fBUSINESS ANGEL INVESTMENT AS AN INFORMAL LEARNING PROCESS: DOES EXPERIENCE MATTER?

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ABSTRACT

This paper addresses the question of how the informal learning processes of angel investors shape the way in which they assess new investment opportunities. Previous research has suggested that angels learn from their previous investment activity. However, the measurement of investment experience as a function of the years investing and the number of investments made does not take into account how, and to what extent, learning occurs and how it impacts on investors' decision-making. To address this deficiency, we suggest a dynamic model of informal learning which incorporates the informal learning typology developed by Schugurensky (2000) and extended by Bennett (2012), as a conceptual framework to understand how learning experiences impact angel investment decision-making. Based on interviews and verbal protocol analysis with 30 investors we demonstrate how learning impacts on learning processes and outcomes as angels assess an investment opportunity. The findings highlight the importance of supporting angel learning with support for angel groups and angel training programmes.

Key words: angel investment; informal learning; conscious and nonconscious learning; intentional and nonintentional learning; tacit learning; Verbal Protocol Analysis

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INTRODUCTION

The angel investment decision has been widely researched, focusing in particular on the criteria and decision-making heuristics used by investors to evaluate opportunities (Maxwell, 2016). With the exception of a few studies of habitual/serial investors (Sørheim, 2005; Wiltbank, 2005; Harrison et al., 2015) this literature overlooks the impact of learning on angel investment, and focuses instead on 'experience', as measured by prior involvement in start-ups and number of investments made (Capizzi, 2015; Colleawart and Manigart, 2016; Croce et al., 2020). There have been some studies of learning in the context of institutional and corporate venture capital investing (Maula, 2007; De Clercq and Sapienza, 2005; Liu and Maula, 2016; Gerasymenko, 2017), which have drawn attention to the importance of indirect learning from the investment process itself. However, apart from the suggestion that more experienced angels appear to use different investment processes than those with less experience (Maxwell, 2016), the nature and impact of learning on the angel investment decision process remains under-researched. In this paper, therefore, we aim to answer three key questions. First, what, if anything, do business angels learn from their investment activity? Second, how, if at all, does this learning impact the way they evaluate an investment opportunity? Third, how can angel learning be conceptualised as the basis for advancing both research and practice?

Recent research in entrepreneurship more generally (Holcomb et al., 2009) and angel decision-making in particular (Harrison et al., 2015) has highlighted the importance of learning from experience and the role of heuristics in facilitating decision-making in the absence of substantial experience (Levinthal and March, 1981). Experience is understood as that which transpires and accumulates as tasks – in our context, investments – are performed, and interacts with the context to create knowledge. This experience can be acquired directly, or indirectly in the form of vicarious learning from others (Bandura, 1977; Myers 2018), through knowledge transfer (Argote and Ingram, 2000), or through the explication of tacit knowledge (Nonaka, 1998; Polanyi, 1958; 1967), and can occur as learning from rare events as well as from frequent ones (Lampel et al., 2009; March et al 1991), as prior research into angel learning has demonstrated (Harrison et al., 2015).

Our research is designed to address the three key questions of a 'learning orientation' (Miner and Mezias, 1996). Who or what is doing the learning (the *agents*)? What are the key learning processes and activities (the *processes*)? When is learning valuable (the *outputs*)? In terms of who is doing the learning we focus on angel investors as a vital element in the entrepreneurial process. Although there are extensive studies of learning, and informal learning in particular, in the professions (Cheetam and Chivers, 2005; Chivers, 2011), learning in the angel context has been inferred from surrogate measures of experience (Bonini et al., 2018; Harrison et al., 2015). Given that learning is situated in the context of social practice (Lave and Wenger, 1991) and emphasises the dynamics of everyday learning and interaction (Le Clus, 2011), the construction of knowledge cannot be separated from the social and cultural circumstances within which it takes place.

Angels can learn from their prior investment activity, in particular, by bridging cognitive gaps (Bonnet and Wirtz, 2012). This has been highlighted in relation to learning outcomes (Bonnet and Wirtz, 2012) and decision-making processes (Franić, and Drnovšek, 2019; Harrison et al., 2015; Bonnet et al., 2021; Croce et al., 2021). However, this literature has several significant limitations. First, it focuses on experience – notably, education, career, entrepreneurial activity and investment activity – rather than on learning. Second, it uses proxies – typically number of previous investments, length of time over which investors have been active, entrepreneurial experience – to measure knowledge, skills and competences, with the measurement often in the form of binary measures (e.g. Capizzi, 2015; Collewaert and Manigart, 2016; Croce et al., 2020; Bonnet et al., 2021). Third, the quantitative approach of these studies means that they are unable to indicate if and what angels are learning and whether it changes or enhances their investment capabilities. Fourth, it ignores the heterogeneity of the angel population (Sørheim and Botelho, 2016; Croce et al., 2020) and makes the implicit assumption that angel investment and learning is a homogeneous process (Harrison et al., 2016; 2020; Kelly and Hay, 2003; Paul et al., 2003). Moreover, as with the entrepreneurial learning literature more generally (Harrison and Leitch, 2008; Rae and Wang, 2015), discussion of learning in the angel context – to the extent that it occurs - has focused almost entirely on formal rather than informal learning (San José et al., 2005), notwithstanding the evidence that across a wide range of professional and workplace contexts informal learning accounts for between 70 per cent and 90 per cent of all learning (Flynn et al., 2006; Lombardi and Eichinger 1996; Cross, 2007; Ellinger, 2002).

Learning is understood here as the acquisition of knowledge and skills by formal and informal means (Eraut, 2000; Lave and Wenger, 1991; Stroude and Fairbrother, 2006). It occurs in work settings (Crouse et al., 2011)

and through the relations and dynamics among individual actors and groups (Fenwick, 2008a; 2008b), is largely informal rather than based on the acquisition of formal qualifications (Malcolm et al., 2003), is culturally bound by the requirements of the task to be completed in the specific organisational context (Yeo, 2008; CoHllin et al., 2011), and is intersubjective in that people learn from each other in the performance of tasks and solution of problems (Yeo, 2008). Drawing on informal learning theory (Marsick, 2009; Jeong et al., 2018a) and employing a real-time qualitative analysis of the decision process, we develop a typology of learning styles based on a dynamic model of angel informal learning and provide for the first time a fine-grained analysis of the learning mechanisms involved. This demonstrates that the number of investments alone is insufficient to account for the knowledge gained from learning and the impact of this on investment decision-making.

We make the following contributions to the angel and informal learning literatures. First, we provide the first systematic analysis of learning in the context of angel investment activity which demonstrates that the angel learning process is largely informal and not adequately captured in surrogate measures such as the number of years of investment activity or the number of investments made. Second, we demonstrate that learning can occur in natural settings even if the learner does not recognise that learning is occurring (Merriam et al., 2009). Third, we use the angel investment domain as a novel context to explore informal learning theories and develop a dynamic model of informal learning to provide a systematic typology of learning styles.

The paper is structured as follows. The next section develops the dynamic model of informal learning and related typology of learning styles applied in this study and sets out their theoretical underpinnings in informal learning theory. This is followed by a description of the methodology, research design and data analysis protocols adopted in the research. Following the presentation and discussion of our findings the concluding section identifies the implications for our understanding of the investment decision-making process of angels and for the activities of angel investment groups and sets out an agenda for further research.

INFORMAL LEARNING: AGENTS, PROCESSES AND OUTCOMES

Prior research on learning in entrepreneurship has drawn on two dominating theoretical perspectives (Harrison and Leitch, 2008; Wang and Chugh, 2015): experiential learning, especially as formulated by Kolb (1984), and organisational learning (Dutta and Crossan, 2005). For the most part, this research has focused on formal rather than informal learning (Rae and Wang, 2015). Although Kolb's experiential learning model does allow for

apprehension (grasping knowledge) as 'an immediate, feeling-oriented, tacit, intuitive, subjective process' (Baker et al., 2005; p. 416), his transformation and conceptualisation processes are based on abstract conceptualisation, symbolic representation and linguistic processes that preclude or downplay tacit processes (Bennett, 2012). Relatively little attention, until recently (Hadjimichael and Tsoukas, 2019; Pyrko et al., 2017; Myers 2018), has been given to tacit and vicarious learning and tacit knowledge, much of which is invisible and easily underestimated. Whether the focus of attention is on visible or invisible informal learning, relatively little research has been undertaken on the link between informal learning and tangible learning outcomes (Tannenbaum et al., 2010; Cerasoli et al., 2018).

In seeking to develop an approach to understanding the fine-grained, micro-dynamics of angel learning as a personal process that changes individual behaviour, we draw on informal learning theory (Marsick and Volpe, 1999; Eraut, 2004; Jeong et al., 2018a). Distinctions have been drawn in the literature between experience-based learning, incidental learning, informal learning and self-directed learning *inter alia* (Wolfson et al., 2018; Marsick and Watkins, 2001; Marsick and Volpe, 1999; Foley, 1999; Hager and Halliday, 2006; Cseh et al., 2000). Here we follow Jeong et al. (2018a) and LeClus (2011) in using the term 'informal learning' to cover all expressions of non-formal (credentialised) learning in the workplace. As such 'the organization of informal learning has some shared features across many settings: it is nondidactic; is embedded in meaningful activity; builds on the learner's initiative, interest, or choice (rather than resulting from external demands or requirements); and does not involve assessment external to the activity' (Rogoff et al., 2016; p. 358). In the context of angel investing, therefore, we are not primarily interested in formal education initiatives such as such as those offered by national angel associations (San José et al., 2005) but in the more general informal learning processes of angel investors. In terms of when and how informal learning is valuable (a focus on the outputs or consequences of learning, which is often conflated with the processes of such learning (Cunningham and Hillier, 2013; Le Clus, 2011), prior research has focused on changes in attitudes (engagement, satisfaction, confidence), knowledge/skills acquisition (measured by proficiency and expansion of the knowledge base), and performance (effectiveness, project performance) (Cerasoli et al., 2018), and on the barriers to learning (Miner and Mezias, 1996).

We focus specifically on informal learning (Hague and Logan, 2009; Livingstone, 2002), which occurs in every part of the lives of the learners (Park et al., 2010). Relative to formal learning, informal learning is not well researched (Eraut 2004; Merriam et al., 2009), is largely anecdotal (Noe et al., 2013), characterised by diffuse

definitions (Shaffer et al., 2016), and described in vague terms with no clear conceptual boundaries (Wolfson et al., 2018). As such, informal learning research faces a number of challenges: the difficulty in measuring informal learning (Schurmann and Beausaert, 2016); the absence of effective syntheses of the core concepts (LeClus, 2011); the diversity of conceptual frameworks and measurement regimes (Cerasoli et al., 2018; Wolfson et al., 2018); the challenge of better facilitating informal learning (Choi and Jacobs, 2011); and the incorporation of situational influences such as gender (Thomas and Moisey, 2006; Ostrouch-Kaminska and Viera, 2015), culture (Kim and McLean, 2013) and sector (Jeong et al., 2018b; Coetzer et al., 2017; 2019). These challenges are reflected in the diversity of theoretical framings used in informal learning research (Jeong et al., 2018a; Wolfson et al., 2018). These include Kolb's (1984) experiential learning theory (Marsick et al., 2014); Argyris and Schon's (1978) double loop learning, which emphasises intentionality, planning and proactivity in the learning process (Marsick, 2009); Wenger's (1998) communities of practice and Poell et al's., 2000) learner-network theory which highlight learning through highly contextual relationships and interactions; and Lewin's (1947) field theory, which emphasises the role of both personal and contextual factors in shaping informal learning (Marsick, 2009). Furthermore, in discussion of the processes of informal learning, studies have identified a wide range of learning activities and types (Jeong et al., 2018a; Cerasoli et al., 2018). Categorisations include learning with others, self-experimentation and external scanning (Choi and Jacobs, 2011); developmental relatedness (i.e. individual, together, from others) and intentionality (Doornbos et al., 2008); reflection, knowledge sharing and innovation (Bednall et al., 2014); reading, experimenting, reflecting and collaborating with others (Kwakman, 2003); and experimentation, getting ideas from others, learning by doing and learning by reflective practices (Hoekstra et al., 2009).

Based on recent multidimensional definitions of informal learning we can identify a number of common threads and features, which we group as either core processes involved in informal learning or situational cues which stimulate, shape and direct it (Table 1). The core processes we identify from the literature are intention to learn, engagement in action and reflection on experience. These are primarily self-derived and driven (Noe et al., 2013). First, informal learning is generally held to be intentional, the active and conscious action by an individual to acquire new knowledge and skills in support of their growth, development and improvement (Tannenbaum et al 2010), although some commentators (e.g. Cerasoli et al., 2018) also allow for the presence of incidental learning, that is, learning that takes place without intent on the part of the learner and without their conscious awareness. Second, informal learning is rooted in experience and action, actively doing something but not in a formal setting

(Tannenbaum et al., 2010), variously described as experimentation (Wolfson et al., 2018), experiential (Cerasoli et al., 2018; Gijbuls et al., 2010) and active behaviour (Noe et al., 2013). Third, informal learning involves reflection on experience related to the engagement in action, and specifically involves the thoughtful consideration of one's activities in the context within which the action takes place (Noe et al., 2013).

Table 1 about here

The situational cues for informal learning we identify are the reception of feedback, social interaction and vicarious learning. These are primarily other-derived and reflect the situated nature and contextualisation of informal learning (Noe et al., 2013). First, the reception of feedback related to the learning event or action may come from interaction with peers or from the learner's own observations of the situation in terms of their experience and outcomes. While some authors conflate reflection and feedback (Choi and Jacob, 2011; Wolfson et al., 2018) we see these as distinct processes, in that feedback may provide an input to, or stimulus for, reflection on experience. Second, although not identified as such in several of these multidimensional definitions of informal learning, we follow Noe et al. (2013) in identifying social interaction with peers as an important part of the learning process. This recognises that while non-interpersonal sources (e.g. reading, searching the internet for information) may be important in informal learning, the social embeddedness of the learner shapes the active and passive behaviours that constitute informal learning. Third, this points to the importance of vicarious learning in the informal learning process; that is, learning through the experiences of others, either passively through observation of the practice of others or actively by talking with others and asking questions (Cerasoli et al., 2018; Wolfson et al., 2018). While experience itself is foundational to informal learning (Marsick et al., 2017), vicarious learning addresses the question of how individuals (and organisations) learn when there is little or no experience to learn from (March et al., 1996).

This multidimensional approach provides the basis for a dynamic conceptual model of informal learning (Figure 1). In this, the nature and extent of informal learning is shaped by the three core processes we have identified: the intention to learn, engagement in action (which both shapes and is shaped by informal learning) and reflection on experience. It is also shaped by, and to a lesser extent, shapes, a number of situational cues: feedback received, social interaction and vicarious learning. Within the overall dynamics of the engagement in action-situational cues nexus, informal learning itself is not an undifferentiated entity. Both the intention to learn and the reflection on

experience (otherwise described as ‘awareness’ or ‘consciousness’) can vary from low to high levels and shift over time in response to further action, feedback, and social and vicarious learning. This provides the basis for developing a typology of informal learning styles (Figure 2).

Figures 1 and 2 about here

This model highlights two key themes that run through the informal learning literature: *intentionality* and *consciousness*, or *awareness*, which we rename, for consistency with the wider literature, as *reflection on experience*. Intentionality is understood as the extent to which learning ‘occurs purely by accident (unintentionally or incidentally) or through conscious deliberation (intentionally)’ (Cerasoli et al., 2018). Although it is acknowledged that learning can occur implicitly, incidentally or unconsciously (Marsick and Volpe, 1999; Gola, 2009; Ellinger, 2005), a number of commentators (among them Cerasoli et al., 2018; Noe et al., 2010; Tannenbaum et al., 2010) conflate intentionality and consciousness and restrict ‘informal learning’ to those situations where there is a clear intent to learn and conscious action (i.e. it requires an agent rather than occurring passively). However, in this paper we see intentionality and consciousness not as coterminous but as separate orthogonally related dimensions of the learning process. This is consistent with Marsick and Watkins’ (2001) emphasis on informal learning as a tacit and spontaneous by-product of work activities, and with Eraut’s (2004) description of informal learning as implicit, unintended, opportunistic and unstructured. Specifically, it builds on the argument that informal learning is not necessarily highly conscious (Marsick and Volpe, 1999) but is implicit: learners are often not consciously aware of having learned or of the extent of their learning (Hager, 1998), suggesting that informal learning is acquired independently of conscious efforts to learn (Reber, 1989). It is also consistent with Doornbos et al’s (2008) and Jeong et al’s (2018a) emphasis on intentionality and learning competence which, in highlighting the role of the dialectical process of action and reflection, corresponds with the consciousness/awareness construct.

The typology we develop in Figure 2 draws on that developed by Schugurensky (2000), applied by Marsick 2009) and Gola (2009) and extended by Bennett (2012). This identifies four forms of informal learning on the basis of the existence or otherwise of intentionality and awareness of learning. S*elf-directed learning* is both intentional, as the learner intends to learn something, and conscious, as the learner is aware when the learning is happening. *Incidental learning*, by contrast, refers to the learning that takes place when the learner is not specifically intending

to learn. Typically, this occurs after the experience, and only through reflection does the learner become aware of the learning; it is, in other words, an unintentional but conscious process. Learning from experience can occur before (Carrillo and Gaimon, 2000; Pisano, 1994), during or after that experience. In the latter case, which is of particular interest to us, this may take the form of both after-action feedback, reviews and reflection (formal or informal) (Ellis and Davidi, 2005) and counterfactual reconstruction of past events and their possible alternatives (Morris and Moore, 2000; Roese and Olson, 1995). *Socialization*, or tacit learning, is the unconscious and unintentional internalization of values, attitudes, behaviours or skills. The outcomes from this unconscious and unintentional learning can present as "thick" tacit knowledge or as "thin" explicit versions of this knowledge (Schugurensky, 2006), on the basis of which the knower's actions can be justified (Eraut, 2000; 2004).

This framework is consistent with the view of informal learning in professional practice as a 'new paradigm' (Beckett and Hager, 2002). It is similar to Eraut's (2004) framework, derived from Dewey (1933) and Schön (1983), which identifies three levels of informal learning: deliberative learning (aware learning, projected); reactive learning (spontaneous, intentionality varies with situation and context); and implicit, or tacit, learning (no intentionality and awareness to learn). Tacit learning links present experience with past memories (Eraut, 2004) and is a nonconscious activity, indicated when an individual makes a judgement without being able to articulate how they know something (Lewicki et al., 1997). As such, a 'key to generativity and creativity for humans is the ability to recombine fragments of knowledge in new ways. This new knowledge may be consciously accessible upon completion whereas the process may be implicit and unconscious' (Bennett, 2012; p. 26).

Schugurensky's tripartite framework is anchored on the intentional-unintentional and conscious-nonconscious (high awareness – low awareness) distinctions, and although he speculated that there could be a fourth type, unconscious but intentional informal learning, he provided no examples and did not develop this idea: 'it could be argued that a fourth form of learning (a learning that is intentional but not conscious) may exist. However, I have difficulties conceptualizing it. So far, any example of intentional learning that I can think of, is also conscious' (Schugurensky, 2000; p. 5). However, the wider importance attached to tacit knowledge suggests a basis for an extension of the framework (Bennett, 2012). Certainly, it is the case, as Polanyi (1966) recognized, that some tacit knowledge will always be elusive and difficult to reduce to codified (written or verbal) form. However, some tacit knowledge, while deeply embedded, is potentially accessible or alterable through reflective practice (Schön, 1983), that is, through intentional but largely nonconscious/low awareness processes.

This argument underlies the concept of integrative learning as an extension of the Schugurensky typology (Bennett, 2012). This is a learning process that combines the nonconsciousness of tacit knowledge with conscious access to learning products and mental images (Bennett, 2012). Integrative learning achieves this through two sub-routines. *Sublimation,* the sudden bursting forth of an idea (the ah-ha moment) with no immediate antecedent, provides 'learning products' (Bennett, 2012; p. 29) to the conscious mind with few traces as to how these were produced. *Knowledge shifting,* the movement of at least some tacit knowledge 'up the ladder of consciousness' (Bennett, 2012; p. 29), allows it to be accessed and restructured through reflective processes. This raises an interesting and important question in taking this framework forward: how might intentionality direct implicit processing?

In this paper we apply our dynamic model of informal learning to suggest that most angel learning is tacit, unintentional or unconscious. We argue that only a modest amount of angel informal learning is deliberately acquired through self-direction. Most angel investors have had entrepreneurial, professional or corporate careers (Mason and Botelho, 2018). This experience combined with a multidisciplinary educational background has a significant importance on the spawning of angels (Cummings et al., 2016). The knowledge, skills and resources that they have acquired from these career experiences enables them to make valuable value-added contribution to their investee businesses (Politis, 2008). Most also have sector knowledge. However, their prior career background is less likely to have prepared them to conduct the due diligence necessary to evaluate the merits and risks of prospective informal investments along with the structuring deals and achieving exits (Botelho et al., 2021). This knowledge has to be acquired. Given this, the extent of the total amount of informal learning is greatly underestimated because such learning is embedded and unobservable, and the resulting tacit knowledge is taken-for-granted (Eraut, 2000; Livingstone, 2001).

This emphasis on tacit knowledge and learning is important for two reasons: methodologically, in terms of organisational learning theory, 'approaches to assessing knowledge by measuring changes in practices or performance have the advantage of capturing tacit as well as explicit knowledge' (Argote and Miron-Spektor, 2011; p. 1124); epistemologically, in terms of informal learning theory, informal learning usually results in tacit knowledge. Drawing on Polanyi's (1967; p. 4) aphorism that 'we can know more than we can tell', Schugurensky (2006) has argued that any lack of self-awareness of our own informal learning reflects the fact that informal learning is a diffused and disorganised process that does not occur in the context of the structures and activities of formal learning.

This poses a methodological problem for researchers. Tacit knowledge is unlikely to be readily expressed in an explicit, communicable verbal form by research participants, who may not feel it necessary (or possible) to make explicit the implicit knowledge that underpins this. By contrast, where changing circumstances make the usual methods of approaching situations less effective, people, including angel investors, are more likely to make tacit knowledge explicit (Davies 2015). For Schugurensky (2006) this situation creates a double challenge: first, uncovering the diffuse process of knowledge acquisition is inherently difficult; second, it creates obstacles to uncover the results of that process, which may be expressed in new competencies and dispositions of which we are unaware. In other words, it is as complicated to elicit learning processes as it is to elicit learning outcomes. To the extent to which learning is unconscious the question then arises – how do we know that learning has taken place? This requires a process of retrospective recognition (Berg and Chyung, 2008), feedback in Figure 2 above, the process through which what has been learnt informally is crystallised: 'learners may not be aware that they have learnt something in a particular experience until [for example] they have a conversation with a person who asks questions about their learnings, eliciting retrospective recognition' (Schugurensky, 2000; p. 5). As Illeris (2003) noted, informal learning – and indeed all learning - covers cognitive, emotional and social dimensions, and hence elicitation strategies should not focus only on knowledge acquisition (Harrison and Leitch, 2018).

METHOD

This paper is based on the elicitation of tacit knowledge through in-depth semi-structured interviews with 30 Scottish angels. This sample comprises both those who invested as part of an angel group (80%) and those who invested on their own. Some of those who invest as part of a group also make some investments on their own. In this analysis we draw on two types of information. First, participants responded to semi-structured interviews where they identified their learning experience as angel investors. A combination of open and closed questions was employed, asking 'a series of questions, beginning with open ones, then going over to closed ones as the subject matter becomes more clearly structured, enabling more specific questions to be asked' (Vinten, 1995; p. 30). Two main areas were covered: (i) awareness and willingness to learn and (ii) learning outcomes. Open questions, focused on learning outcomes, were open-coded following accepted qualitative research protocols (Gioia et al., 2013; Charmaz, 2014). The coding scheme for participants' views of their learning experience followed Schugurensky's (2000) framework for forms of informal learning (Table 2). After grouping participants by their learning experience, the groups were compared using investor characteristics (age, education and

entrepreneurial experience) and investment experience (including years investing, number of investments, syndication). Mooi and Sarstedt (2011) have suggested that this helps to appraise whether the groups are substantially unique considering one or more criterion variables. Additionally, it enables a deeper understanding of how differences in learning experience can impact investment process and outcomes. Mann-Whitney U Tests were used to measure the statistical difference across the learning experiences.

Table 2 about here

Second, respondents participated in a verbal protocol (VPA), a real-time methodology which asks respondents to 'think out loud' as they perform a task (Ericsson and Simon, 1993; Fox et al., 2011; Harrison et al., 2016; Reypens and Levine, 2018), in this case the initial screening of an investment opportunity. Unlike traditional approaches to managerial cognition and decision-making, which have a narrow focus on deliberate low-affect cognitive functions at a certain point in time (often in the past), VPA provides 'a richness of data about the cognitive processes associated with behaviour that is hard to obtain with other methods. Instead of being limited to low affect conscious cognition …[VPA provides] … a 360-degree view incorporating emotion and non-conscious cognition' (Laureiro-Martinez, 2018; p. 281). Participants were given a short summary of a real business seeking finance and were asked to articulate their thoughts as they read the document, with one of the authors asking for reactions if no comments were made for more than 10 seconds. At the end, participants were asked whether they would reject the proposal or investigate it in more detail (e.g. by meeting and questioning the entrepreneur). To ensure that the process was as close as possible to reality the summary was sourced from a UK angel group, with only small changes being introduced to ensure its anonymity. Rather than providing explanations or verbal descriptions, participants were simply asked to say aloud the thoughts that came into their mind as they read the proposal (Ericsson and Simon, 1993). These thoughts were organized into units and then classified independently by two of the authors using an established coding scheme (Zacharakis and Meyer, 1995; Mason and Rogers, 1997; Harrison et al., 2015; Mason and Botelho, 2016: Harrison et al., 2016) (Table 3). Additionally, the thoughts were classified by statement type (Mason and Rogers 1997) (Table 4). Frequency counts were calculated for each of the investment criteria to provide a relative ranking of investment criteria. The VPA scores of each angel were aggregated according to their learning experience in order to assess how the learning experience impacts on investment decision-making.

Tables 3 and 4 about here

RESULTS

Based on the interview data, the majority of angels (17 out of 30) experienced incidental learning: they did not have any prior intent to learn from being an angel, but after investing have become conscious that learning has occurred (Table 5). Two types of learning experiences can be identified within this group of informal learners (Table 2): *learning from the investment opportunity* is typically associated with negative learning outcomes (e.g., long times to exit, people not being trustworthy, greedy entrepreneurs), supporting prior research on investor's risk perceptions (Harrison and Mason, 2017); *learning about being an angel* is where participants learned more about the skills required to be an angel investor (e.g. patience, assertiveness, scepticism).

Table 5 about here

The second most frequent type of informal learning was self-directed learning. This group comprised ten angels, representing one-third of the sample. In this group, participants wanted to learn before becoming an angel and were conscious that they had learned something from the process. Three types of self-directed learning can be identified. First, learning occurred *alongside others*, in particular, by investing in conjunction with others in an angel group. This is consistent with previous research (Mason and Botelho, 2014; Mason et al., 2016; Mason et al., 2019) that emphasized that one of the advantages of joining groups was the learning opportunity that they provide (Lerner et al., 2018). Second, learning took place *from others*. Participants highlighted that they enrolled in structured training courses as a learning mechanism that would enhance their personal development as an angel investor. This confirms the link noted by San José et al. (2005) between angel training needs and investment experience, that is, angels with different levels of investment experience present contrasting training requirements Third, learning occurred *from doing*, that is, from making some small investments. This approach is supported by previous research (Kelly and Hay, 2003; Harrison et al., 2016) that demonstrates that angels will become more experienced the more they invest.

The least common type of informal learning was *socialization*, with just three participants reporting that when they started their career as an angel, they had neither a willingness to learn nor had they experienced any learning as their investment activity increased (Table 5). Their previous career histories supported this lack of interest and

awareness regarding learning. This included participants who had been successful angel-backed entrepreneurs, which gave them enough confidence for this attitude, or had successful careers in a large corporation or at a venture capital fund which provided them with the assurance that they had nothing new to learn nor had they learned anything new. This self-efficacy bias may, of course, be misplaced. Entrepreneurial, corporate or institutional investment success does not necessarily translate automatically into successful angel investing), nor does it mean that learning did not occur. Schugurensky (2000; p. 3) has observed that 'some people may not be aware that they have learned something in a particular experience until they have a conversation with a person who asks questions about their learnings, eliciting retrospective recognition'.

Using this framework, we compare and contrast each group in terms of individual characteristics (such as age, education, entrepreneurial experience) and investment experience (including number of investments, years investing, investment outcomes) (Table 5). In terms of individual characteristics, the *socialization angels* were younger (average age 46 years), and more highly educated (100% had a university degree and 67% a professional degree) which may, in part, account for their unwillingness to learn and lack of awareness of any learning that they had gained (Cheetham and Chivers, 2001; Marsick and Volpe, 1999). They were also the group with the least SME experience (33%). Members of this group had the shortest average investment experience (10 years). In terms of portfolio performance, they reported the fewest exits and fewest losses (which may be related to their shorter time as angels). The *self-directed angels* were slightly less well-educated (University 90%; Professional 50%). They also had low levels of SME involvement (40%). This is the group with the lowest number of investments (average of 9). However, they also reported the highest number of exits (19%), suggesting that disposition to learn may be associated with stronger outcome orientation and, possibly, portfolio performance (Harrison et al., 2016). Lastly, the *incidental learning angels* were well educated (University 94%; Professional 66%) and had the highest level of SMEs involvement (72%). This could account for their unwillingness to learn explicitly since as former entrepreneurs they might think that this prior experience qualifies them to be angel investors. Members of this group are the most experienced angels, investing for 18 years on average with a mean of 19 investments. These are the most active angels, having the highest number of investments in their portfolios. In terms of portfolio performance these angels have the highest number of losses relative to overall number of investments and length of investment experience. This finding is consistent with the negative experiences reported by these participants in terms of learning outcomes.

In terms of investment decision making, the results indicate that each group of informal learners has different rankings of investment criteria (Table 6). *Self-directed angels* emphasise the importance of the Product, followed by the Market and the Attributes of the Business. *Incidental angels* give the highest significance to the Attributes of the Business, followed by the Market and the Product. The primary focus of *Socialization angels* is on the Attributes of the Business followed by the Product and the Business Plan. The differences in relative rankings of three criteria were statistically significant across the three groups.

Table 6 about here

Based on the VPA evidence, and contrary to Harrison et al. (2016), where the decision making was similar across groups of angel investors, the adoption in this research of a more refined categorisation of experience and learning suggests that the investment decision process differs across groups (Table 7). *Incidental angels* have the highest rejection rate (53%), followed by the *Self-Directed* group (30%) and then the *Socialization Angels* (0%). These differences in rejection rates is also reflected in the extent of the deliberation of each group before making an investment decision as measured by the number of comments made. The *Incidental angels* made the fewest number of comments (average of 47) before making a final decision, whereas the *Self-Directed angels* verbalized the most before making a final decision (average of 65 comments). The willingness of the *Self-Directed angels* to comment at greater length on the opportunity could be interpreted as a sign of their confidence that arises from their intention and awareness of learning. In other words, if investors think they have learned while being an angel investor then they will be more confident about their assessments (Bjork, 1999). However, this interpretation may be problematic: in general terms, the reading we take of our own competence is arguably as important in many real-world contexts as is our actual competence, level of learning and knowledge in a given domain, and determines decisions such as whether or not to invest is particular opportunities. But humans frequently mis-assess their own competence, with such mis-assessments typically taking the form of overconfidence based on a misinterpretation of the meaning and predictive value of certain indices of current performance (Bjork, 1999). In terms of the time taken to make decision, *Incidental angels* made the quickest decision (average 00:08:03). This is consistent with their higher rejection rate, as angels typically are faster to reject an opportunity than to decide to undertake further investigation of the opportunity (Mason et al., 2017). At the other extreme, *Socialization angels* took the longest to make a decision (00:12:24) with each of the investors deciding to follow up with the

entrepreneur. This might be interpreted as indicating that these investors lack the assurance to make a decision as they do not acknowledge any learning occurring while being an angel.

Table 7 about here

Few differences in the cognitive processes used by business angels are apparent in the rank order of statement types or the absolute frequencies with which they were evidenced (Table 8). This is also indicted by the Spearman's Rho rank order correlation, with the statement types of all groups being positively correlated. Inferences and questions are the top two statement types for all three groups of angels, with only the third statement type differing for socialization angels. *Socialization angels* focused to a greater extent on inferences, while *Self-Direct* investors were more inquisitive. Although differences could not be found regarding the ranking order of statement types, this is not the case when statement types are cross-tabulated with investment criteria (Table 9). In terms of inferences, *Incidental angels* are more likely to focus on the product, while *Self-Direct angels* focus on the market, whereas *Socialization angels* focus on the attributes of the business. The focus of inquiry comments was also different across the three groups: *Incidental angels* focused on the Attributes of the business, *Self-direct angels* on the Product and *Socialization angels* on the Business plan.

Tables 8 and 9 about here

DISCUSSION AND IMPLICATIONS

The results show a dominance of self-directed and incidental learning in our sample of angels which is not unexpected. These forms of learning are easier to recognise and are more commonly observed because of their conscious nature, and so are uncontested (Bennett, 2012). However, socialization or tacit learning is both unconscious and unintentional and occurs both when an adult learns on their own and when they learn socially, developing skills through practice and developing expertise without full conscious knowledge of the actions. This type of learning is, therefore, less likely to be reported by respondents participating in conventional research designs which require the explicit articulation of the learning process and its outcomes. Furthermore, given the almost universal importance of tacit (socialization) learning and its dominance in terms of the time spent on it (Livingstone, 2001), this type of learning might be expected to be present alongside other learning types in all adults, but not to dominate as the primary learning type. Given this, the learning types in the typology appear artificially discrete, whereas in practice, 'it is expected that learning would move fluidly across the modalities'

(Bennett, 2012; p 27). Our dynamic model of informal learning allows for this fluidity, and specifically for changes in the willingness and/or awareness to learn to occur. This is particularly significant for angels, as they are very likely to face unique learning opportunities during their angel careers (e.g. a failed investment, an exit, a problem with an entrepreneur, etc.). With these previous (and future) opportunities having the potential to impact individual learning styles. In particular, this research suggests that learning styles appear to be linked to the level of previous SME experience, with incidental angels more likely to have been involved with SME than the other two groups. This dynamic model highlights an important avenue of future research for both angel and informal learning scholars: if learning is indeed a process and if an individual's learning style can change over time and across contexts, what are the 'triggers' for informal learning and how do these influence learning techniques, processes and outcomes (see Cerasoli et al., 2018; Wolfson, 2018; Battistelli et al., 2019; Decius et al., 2019; Yun et al., 2019; Erekson, 2020)? For example, our research suggests link between learning styles and exits (a measure of performance for angel investors), but further research is needed to identify the 'triggers' prompting this relationship.

Furthermore, in terms of Figure 2, we find no evidence for Bennett's (2012) integrative learning. This may be context specific, in that business angel learning does not share or require this type of learning, which synthesizes new and existing knowledge for productive purposes, is associated with creative insights, intuitive leaps and moments of sudden understanding, and is not a linear and rational process but one which deals with the messy assemblage of images, memory fragments and sensory data. If and when a creative solution is found, the subject has a conscious representation of the outcome and a conscious feeling (insight) that the problem has been solved, although the way of solving the problem is unconscious (Stepanossova and Grigorenko, 2006). Integrative learning can assist in the process of combining new and existing experiences when conscious analysis is exhausted. Decision makers have a deep reservoir of prior experiences, personal history and learning experiences and engage in internal processes of pattern matching, mental rotation and other processes to understand and integrate new and existing knowledge and address issues and situations for which they have little precedents (Bennett, 2012). The identification and measurement of integrative learning remains a challenge for future research on angel learning and on informal learning more generally.

This discussion of angel learning is consistent with the dominant emphasis until recently in managerial and organization cognition research on low affect deliberative cognition, using a variety of techniques (including thought listing, semi-structured interviews, network analysis, repertory grids and multidimensional scaling) to "map" actors' mental representations of work-related knowledge (Hodgkinson and Healey, 2011). This emphasis

has been criticized for 'yielding an impoverished portrayal of organizational decision-makers as cold and calculating quasi-rational cognitive misers' (Hodgkinson et al., 2018; p. 5-6), which assumes mental representations are primarily based on conscious deliberation and ignores the fundamental nonconscious processes that fundamentally influence individual and collective behavior. If, however, we shift attention to the embedded nature of tacit knowledge and implicit learning in angel decision making, this will have implications for research design and methodology (Hodgkinson et al., 2018). We have already demonstrated the value of VPA in angel decision making research in this paper; there is significant scope to extend this in combination with experimental research designs (Reypens and Levine, 2018) on the one hand and with neuroscience methods (Laureiro-Martinez, 2018; Massaro, 2018) on the other.

Overall, our study makes four contributions. First, it develops a broader understanding on how learning impacts angel investment decision. The findings show that angel learning is a complex multidimensional process that is not adequately reflected in the surrogate indicators (e.g. years investing, number of investments) used in previous research. Second, it confirms the value of the intentionality and awareness dimensions as mechanisms to identify individual learning differences. However, additional work should aim to provide clear boundaries and measures to these dimensions. Capturing these dimensions can pose challenges, both conceptually and methodologically as it requires participants to recall potential involuntary previous behaviors that might not be clearly recognised as learning. Third, although the intellectual argument for Bennett's 'integrative learning' category is of value, no evidence for it was found in this study and further research is needed to explore whether this category exists in different contexts. Lastly, by discussing the who/agents, what/processes, and when/outcomes questions our research addresses Miner and Mezias (1996) learning orientation principles and by doing so provides a rich understanding of a context-specific learning experience.

CONCLUSION

There are three broad sets of immediate conclusions from this research. First, contrary to previous research which identified no significant differences amongst angels with diverse levels of investment experience in the way they make investment decisions, this study has identified three groups of angels based on their approach to learning. In terms of the decision-making process, the groups differ in how they rank the importance of the investment criteria. These differences are also apparent in terms of the decision-making process and investment decision. Further differences are identified in terms of investor characteristics - education, SME involvement, years

investing, number of investments and portfolio performance. This adds further weight to the criticisms that have been made of the 'homogeneity view of business angels' (Croce et al., 2020). Second, the findings highlight that the learning process impacts positively the decision whether to keep considering an opportunity, and also appears to have a positive effect on investment outcomes. These results can be seen as a reward for willingness and awareness to learn. Subject to the caveat above on the need for more research into the triggers of informal learning, this, in turn, suggests that policy-makers and other stakeholders should support angel learning and training as a mechanism to enhance their learning capability, improve their screening and decision-making processes, and reflect on their learning process and outcomes, all of which, our findings suggest, can potentially improve the performance of angel portfolios. Third, in terms of entrepreneurial practice our findings strongly support the importance of angel groups and angel training as a 'safe space' for learning and support. The positive spillover effects of the informal learning that occurs in angel groups justifies public sector support for their operational costs. However, the scope for, and nature of, interaction between informal and formal learning, and the role in this of learning from others (Marsick and Volpe, 1999) through interactions, observations and social processes (Watkins et al., 2018; Berg and Chyung, 2008), remains an unexplored avenue of future research.

These conclusions are, however, subject to one major caveat. As a situated practice (Lave and Wenger, 1991) informal learning is predominantly a social process which is embedded in a wider environmental, social and cultural context. The interplay between informal learning and these situated contexts has been identified as one of the least explored aspects of informal learning (Ellinger, 2005; Eraut, 2004). Specifically, the impact of national culture and institutional structures is still unknown (Marsick, 2009) and remains an important topic for further research (Jeong et al., 2018a). It has been argued that research practices in this field should be more culturally sensitive (Wang et al., 2016). Drawing on Hofstede's cultural dimensions framework (Hofstede et al., 2010), for example, Kim and McLean (2014) have addressed the impact of culture on the antecedents of informal learning, Bednall et al. (2014) have identified the moderating effects on the association between performance and informal learning, and Jeong et al. (2018b) have demonstrated, in a qualitative study of Korean SMEs, that culture profoundly impacts the experience of informal learning.

This has significant implications for further research into angel learning processes. Notwithstanding the recent internationalization of business angel activity and research (Harrison, 2017) it remains the case that most angel research is predicated, implicitly or explicitly, on a universalist account based on a US-centric model of angel investing (see for example Kerr et al., 2014; Lerner et al., 2018). While this may have been appropriate in early extensions of angel research and practice from the US to Europe (Harrison and Mason 1992) it is less appropriate

to emerging and developing economies worldwide (Liu et al., 2016; Harrison et al., 2016). Differences in definitions, the institutional infrastructure to support angel investment and the cultural framework (risk aversion, lack of trustworthiness, lack of transparency in financial markets and the presence of institutional voids) support an alternative, contextualist view on the emerging angel market as a local response to local circumstances (Jack et al., 2013; Harrison et al., 2016; Harrison., 2017). Accordingly, it is likely that different institutional and cultural environments will lead to different informal learning processes and outcomes. Future research on informal learning by angels should, therefore, focus on how these contextual differences affect the conceptualization (intentionality and consciousness), antecedents, process and outcomes of informal learning as a contribution to both angel research and to our broader understanding of the phenomenon of informal learning itself.

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Figure 1. Dynamic framework of informal learning (after Tannenbaum et al., 2010; Wolfson et al., 2018)

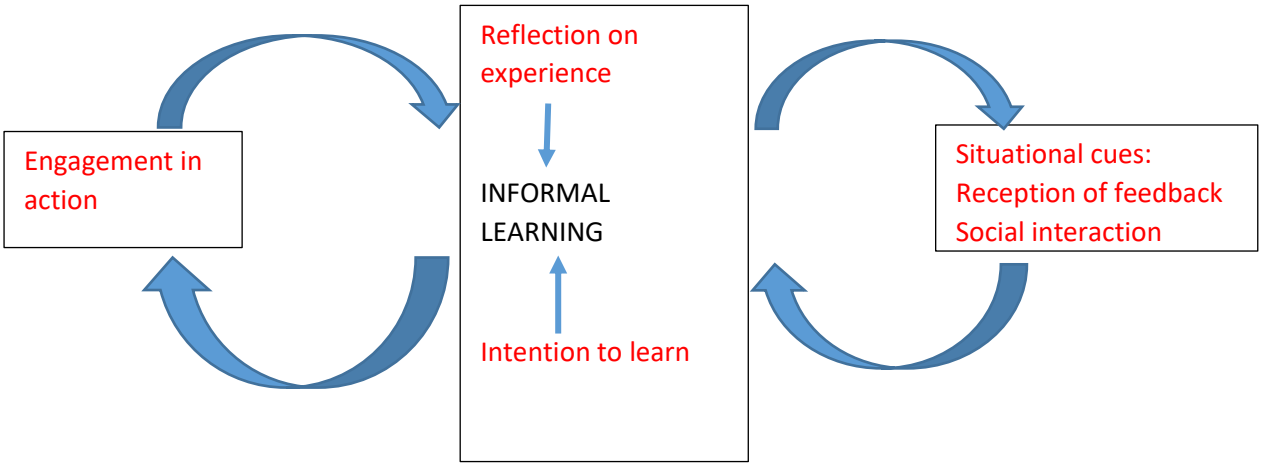

Figure 2. Informal learning model

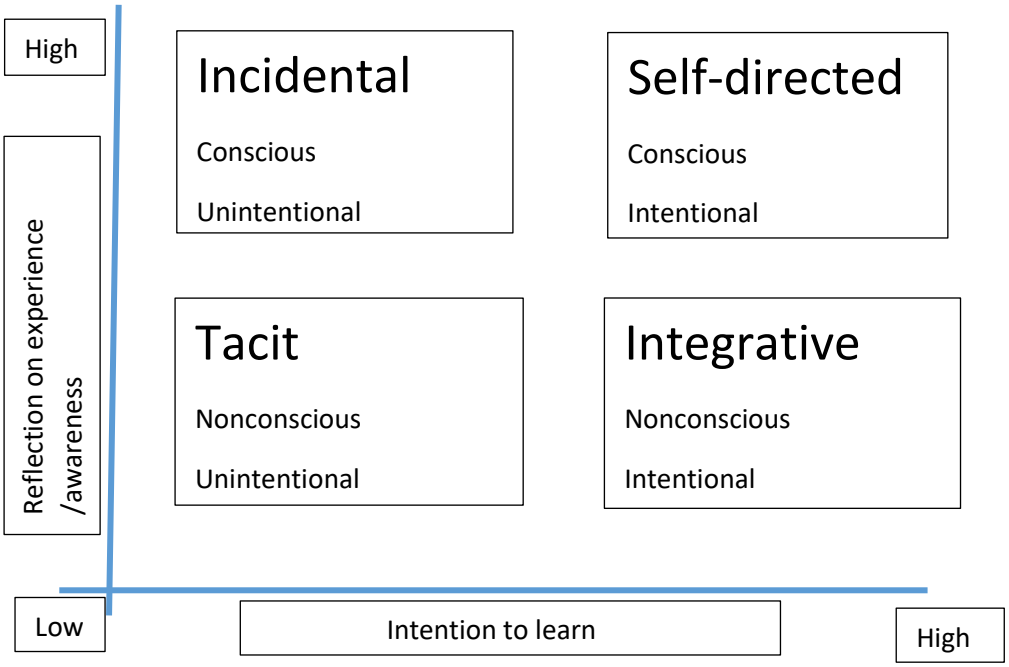

Table 1. Composite dimensions of informal learning

Composite elements	Noe et al (2013)	Cerasoli et al (2018)	Tannenbaum et al (2010)	Wolfson et al (2018)
Core processes				
Intention to learn	X		X	X
Engagement in action	X	X	X	X
Reflection on experience	X		X	
Situational cues				
Reception of feedback	X		X	
Social interaction	X			
Vicarious learning	X	X		X

Table 2. Coding scheme according to Bennett (2012)

Forms	***Types***	***Intentionality***	***Awareness***
Self-directed learning (At the start of their angel career these participants did not felt confident enough, hence, they tried to learn by)	· Learning alongside others;	I wanted to become an angel, so I needed to learn about "angelling"…	…so I joined an angel group as I was afraid of investing on my own, I wanted to understand what was angel investing.
	· Learning from others;	I searched the web, read about it but joining a group was the best thing. I was just a beginner. I need to learn from other guys, they got more experience than me.	I've learned to use my ears and mouth in the proportion that I have them. I shut up and listen which I didn't do before. I try to listen to other investors rather than tell them. It's very difficult for somebody
	· Learning by doing.	In my first investment I was very naïve, I needed to learn. How?	I needed to invest to learn more about angel investing.
Incidental learning (Participants were fully aware of learning occurring has an outcome of being a business angels. The learning outcomes can be clearly associated to lessons learned in specific investment opportunities)	· Learning from investment opportunity;	Thought it would be straightforward, but…	…I have learned how hard it is to get a satisfactory exit.
	· Learning about being an angel;	I thought I knew it all…	…but I think I did (learn) but I found it a very, very difficult learning process because it is completely unlike working in a company, so I think it is incredibly difficult to actually start being a business angel because it is very unlike other activities that you normally have when you are a full time manager.

Forms	***Types***	***Intentionality***	***Awareness***
Tacit (Participants were not aware of any learning occurring during their experience as an angel investor)	· Learning from investment opportunity; · Learning about being an angel;	I did not wanted to learn… Did not need to learn as…	... and I do not think I have learned anything because I spent twelve years doing direct investments into privately owned companies and I don't think it's wildly different, the processes that you go through. The risks are obviously higher in all cases. I'm not sure they're wildly different. ... I've always had the attitude to risk . I think most of it's come through my own business but you've got to view that through the prism of the other businesses that I get to see which is quite... you know so that's quite good.
Integrative Learning (No examples were found)	Not available	Not available	Not available

Table 3. Thought segments classification

Investment Criteria	*Description*
1. THE PEOPLE	Issues regarding: the entrepreneur, management team, the inventor. Their background, experience, qualities, etc.
2. PRODUCT	The nature of the product: technical aspects, intellectual property protection, competitive advantages, design, etc.
3. MARKET	This includes points on market: organization, growth, competition, geography, size, etc.
4. BUSINESS PLAN	Specific comments on the plan: length, presentation, content missing data, etc.
5. EXIT	Who? When? How much? Type of exit. Existence of an exit plan
6. FINANCIAL CONSIDERATIONS	Amount of investment, amount raised, future funding needs, valuation, equity share, cash-flows, etc.
7. INVESTOR ATTRIBUTES	Issues regarding investment fit, investment experience
8. ATRIBUTES OF THE BUSINESS	This includes a broad scope of issues: e.g. strategy, business model, risks, operations, time frame, etc.
9. OTHER	Comments on any aspects of the business which cannot be coded in any other category

Table 4. - Classification of thought segments in the protocols – statement type.

Description	Non-evaluative statement consisting of verbatim or paraphrased quotation of information presented in plan
Recall	Non-evaluative information obtained from past experience
Preconception	Judgemental statement based on previous experience/ background knowledge
Inference	Statement which involves a judgement on some part of the plan
Question	Statement which seeks further information
Action	Statement of intention or action to be performed (for example, to search for a source of information)
Comment	Uncodable or irrelevant statement

Source: Mason and Rogers (1997).

Table 5 - Participants differences according to learning experience[1]

	Incidental learning	Self-directed learning	Socialization
N	17	10	3
Age (mean)	58.47	56.20	46.33
U.Degree	94%	80%	100%
P.Degree	67%	50%	67%
SME Involvement	72%	40%	33%
Years investing (mean)	17.83	16.70	10.33
Number investments (mean)	19.17	9.20	12.67
Opportunities screen (mean)	20.35	22.80	17.67
Syndicate	67%	100%	100%
Still in the portfolio	58%	65%	84%
Exit[2]	17%	19%	8%
Losses	25%	16%	8%

[1] Gender is not presented as all participants were male.
[2] We follow Botelho et al., 2021 definition of exits.

Table 6. Verbal protocol frequency counts by investment criterion (Kruskal Walls test)

% of thought units by type – averaged by type of business angel (figure in brackets is ranking)			
Investment Criteria	*Incidental learning*	*Self-directed learning*	*Socialization*
1. THE PEOPLE [a]	9.01 (6)	11.67 (5)	11.52 (4)
2. PRODUCT [b]	16.02 (2)	16.90 (1)	18.18 (2)
3. MARKET [c]	15.27 (3)	15.51 (2)	7.27 (7)
4. BUSINESS PLAN [d,e]	6.88 (8)	8.45 (7)	13.33 (3)
5. EXIT [f]	3.38 (9)	4.30 (9)	2.42 (9)
6. FINANCIAL CONSIDERATIONS [g]	12.64 (4)	13.06 (3)	7.27 (7)
7. INVESTOR ATTRIBUTES [h]	11.64 (5)	6.91 (8)	9.09 (6)
8. ATRIBUTES OF THE BUSINESS [i]	16.15 (1)	12.75 (4)	19.39 (1)
9. OTHER [j]	9.01 (6)	10.45 (6)	11.52 (4)

Spearman's Rho rank order correlation: Socialization – Self-directed learning; $\rho = 0.30$; Socialization – Incidental learning; $\rho = 0.42$; Self-directed learning - Incidental learning; $\rho = 0.85$***

*** - 0.01

a -Differences not significant.

b -Differences not significant.

c - Significant differences between Incidental learning and Socialization at 0.05

d - Significant differences between Incidental learning and Socialization at 0.1

e- Significant differences between Self-directed learning and Socialization at 0.1

f -Differences not significant.

g -Differences not significant.

g -Differences not significant.

i - Significant differences between Incidental learning and Self-directed learning at 0.1

j -Differences not significant.

Table 7 - Decisions and length of time to make decisions

	Incidental learning	Self-directed learning	Socialization
Time (average)	00:08:03	00:12:21	00:12:24
Time (median)	00:08:22	00:10:58	00:12:28
00:05:00	24%	0%	0%
00:10:00	47%	50%	33%
00:15:00	18%	30%	33%
00:20:00	12%	0%	33%
More	0%	20%	0%
Reject	52.94%	30.00%	0.00%
Meet the entrepreneur	41.18%	70.00%	100.00%
Move to next stage	5.88%	0.00%	0.00%

Table 8. - Verbal protocol frequency counts by statement type.

	Incidental learning	Self-directed learning	Socialization
Description	13.7 (3)	19.0 (3)	7.8 (4)
Recall	6.0 (5)	2.6 (6)	4.8 (5)
Preconception	4.0 (6)	1.2 (7)	3.0 (7)
Inference	47.8 (1)	44.8 (1)	52.7 (1)
Question	18.2 (2)	23.6 (2)	15.1 (2)
Comment	4.0 (6)	3.8 (5)	4.2(6)
Action	6.1 (4)	4.7 (4)	12.1 (3)

Spearman's Rho rank order correlation: Socialization – Self-directed learning; $\rho = 0.788^{**}$; Socialization – Incidental learning; $\rho = 0.826^{***}$; Self-directed learning - Incidental learning; $\rho = 0.877^{***}$

*** - 0.01

** - 0.05

Table 9 - Verbal protocol frequency counts by statement type.

		Top 1	Top 2	Top 3
Description [a]	Incidental learning	Product	Attributes Of The Business	Market
	Self-directed learning	Product	Market	Financial Considerations
	Socialization	The People	Product	Attributes Of The Business
Recall [b]	Incidental learning	Investor Attributes	Attributes Of The Business	Market
	Self-directed learning	Investor Attributes	Other	The People
	Socialization	Investor Attributes	Business Plan	Attributes Of The Business
Preconception [c]	Incidental learning	Investor Attributes	Financial Considerations	Market
	Self-directed learning	Investor Attributes	Business Plan	Product
	Socialization	Investor Attributes	Product	The People
Inference [d]	Incidental learning	Product	Market	Attributes Of The Business
	Self-directed learning	Market	Product	The People
	Socialization	Attributes Of The Business	Product	Business Plan
Question [e]	Incidental learning	Attributes Of The Business	Other	Financial Considerations
	Self-directed learning	Product	Business Plan	Other
	Socialization	Business Plan	Attributes Of The Business	Product
Comment [f]	Incidental learning	Other	Investor Attributes	The People
	Self-directed learning	Other	Investor Attributes	Attributes Of The Business
	Socialization	Other	Attributes Of The Business	The People
Action [g]	Incidental learning	Other	Investor Attributes	Product
	Self-directed learning	Other	Investor Attributes	Financial Considerations
	Socialization	Other	Attributes Of The Business	The People

a - Significant differences between Incidental learning and Self-directed learning at 0.05 for business plan

a - Significant differences between Incidental learning and Self-directed learning at 0.1 for investor attribute

a - Significant differences between Incidental learning and Self-directed learning at 0.05 for Others

a - Significant differences between Incidental learning and Socialization at 0.1 for the people

b- Differences not significant.

c - Significant differences between Incidental learning and Self-directed learning at 0.1 for Product

c - Significant differences between Incidental learning and Self-directed learning at 0.05 for business plan

c - Significant differences between Incidental learning and Self-directed learning at 0.05 for exit

c - Significant differences between Incidental learning and Self-directed learning at 0.1 for others

d - Significant differences between Incidental learning and Self-directed learning at 0.1 for people

d - Significant differences between Self-directed learning and Socialization at 0.1 for business plan

e - Significant differences between Self-directed learning and Socialization at 0.05 for others

f - Significant differences between Self-directed learning and Socialization at 0.1 for investor attributes

g - Significant differences between Incidental learning and Self-directed learning at 0.1 for market

g - Significant differences between Incidental learning and Self-directed learning at 0.1 for business plan

g - Significant differences between Incidental learning and Socialization at 0.05 for market

g - Significant differences between Incidental learning and Socialization at 0.05 for exit

g - Significant differences between Self-directed learning and Socialization at 0.05 for market

g - Significant differences between Self-directed learning and Socialization at 0.1 for exit