999). The consequence is that they often overstate the number of criteria actually used, understate the most important criteria and overstate the least important criteria (Shepherd and Zacharakis, 1999). Hence, as Zacharakis and Meyer (1998: 72) note, “past studies provide a laundry list of factors that may be biased in that they list a multitude of factors that have a relatively small influence on the decision.” As a real-time experiment which does not require investors to introspect about their thought processes, verbal protocol analysis sidesteps these recall, *post hoc* rationalisation and cognitive biases (Shepherd and Zacharakis, 1999).

Moreover, as noted above, the evaluation of investment opportunities is a multi-stage process. Although the same considerations may be present at each stage their relative importance changes during the course of the decision-making process (Riding et al, 1993). A further limitation of questionnaire and interview surveys of decision-making is that they do not differentiate between these different stages in the decision-making process and as a consequence may produce misleading findings.

The focus is on the initial screening stage – the stage when a funder has become aware of an investment opportunity and considers it with a view to obtaining sufficient initial impressions to decide whether it is worthy of detailed consideration or should be rejected out of hand. This stage is done fairly quickly, typically in under 10 minutes (Sweeting, 1991; Hall and Hofer, 1993; Mason and Rogers, 1996; 1997), with angels rejecting most of the opportunities that they review. One study of Canadian business angels reported that they accepted just 6% of the investment opportunities for detailed consideration (Haines et al., 2003).

Nevertheless, verbal protocol analysis has some limitations. First, a frequency count of ‘thought units’ is an imperfect indicator of the importance of a factor in the final decision (Zacharakis and Meyer, 1995). No weightings are placed on the responses to measure emphasis and the topics mentioned most frequently are not necessarily those that have the ultimate influence on the decision. Nor does it allow for different convincer patterns. In other words, people may repeat something several times if they are unsure but say it only once if they are absolutely sure. Second, subjectivity is involved in coding, analysing and interpreting the transcripts (Riquelme and Rickards, 1992). Third, some respondents may be uncomfortable or self-conscious about thinking and speaking out loud which may distort their thinking (e.g. resulting in excessive repetition of what they are reading). Fourth, it is impossible to entirely remove the effect of the artificiality of the situation. Fifth, from a practical point of view it ignores the role of the source of funding opportunity which is an important initial influence on the investor’s attitude to the opportunity (Hall and Hofer, 1993). However, Ericsson and Simon (1980) argue that verbal protocol analysis is a valuable method of analysing decision-making as long as the following criteria are met:

- The information reported must be the focus of attention
- The task is not highly routinised by habit
- There must be only a short time between performance and verbalisation
- Verbalisation does not require excessive encoding
- Reports are oral
- Subjects are free from distraction
- Instructions are clear
- Completeness in reporting is encouraged

These conditions are all met in this study.

The sample comprised three groups with contrasting investment experience, each comprising four angels, all based in Scotland, who were all identified with the help of LINC Scotland, the national association for business angels. The first group comprised experienced (or super) business angels who had each made five or more investments. The second group comprised novice angels who had each made just one investment. The final group comprised nascent angels who were seriously engaged in looking to make their first investment. The terminologies were taken from Paul et al (2003). Each angel was shown a current real investment opportunity which was sourced from a business angel network. It was given a fictitious name to protect its anonymity and it was given a local address in view of the importance that the majority of angels give to investing in local businesses (Mason, 2007). This was a start-up health care/medical devices company seeking £500,000 (\$750,000) in a seed finance round. The angels were asked to read the opportunity in the same way that they would normally read an investment proposal but verbalise their thoughts as they did so. The instruction that they were given was to say out loud the thoughts that came into their mind. Respondents were not required to provide any explanations or verbal descriptions (Ericsson and Simon, 1993). The lead author was present as each respondent performed this task and reminded respondents to think out loud if they lapsed into silence for more than 15 seconds. The locations were either the angel's home office, work office or a hotel.

Their thoughts were recorded and subsequently a complete transcript was made for each respondent's consideration of each investment opportunity. A short de-briefing session was carried out with each investor after they had completed the evaluation which asked them to reflect on their own learning as investors. In the case of nascent angels the discussion revolved around what they recognized they did not know and needed to learn. Following the approach of Mason and Rogers (1996; 1997) these verbatim transcripts were then broken down into short phrases, or 'thought segments' – that is, phrases and sentences that are independent thought units – to permit analysis. These thought units were then coded first into one of nine categories relating to different types of investment criteria and secondly into seven categories of cognitive process (e.g. description, inference, question). The frequency counts for each category of investor were then aggregated and compared. Our expectation was that we would be able to observe differences between the three groups angels in terms of how they went about the investment screening, that

the differences could be ascribed to learning from experience and we could interpret the nature of this learning using the learning theories discussed earlier.

RESULTS

There was no difference between the investor groups in terms of the investment decision. Three of the four angels in each category rejected the opportunity outright, with only one in each group sufficiently interested to want more information and meet the entrepreneur (Table 1).

The time taken to make the decision ranged from just under four minutes to just over 20 minutes (Table 1), although as Mason and Rogers (1997) previously noted, there is a strong sense that because of the artificiality of the situation angels went on reading the proposal for longer than they would in normal circumstances. Super angels made the quickest decision and exhibited the least variability. They were nearly two minutes quicker than nascent angels and nearly two-and-a-half minutes faster than novice angels who were the slowest group to make a decision. It seems reasonable to interpret the quicker decision time of the super angels in terms of their greater experience which enables them to 'cut to the chase', suggesting evidence of experiential learning and faster cognitive processes (Baron and Ensley, 2006).

Three observations can be made concerning the investment criteria used by these different types of angels (Table 2). First, there is broad agreement amongst the different types of business angels in the relative importance of the funding criteria. The rankings are similar, with a maximum difference of three places. There is an overlap between two of the top three investment criteria between nascents and novices (product and finance) and between novices and experienced angels (product and investment fit). However, there is only one investment criterion common to nascents and experienced angels (product). Finance is the most important criterion for both nascent and novice angels but only 4th for experienced investors. This is consistent with previous research which notes that experienced angels do not place much emphasis on finances and are fairly cynical about the value of projections (Mason and Rogers, 1997). Investor fit is the most important criterion amongst experienced angels, second amongst novice angels but only 4th amongst nascent angels. Experienced angels clearly recognise the value of maintaining clear investment criteria and not deviating from them, by investing in businesses in markets and sectors that they know and understand. The other significant deviations relate to marketing with nascents placing more emphasis than either novices or experienced angels ranked 3rd, 6th and 5th respectively), and the business plan which experienced angels emphasise more than either novices or nascents (3rd, 4th and 6th respectively).

Second, there is a higher degree of agreement amongst those factors that are of lesser importance – operations is 9th ranked for all three investor types, other is ranked 7th or 8th and the entrepreneur is ranked 7th by both nascent and experienced angels but 5th by novices.

Third, there are contrasts in the way in which the different investor types allocate their time. Nascent investors spend almost one-third of their time on their top ranked investment criterion compared with 22.3% of their time for nascents and 20.1% of their time for experienced angels. This difference widens further when their 2nd top investment factor is added (53.7%, 42.9% and 39.6%) and although the gap narrows after that it remains clearly identifiable until the fifth investment criteria. This suggests that experienced angels do not become obsessed with just one or two investment factors.

There are few differences in the cognitive processes used by business angels to analyse the investment proposal. Inferences, questions and descriptions are the top three statement types for all three groups of angels with question and description ranked 2nd and 3rd for nascent angels but reserved for novice and experienced angels. In terms of their allocation of time nascent angels spend most time asking questions (26.2% cf. 15.1% and 20.1% for novice and experienced angels respectively) and least time on description (16.7% cf. 19.9% and 22.7% respectively).

These contrasts in the verbal frequency counts amongst the three groups of angels are not as great as might be expected, with the differences limited to the time to make the decision and the emphasis given to certain investment criteria. This may suggest that the extent of learning has been limited. However, this not the case. In follow-up questions after completing the verbal protocols the super angels all acknowledge that they have learnt continuously. “You are always learning ... It’s been a process of personal evolution” (super 2). “I learn from every investment I have made” (super 1). Learning begins with the very first investment. One super angel commented as follows: “After the first investment I thought, hang on a minute, I really need to be more diligent in the questions and actually test what people are saying to me in a more robust way” (Super 4). The novice angels similarly also noted that they gained significant learning from their initial investment.

Instead, we attribute the relatively limited contrasts in the verbal protocol frequency to two other factors. First, the impact of much of the learning appears to be reflected in the next stage of the investment process, where angels undertake a detailed investigation of those investment proposals that pass their initial screen, rather than at the initial screening stage itself. Second, it reflects the nature of the learning which appears to be restricted, with the majority of super and novice angels noting that the underlying fundamentals (i.e. the key investment criteria) and their investment processes have remained the same. This apparent contradiction is explained in the following terms by one novice angel: “I don’t think it’s so much learning but reinforcement, like people skills being really important” (novice 1). Another commented that investing is “definitely a practical learning experience ... [but] it doesn’t change your underlying approach” (novice 2). The same point is made by this angel: “Has my approach to investing changed? Not really. I think it all comes down to the four things I look for – people, profit, cash generation and exit. So fundamentally no it’s not really changed ... how I actually produce the question sets has changed but fundamentally these four elements are the most important elements for me” (super 4). And another commented: “I think I still do what I did before ... what’s at the core of this ... [business] ... [But] I don’t necessarily accept all the stuff that’s all around it.” In other words, learning appears to have primarily influenced the approach of business angels and shaped the emphasis that they give to particular investment criteria (super 3).

The types of learning cited by the angels supports this interpretation. By far the most commonly cited learning (amongst six of the eight novice and super angels) concerned changes to the way in which they assess the people involved in the business. The following comments were made by super angels:

“I was willing to believe peoples’ honesty and integrity without necessarily testing it. Something I do differently now is quiz people a hell of a lot more... I certainly do things differently now than when I made my first investment” (super 4).

“Assuming that because people are a specialist in their own field they actually know anything was part of the naivety and learning curve that I went through. I actually thought that people , if they were specialists in that area, knew what they were actually talking about. And that isn’t necessarily the case” (super 4).

“On the assume nothing principle, I am much more careful about understanding what the words in a plan mean and what the writers of the plan mean. When I meet entrepreneurs I am much more interested in their definitions and checking out what they mean” (super 3).

Novice angels made similar observations.

“I am learning that we are backing people ... so I would be much more critical. I would go into much greater detail on the capability of the people and I would try to get more involved” (novice 3)

“I would hope to concentrate more on people than spread sheets” (novice 2)

“What I am now looking at is the people – who are the people, what are their skills what is their background is what I am looking at to give me a sense of comfort. Do the people really know what they are talking about?” (novice 1)

The other area of learning that several angels identified was associated with the need to focus and discriminate and thereby make quicker decisions.

“When I first started looking a propositions Everything that came my way I’d spend time looking at it. I might spend time subsequently meeting with the individuals. There is a hell of a lot of stuff I did in those days that now wouldn’t get past the first couple of pages ... So there has got to be something that jumps out in the proposition” (super 2).

“I feel far more confident about making quick decisions about investments ... [With greater experience] you can very quickly decide to go to the next stage and want to meet these people or don’t want to meet them ... So it won’t take me three or four months to make up my mind if I am going to invest or not.”(novice 1)

Finally, two angels said that they now rely more on their instinct and gut feeling. “When I first started I was always looking for the good points in a proposition. Now I follow my hunch, my gut feeling and disregard more” (super 2). “I make my investments predominantly on a sixth sense” (super 4).

Several of the angels identified other investors as a key source of their learning. One novice angel noted that “you get involved in more syndicates, looking at attending meetings and just picking up from different people when you go to these meetings in terms of what they are looking at” (Novice 1). He went on to say that “you get to the stage where you have people that you respect and take opinion from who you listen to their views who are far more experienced than me”. A super angel who was quoted earlier saying that “you are always learning” went on to highlight the importance of “one particular individual that I met about a year and a half ago. He and I have various involvements together so we use each other as a sounding board ... Initially I was looking at projects in relative isolation and making decisions myself. Now I bring in someone else for a second opinion. So if I look at a proposition and think it is good I bring in another person to rip the proposition apart for me to see if I have missed anything. So that is how I operate now but it’s not how I operated 18 months or two years ago.” (super 2).

Learning was also precipitated by a ‘learning event’ (Cope, 2003), with a recurring theme being learning from failed investments. One angel commented as follows; “We had one investment go down, all because the founder was not right. All through the process we were making excuses for him. I am now very aware of not making excuses for people now. It was a harsh lesson that we needed to learn and it has made us better investors as a result” (super 3).

Another investor now invests smaller amounts across a larger number of businesses as a result of a previous failed investment.

Nascent angels, on the other hand, fell into two groups. Two nascents were confident – arguably over-confident - that the knowledge that they had derived from their professional career meant that there was little if anything that they needed to learn. One commented that “I think I know enough to be able to make informed judgements on businesses as I have spent a whole career doing it” (Nascent 1). The other commented in similar vein: “I led a management buyout in 2001 and I’m pretty conditioned to reviewing investment proposals because for years I’ve done due diligence on investments and I have actively been involved in my professional life in various strategic initiatives such as acquisitions, disposals and so on. So the thought process is something I am used to conversing with” (nascent 3). In contrast, the two other nascent angels recognised their need to learn, and indicated that they were looking to learn from existing investors. One commented that “I could produce a due diligence document and go through all the questions that would satisfy but I’m quite sure an experienced angel would look for other things” (nascent 4). The other – a former banker – recognised that his banking background did not give him the full toolkit to become an angel investor. He willingly acknowledged that “there is a lot I don’t know. Unconscious incompetence probably sums it up” (nascent 2), adding that he was coming to angel investing “very much with a banker’s head on.” This raises the possibility that nascent angels may have to unlearn some of their previous experience before they can start to learn how to be an effective investor.

CONCLUSION

This paper has sought to extend the literature on how business angels make their investment decision by exploring the effect that experience has on their approach. Given the weaknesses of retrospective analyses of decision-making our approach was based on a real time methodology, verbal protocol analysis, which involved asking three groups of angels, differentiated by their investment experience, to review an investment opportunity. The three groups were compared in terms of speed of decision, investment criteria and cognitive processes. Super angels – the most experienced - were quickest to make their decision and their review gave greater emphasis to ‘investor fit’ than either the novice or the nascent angels. These angels, in contrast, gave more emphasis than super angels to financial issues. The only difference of note in the cognitive processes was that nascent angels spent more time than either novice or super angels in asking (rhetorical) questions as they read the proposal.

Both the super and novice angels recognised that they have learnt continuously from their investment experience. However, the learning has been in terms of their approach to investing rather than their fundamental investment philosophy. Moreover, this learning has had more effect on how they conduct their due diligence on opportunities that pass their initial screening rather than on the initial screening stage itself, with the key learning based around the way in which they assess the people involved in the business. Some have also learnt how to discriminate more effectively and hence make quicker decisions. Investing with other, more experienced, angels has been a significant source of learning for the majority of novice and nascent angels. Failed investments have also been a significant source of learning. The attitudes of some of the nascent entrepreneurs, on the other hand, seemed complacent, believing that they could rely on knowledge that they had accumulated in their professional career.

Finally, the paper confirms the importance of the social dimension of learning for several of the business angels. These angels note that learning from other, more experienced angels, both

members of the same investment syndicate and investment partners, have been a significant source of learning.

CONTACT: Colin M Mason; colin.mason@strath.ac.uk; (T): +44 141 548 4259; (F): +44 141 552 7602; Hunter Centre for Entrepreneurship, University of Strathclyde, Glasgow G1 1XH, Scotland, United Kingdom.

REFERENCES

- Antonacopoulou, E and Chiva, R (2007) The social complexity of organizational learning: the dynamics of learning and organizing, *Management Learning*, 38, (3) 277-295.
- Bandura, R. (1977) *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall.
- Baron, R.A. and Ensley, N.D. (2006) Opportunity recognition as the detection of meaningful patterns: evidence from comparisons of novice and experienced entrepreneurs, *Management Science*, 52 (9), 1331-1344.
- Beard, C and Wilson, J.P. (2002) *The power of experiential learning: A handbook for trainers and educators*. London: Kogan Page.
- Boud, D and Middleton, H. (2003) *Learning from others at work: communities of practice and informal learning*, *Journal of Workplace Learning*, 15, (5), 194-202.
- Burgoyne, J.G. (1995) Learning from experience: from individual discovery to meta-dialogue via the evolution of transitional myths, *Personnel Review*, 24 (6) 61-72.
- Clark, C (2008) The impact of entrepreneurs' oral 'pitch' presentation skills on business angels' initial screening investment decisions, *Venture Capital: An International Journal of Entrepreneurial Finance*, 10, 257-279.
- Cope, J. (2003) Entrepreneurial learning and critical reflection: discontinuous events as triggers for higher-level learning. *Management Learning*, 34(4), 429-450.
- Cope, J. (2005) Toward a dynamic learning perspective of entrepreneurship *Entrepreneurship Theory and Practice*, 29 (4) 373-397.
- Corbett, A.C. (2005) Experiential learning within the process of opportunity identification and exploitation, *Entrepreneurship Theory and Practice*, 29 (4), 473-491.
- Corbett, A.C. (2008) Experiential learning within the process of opportunity identification and exploitation, in Harrison, R.T. and Leitch, C.M. (eds.) (2008) *Entrepreneurial Learning: Conceptual Frameworks and Applications*, Routledge: London.
- Elkjaer, B (1999) In search of social theory. In M Easterby-Smith, J Burgoyne and L. Araujo (eds.) *Organisational Learning and the Learning Organisation: In search of social theory*, London: Sage, pp 75-91.
- Ericsson, K.A. and Simon, H.A. (1993) *Protocol Analysis*, Cambridge, MA.: MIT Press, 2nd edition.
- Feeney, L., Haines, G. H. and Riding A. L. (1999) Private investors' investment criteria: insights from qualitative data. *Venture Capital: An International Journal of Entrepreneurial Finance*, 1: 121-145.
- Fried, V H and Hisrich, R D (1994) Toward a model of venture capital investment decision making, *Financial Management*, 23 (3) 28-37.
- Haines, G. H., jr., Madill, J. J. and Riding, A. L. (2003) Informal investment in Canada: financing small business growth. *Journal of Small Business and Entrepreneurship*, 16 (3/4): 13-40.
- Hall, J and Hofer, C W (1993) Venture capitalists' decision criteria in new venture evaluation, *Journal of Business Venturing*, 8, 25-42.
- Harrison, R.T. and Leitch, C.M. (2005) Entrepreneurial learning: researching the interface between learning and the entrepreneurial context, *Entrepreneurship Theory and Practice*, 29 (4), 351-371.

- Harrison, R.T. and Leitch, C.M. (eds) (2008) *Entrepreneurial Learning: Conceptual Frameworks and Applications*, Routledge: London.
- Holcomb, T R, Ireland, R.D., Holmes, R.M. Jr., and Hitt, M.A. (2009) Architecture of entrepreneurial learning: exploring the link among heuristics, knowledge, and action, *Entrepreneurship Theory and Practice* 33 (1) 167-192.
- Jarvis, P (1987) *Adult Learning in the Social Context*. London: Croom Helm.
- Kayes, D.A. (2002) Experiential learning and its critics: preserving the role of experiential learning in management learning and education, *Academy of Management Learning and Education*, 1, 137-149.
- Kolb, D. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall
- Landström, H. (1998) Informal investors as entrepreneurs. *Technovation*, 18: 321-33.
- Lévesque, M, Minniti, M and Shepherd, D (2009) Entrepreneurs' decisions on timing of entry: learning from participation and from the experiences of others, *Entrepreneurship Theory and Practice*, 33, (2), 547-570.
- Ludvigsen, J. (2009) *Decision Time in Belgium: An Experiment As To How Business Angels Evaluate Investment Opportunities*. CEB Working Paper N° 09/037, Centre Emile Bernheim, Solvay Brussels School of Economics and Management. Brussels: Belgium.
- Mason, C (2006) Informal sources of venture finance, in S C Parker (ed.) *The Life Cycle of Entrepreneurial Ventures*, New York: Springer: New York, pp.259-299.
- Mason, C.M. (2007) Venture capital: a geographical perspective. In H. Landström (ed.) *Handbook of Research on Venture Capital*, Edward Elgar: Cheltenham, pp 86-112.
- Mason, C. M. and Harrison, R. T. (1994) The informal venture capital market in the UK. In A. Hughes and D.J. Storey (eds.) *Financing Small Firms*. Routledge, London, pp 64-111
- Mason, C. M. and Harrison, R. T. (1996) Why business angels say no: a case study of opportunities rejected by an informal investor syndicate. *International Small Business Journal*, 14 (2): 35-51.
- Mason, C. M. and Harrison, R. T. (2002) Barriers to investment in the informal venture capital sector, *Entrepreneurship and Regional Development*, 14: 271-287.
- Mason, C M and Harrison, R T (2003) 'Auditioning for money': what do technology investors look for at the initial screening stage? *Journal of Private Equity*, 6 (2), 29-42.
- Mason, C. and Rogers, A. (1996) *Understanding the Business Angel's Investment Decision*. Venture Finance Working Paper No. 14, University of Southampton and University of Ulster, Southampton.
- Mason, C. and Rogers, A. (1997) The business angel's investment decision: an exploratory analysis. In D. Deakins, P. Jennings and C. Mason (eds.) *Entrepreneurship in the 1990s*, Paul Chapman Publishing, London, pp 29-46.
- Mason, C. and Stark, M. (2004) What do investors look for in a business plan? A comparison of the investment criteria of bankers, venture capitalists and venture capitalists. *International Small Business Journal*, 22, 227-248.
- Miettinen, R (2002) The concept of experiential learning and John Dewey's theory of reflective thought and action, *International Journal of Lifelong Education*, 19, 54-72.
- Paul, S., Whittam, G. and Johnston, J. B. (2003) The operation of the informal venture capital market in Scotland. *Venture Capital: An International Journal of Entrepreneurial Finance*, 5, 313-335.
- Politis, D.E. (2005) The process of entrepreneurial learning: a conceptual framework, *Entrepreneurship Theory and Practice*, 29 (4) 399-424)
- Rae, D. & Carswell, M. (2001) Towards a conceptual understanding of entrepreneurial learning. *Journal of Small Business and Enterprise Development*, 8, 150-158

- Riding, A. L., Dal Cin, P., Duxbury, L., Haines, G. and Safrata, R. (1993) *Informal Investors in Canada: The Identification of Salient Characteristics*. Carleton University, Ottawa.
- Riding, A. L., Duxbury, L. and Haines, G., jr. (1995) *Financing enterprise development: decision-making by Canadian angels*. School of Business, Carleton University, Ottawa.
- Riding, A.L., Madill, J.J. and Haines, G.H. jr. (2007) Investment decision making by business angels. In H. Landström (ed.) *Handbook of Research on Venture Capital*. Cheltenham: Edward Elgar, pp. 332-346.
- Riquelme, H and Rickards, T (1992) Hybrid conjoint analysis: an estimation probe in new venture decisions, *Journal of Business Venturing*, 7, 505-518.
- Shepherd, D A (1999) Venture capitalists' introspection: a comparison on "in use" and "espoused" decision policies, *Journal of Small Business Management*, 37 (2), 76-87.
- Shepherd, D.A., Zacharakis, A., 1999, Conjoint analysis: a new methodological approach for researching venture capitalists decision policies. *Venture Capital: An International Journal of Entrepreneurial Finance*, 1: 197-217.
- Sweeting, R C (1991) UK venture capital funds and the funding of new technology-based ventures: process and relationships, *Journal of Management Studies*, 28, 601-622.
- Tennant, M. (1997) *Psychology and Adult Learning*. London: Routledge.
- Tversky, A. & Kahneman, D. (1974) Judgment under uncertainty: Heuristics and biases. *Science*, 185(4157), 1124–1131
- Vince, R (1999) Behind and beyond Kolb's learning cycle, *Journal of Management Education*, 22, 304-319.
- Wang, C L (2008) Entrepreneurial Orientation, Learning Orientation, and Firm Performance, *Entrepreneurship Theory and Practice*, 32 (4), 635-65.
- Zacharakis, A L and Meyer, G D (1995) The venture capitalist decision: understanding process versus outcome, paper to the Babson College-Kauffman Foundation Entrepreneurship Research Conference.
- Zacharakis, A L and Meyer, G D (1998) A lack of insight: do venture capitalists really understand their own decision processes? *Journal of Business Venturing*, 13, 57-76.

Table 1. Decision and Length of Time to Make Decision

	Nascent Angels				Novice Angels				Super Angels			
	1	2	3	4	1	2	3	4	1	2	3	4
Decision	x	√	x	x	x	x	x	√	x	x	x	√
Time Taken	6m 55s	14m 25s	9m 40s	3m 55s	20m 53s	5m 20s	6m 30s	11m 15s	11m 50s	5m 30s	6m 25s	6m 30s
Average Time	8m 44s (Median 8m 18s)				10m 59s (Median 8m 53s)				7m 34s (Median 6m 28s)			

Key: x = reject : √ = consider in more detail

Table 2. Verbal Protocol Frequency Counts by Funding Criterion

Funding Criterion	% of thought units by type - averaged by type of Business Angel (figure in brackets is ranking)		
	Nascent Business Angel	Novice Business Angel	Super Business Angel
Entrepreneur	4.4 (7)	8.7 (5)	11 (7)
Strategy	6.5 (5)	5.3 (7)	2.6 (6)
Operations	0.3 (9)	0 (9)	1 (9)
Product	21.4 (2)	18 (3)	19.5 (2)
Market	15.3 (3)	7.2 (6)	12.7 (5)
Finance	32.3 (1)	22.3 (1)	14 (4)
Investor Fit	8.8 (4)	20.6 (2)	20.1 (1)
Business Plan	6.5 (6)	14.9 (4)	17.2 (3)
Other	4.4 (7)	2.9 (8)	1.9 (8)
Total	100	100	100

Notes: Percentages do not add up to 100 because of rounding

Table 3. Verbal Protocol Frequency Counts by Statement Type

Statement Type	% of thought units by type - averaged by type of Business Angel (figure in brackets is ranking)		
	Nascent Business Angel	Novice Business Angel	Super Business Angel
Description	16.7 (3)	19.9 (2)	22.7 (2)
Recall	4.8 (5)	1.8 (7)	3.6 (6)
Preconception	4.8 (5)	6.3 (6)	5.2 (5)
Inference	38.1 (1)	38.1 (1)	37.7 (1)
Question	26.2 (2)	15.1 (3)	20.1 (3)
Action	2 (7)	8.5 (5)	3.2 (7)
Comment	7.5 (4)	10.3 (4)	7.5 (4)
Total	100	100	100

Notes: Percentages do not add up to 100 because of rounding