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ENTREPRENEURS' COGNITIVE BIASES AND HEURISTICS IN ENTREPRENEURIAL TEAM RECRUITMENT

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INTRODUCTION

The bulk of the cognition-related research has largely focused on the first step of venture creation, i.e., opportunity recognition (Ozgen & Baron, 2007). This paper focuses on a subsequent step, i.e., recruitment of the entrepreneurial team. The entrepreneurial team is core to any new venture (Cooper & Daily, 1997) and a venture's success is influenced by the team that an entrepreneur has been able to put together to exploit an opportunity (Cooper & Bruno, 1977; Zacharakis & Meyer, 1998). Thus, the composition of new venture teams is a highly relevant and interesting question (Ruef, Aldrich, & Carter, 2003) and is the subject of this paper.

What role cognitive biases, errors and heuristics play in the thinking of entrepreneurs is one of the questions that entrepreneurship scholars have attempted to address (e.g., Alvarez & Busenitz, 2001; Busenitz & Barney, 1997). *Cognitive biases* and *heuristics* are mental shortcuts and simplifying strategies used to make judgments and take decisions under uncertain conditions (Bazerman, 1998; Busenitz & Lau, 1996; Simon, Houghton, & Aquino, 2000). Research finds that entrepreneurs may be more prone to some biases and heuristics than non-entrepreneurs (Baron, 1998) due to either dispositions (e.g., Markman & Baron, 2003) or the entrepreneurial context (Duhaime & Schwenk, 1985; Hansen & Allen, 1992) or both (Forbes, 2005).

ENTREPRENEURIAL TEAM RECRUITMENT

The entrepreneur is the pivot for the new venture and provides it with skills, capital, interpretation and direction (Woo, Daellenbach, & Nicholls-Nixon, 1994). New venture creation involves several tasks such as idea generation, opportunity recognition, and resource acquisition (Baron, 2007). I focus on resource acquisition, specifically on the single or lead entrepreneur's (Baron, 2008; Ensley, Carland, & Carland, 2000) selection of individuals to the *entrepreneurial team* (Klotz, Hmieleski, Bradley, & Busenitz, 2014). Entrepreneurial team formation by members self-selecting or coming together spontaneously (e.g., Harper, 2008) is out of scope.

Deciding who to put on a project or a team is one of the biggest challenges facing a team leader (Reagans, Zuckerman, & McEvily, 2004) because of the sheer number and variety of criteria and data-points that have to be considered. According to I-O psychologists (e.g., Morgeson, Reider, & Campion, 2005) one has to evaluate potential candidates not only on their task- or role-related competencies but also on their personalities and their propensity for teamwork. Further, group-level factors (e.g., homogeneity/heterogeneity) would need to be considered as well. In an intra-organizational context decision-makers typically have the time, resources, and the skills to utilize scientifically-developed selection decision aids to manage the complexity. However, entrepreneurs typically form their teams while operating under time and resource constraints (Busenitz & Barney, 1997; Lechler, 2001; Sarasvathy, 2001) giving them

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neither the opportunity nor the skills to conduct the sophisticated evaluations proposed by I-O psychologists.

Another major difference between entrepreneurial and managerial team formation is the nature of the decision-making task. In the former, the entrepreneur is part of the team and is the team leader, whereas in the latter, senior manager/s involved in selection are usually not part of the team. Entrepreneurs selecting their team-members are performing a *choice task*, whereas managers selecting employees to form a task force are performing a *judgment task*. Research that has investigated the process-oriented differences between choice and judgment finds that the former often involves simplifying heuristics, where individuals focus on a subset of the available information, whereas the latter often involves holistic processes, where individuals examine a more complete set of information (Billings & Scherer, 1988; Schkade & Johnson, 1989; Wedell & Senter, 1997). This too suggests that entrepreneurs would be more susceptible to biases and heuristics compared to managers when selecting teams.

Finally, unlike team formation in the organizational context, the consideration set of potential team-members is not defined by organizational boundaries and the search for suitable individuals is yet another challenge for entrepreneurs. Unsurprisingly, entrepreneurial collaboration is often embedded in existing social relationships with friends, work colleagues, family, or sexual partners (Birley, 1985; Larson & Starr, 1993), often without consideration of members' capabilities (Kamm, Shuman, Seeger, & Nurick, 1990; Kamm & Nurick, 1993).

COGNITIVE MODEL OF ENTREPRENEURIAL TEAM RECRUITMENT

The cognitive model of entrepreneurial team recruitment at its core comprises two *black boxes*. The first includes the entrepreneur's perceptual and cognitive processes which filter all potential decision-making criteria and candidates into consideration sets. The second represents the entrepreneur's potentially biased evaluation and selection of entrepreneurial team-members.

Black Box I: (A) Consideration Set of Criteria

When leaders design a team they typically use a model which is either explicit or implicit (Wageman, 2001), and in the case of entrepreneurs is usually implicit. This aspect is specifically related to the *ability cognitive script* construct (Baron & Ward, 2004; Leddo & Abelson, 1986), which refers to the entrepreneur's cognitions with regard to knowledge, skills, and capacities needed to create a new entrepreneurial activity. It is these perceptions that drive team composition (Kirschenhofer & Lechner, 2012). The literature (e.g. Forbes, Borchert, Zellmer-Bruhn, & Sapienza, 2006; Sandberg, 1992) gives primacy to skills complementarity as *the* rationale for team formation, but defining it almost exclusively in these terms creates the impression that task- or role-related factors are the only ones that need to be considered. However, part of the rationale for creating teams is to synergistically combine different capabilities (Edmondson, Roberto, & Watkins, 2003) and this only happens through *teamwork* or *chemistry* (Hackman, 1998). An individual's capacity for teamwork can be identified by personality and other characteristics (McClough & Rogelberg, 2003) and these factors should be considered during the selection process. Apart from task-related and teamwork-related factors, there is a third category of factors that could be relevant, i.e., the entrepreneur's connections to individual team-members (Klein, Ziegert, Knight, & Xiao, 2006; Uhl-Bien, 2006). Thus, skills complementarity and task- or role-related aspects are not the *only* or *ideal* factors that

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entrepreneurs should consider while forming their entrepreneurial teams. All three categories of factors need to be considered.

In an entrepreneurial context there has been inadequate focus on real decision-making criteria and their associated weights (Sandberg, 1986). In a non-entrepreneurial context, Pinto (2008) analyzed the rationales provided by professional soccer players for selections to their ideal team and found that the majority were task-related, followed by leader-related and teamwork-related factors. It is likely that the same order will hold for entrepreneurs' selecting their entrepreneurial team-members. Since skills complementarity is important it is likely, based on *accessibility*, i.e., "the ease with which a particular unit of information is activated or can be retrieved from memory" (Morewedge & Kahneman, 2010: 435), it would be a salient category. *Short-termism* (Marginson & McAulay, 2008) could also be involved, because the right skills have immediate benefits, whereas poor teamwork fit issues would be felt in the longer-term.

Entrepreneurs are engaged in a choice decision task which (unlike a judgment task that involves abstract evaluation) involves the person. Thus, choice-making tasks trigger self-referent processing (Shavitt & Nelson, 2000; Sood & Forehand, 2005), leading entrepreneurs to focus on their own personal history while considering, evaluating, and selecting candidates. Finally, teamwork-related factors would not only be less salient as compared to task- and entrepreneur-related factors, but also relatively harder to identify or consider and therefore would be the least focused category among the three categories.

Black Box I: (B) Consideration Set of Candidates

This aspect is related to the *arrangements* and *willingness cognitive scripts* constructs (Baron & Ward, 2004; Leddo & Abelson, 1986) which refer to the entrepreneur's cognitions. The former relates to the resources, relationships and assets needed to engage in entrepreneurial activity, and the latter are those that support commitment to starting a new venture. Though both scripts primarily refer to entrepreneurs' cognitions, I am extending it to include their cognitions of others' suitability to be an effective entrepreneurial team member and of others' willingness to join the new venture as part of the entrepreneurial team. Those who join a new venture may have similar preferences to those of the founder, for instance, in their willingness to trade-off pay and job security for greater autonomy and the opportunity to work in an exciting and dynamic work setting (Roach & Sauermann, 2012) and this aspect is an important factor.

Entrepreneurship scholars distinguish between two general approaches to team formation: (1) a *rational process* driven by economic, instrumental considerations, in which the entrepreneur would engage in an open search for members with needed skills and competencies (Aldrich, Carter, & Ruef, 2002; Mosakowski, 1998); and (2) a *boundedly rational process* in which the entrepreneur would engage in a biased search driven by interpersonal attraction, homophily, or social network considerations (Aldrich et al., 2002; Forbes et al., 2006).

Black Box II: Evaluation and Choice of Team-members

Apart from the informational complexity involved in making these decisions, other general factors that could lead to biased decision-making include perceived urgency or time pressure, action bias, and optimism or overconfidence. Entrepreneurs typically have to make decisions under *time pressure* (Allinson, Chell, & Hayes, 2000; Baron, 1998) and this would increase their tendency to adopt mental short-cuts (Wyer & Srull, 1994) and take decisions

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quickly, if not prematurely. Research suggests entrepreneurs have a bias for action (e.g., Trevelyan, 2008). They could therefore be more susceptible to *action bias* (Patt & Zeckhauser, 2000) and act precipitously to hire an obviously suboptimal candidate. Further, entrepreneurs tend to be more optimistic and overconfident than non-entrepreneurs (Cooper, Woo, & Dunkelberg, 1988; Hmieleski & Baron, 2009; Simon & Shrader, 2012) and could therefore be more sure than warranted of their selection decision-making.

Ingroup bias occurs when group members extend unjustified trust to other group members (Hewstone, Rubin, & Willis, 2002). Entrepreneurs are high in *self-efficacy* (Chen, Greene, & Crick, 1998; Markman & Baron, 2003) which is related to *self-esteem* (Judge, Locke, & Durham, 1997), and since high self-esteem individuals exhibit more ingroup bias than low self-esteem individuals (Aberson, Healy, & Romero, 2000), entrepreneurs may be prone to ingroup bias. Ingroup bias is related to positive stereotyping and could lead to *favoritism* (Turner, Brown, & Tajfel, 1979) and *cronyism* (e.g., James, 2008). Also, ingroup favoritism results in intergroup discrimination, regardless of attitudes toward specific outgroups (Brewer, 2007). And *outgroup bias* could lead to negative stereotyping and rejection of suitable applicants (Bertrand & Mullainathan, 2004).

Decision-makers manifest *representativeness heuristic* when they generalize about a person or a phenomenon based on only a few attributes of that person or a few occurrences of that phenomenon, and entrepreneurs may manifest it more than managers (Busenitz & Barney, 1997). Also Simon et al. (2000) found that MBA students' belief in the *law of small numbers* was correlated with their tendency to start a new venture. Thus, entrepreneurs may make selection decisions after only one meeting with a candidate, because they might consider that encounter to be representative of the candidate as a whole.

Entrepreneurs tend to be optimistic (Cooper et al., 1988) and highly optimistic individuals tend to suffer from *confirmation bias* (Klayman & Ha, 1987), i.e., seeking or interpreting evidence to support existing beliefs. Thus, entrepreneurs may treat candidate data in a biased way because they want to defend beliefs (e.g., stereotypes) that they wish to maintain (Nickerson, 1998). The *availability heuristic* implies a bias toward familiar experiences (Zahra, Yavuz, & Ucbasaran, 2006) and may encourage entrepreneurs to focus on criteria or individuals who are more familiar to them or more easily recalled resulting in the non-consideration and/or non-selection of individuals who were more suitable than those who were hired. *Status quo bias* is a tendency to excessively stick with the current option in a wide range of situations (Samuelson & Zeckhauser, 1988). Entrepreneurs might feel obliged to repeat partnerships independent of the fit with the requirements of the new venture (Kirschenhofer & Lechner, 2012), especially if they are operating under perceived network constraints (Parker, 2009).

ENTREPRENEURIAL EXPERIENCE AND COGNITIVE SHORT-CUTS

Experience is considered important for the performance of entrepreneurs (Riquelme & Rickards, 1992) but it is unclear whether experience leads to an increase or decrease in cognitive biases and heuristics. On one hand, the Belief-Adjustment Model (Hogarth & Einhorn, 1992) predicts that experience would reduce task complexity and therefore biases (Kennedy, 1993). On the other hand, experienced entrepreneurs may be prone to overconfidence and familiarity biases (Ucbasaran, Westhead, & Wright, 2009). Also, past successes could lead to over-simplification, cognitive ruts, overconfidence bias and representativeness heuristics (Rerup, 2005).

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Black Box I: Consideration Set of Criteria and Candidates

Serial entrepreneurs' experience should lead to more sophisticated schemas and improved understanding of the start-up process and of the kind of resources (human and other) required (Barringer & Jones, 2004; MacPherson, 2005). However, greater experience may also lead them to draw on personal experiences to a greater extent and have a more ego-centric rather than team- or venture-centric perspective. Further, overconfidence and familiarity biases (Ucbasaran et al., 2009) may result in experienced entrepreneurs anchoring excessively on the past and not sufficiently adjusting to the demands of the new venture. Experience should enable entrepreneurs to build stronger and more effective networks (Kolvereid & Bullvag, 1993) which would increase the options to find appropriate team-members (Kirschenhofer & Lechner, 2012). However, if repeat entrepreneurs become overly dependent on past contacts (Starr & Bygrave, 1991) it may hinder their ability to acquire new information and ideas (Ucbasaran et al., 2009).

Black Box II: Evaluation and Choice of Team-members

Serial entrepreneurs who have had positive experiences from trusting others are more likely to *over-trust*, i.e., consciously or routinely trusting another person more than would be warranted by an objective assessment, due to overconfidence or naivety (Goel & Karri, 2006; Goel, Bell, & Pierce, 2005). In a similar vein, Ucbasaran, Westhead, Wright, and Flores (2010) found that serial entrepreneurs who had experienced failure did not appear to adjust their *comparative optimism*, i.e., over-optimism compared to non-entrepreneurs. This could be because entrepreneurs are more susceptible to *self-serving attributional biases* (i.e., attributing success to personal factors but attributing failure to external or situational factors) with regard to outcomes of decisions (Westhead & Wright, 2011). These factors may lead experienced entrepreneurs into erroneous team-member selection decision-making.

DISCUSSION

The ideas presented in this paper could be examined with regard to three individual differences among entrepreneurs, i.e., motivations, gender, and cognitive style. With regard to motivations, scholars distinguish between *necessity* and *opportunity entrepreneurs* (Verheul, Thurik, Hessels, & van der Zwan, 2010). The former may typically not have very well-developed schemas about starting up an enterprise and would also be network constrained in terms of being able to attract individuals to join their enterprise, leading to more biased choices. The latter often pursue a business opportunity while still wage-employed (Reynolds, Camp, Bygrave, Autio, & Hay, 2001; Verhuel et al., 2010). They may not have a well-developed start-up schema but they may have a less myopic understanding of start-up success, particularly with regard to the team.

Entrepreneurship research finds there are few, if any, relevant significant sex-related differences between male and female entrepreneurs (Fagenson, 1993; Sexton & Bowman-Upton, 1990). However, there has been no research on the differences between genders in entrepreneurial team recruitment. Studies (e.g., Werner & LaRussa, 1985) have demonstrated that, in general, females are more often characterized by communal qualities and could therefore rely more on personal ties in team formation compared to men, who are more agentic.

Cognitive style (Amabile, 1983; Tennant, 1988) has been widely recognized as an important determinant of individual behavior (Brigham, De Castro, & Shepherd, 2007). Future

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research could identify entrepreneurs' *team formation styles* to examine whether they are related to their leadership styles. For instance, if serial entrepreneurs repeatedly select the same individuals over their entrepreneurial history, it could imply that the former value the contribution of the latter and therefore involve them in decision-making, which in turn implies a more participative leadership style. Conversely, an entrepreneur with a more directive leadership style may only require the team-members to perform their roles, and may therefore adopt a more open (i.e. unbiased) competency-based search process.

Implications for Entrepreneurs – Debiasing Tactics and Strategies

Although cognitive biases and heuristics are often necessary and functional, they could lead to erroneous decision-making. In the context of entrepreneurial team recruitment, this could be particularly risky since they could result in suboptimal (if not dysfunctional) choices and also increase the likelihood of new venture failure, which is usually quite high in most industries.

Arguably the first and most useful debiasing tactic is educating oneself about these biases and heuristics (Mynatt, Doherty, & Tweney, 1977) since it would increase one's awareness of them during decision-making. In this regard, *mindfulness*, "the quality of collective attention that enables entrepreneurs to minimize errors, remain vigilant, and respond effectively to unexpected events" (Rerup, 2005: 452), may be useful. Entrepreneurs, especially experienced ones, could apply mindfulness by paying closer attention to contextual nuances, actively differentiating and refining their experiences, including developing new, discontinuous categories where necessary (Langer, 1989; Rerup, 2005).

The 'quick-flip' model of entrepreneurship could facilitate *short-termism* or *management myopia* and overfocus on the business model, therefore entrepreneurs should counterbalance this and also focus on the organizational model. Entrepreneurs (especially high-tech entrepreneurs who could be 'nerdy' or 'geeky') should make conscious efforts to increase the size of their network by participating in a variety of activities, such as sports, cultural activities, community service, religious service and accepting board memberships (Uzzi & Dunlap, 2005). Larger, more diverse networks could minimize status quo bias, ingroup-outgroup bias, and stereotyping.

According to Cooper, Folta, and Woo (1995), entrepreneurs, whether experienced or not, could benefit from greater emphasis on gathering and utilizing external information. Also, involving outsiders with varied points of view (Jonas, Schulz-Hardt, Frey, & Thelen, 2001) could help entrepreneurs examine a wider set of factors (thereby reducing representativeness heuristic) and re-examine (the possibly disproportionate) weighting they may be giving certain factors. Overconfidence bias could be minimized by asking entrepreneurs to list reasons why the candidate they are leaning toward might be unsuitable (Koriat, Lichtenstein, & Fischhoff, 1980). Entrepreneurs could also minimize availability bias and recency effects by using detailed documentation rather than recall. They could minimize representativeness heuristics and stereotyping by making people harder to categorize by actively looking for individuating information (Pratto & Bargh, 1991). Confirmation bias could be minimized by actively looking for disconfirming data (Lord, Lepper, & Preston, 1984) and slowing down and reflecting (Spengler, Strohmer, Dixon, & Shivy, 1995) which would be especially important for the prototypical time-pressured, action-oriented entrepreneur (Bluedorn and Martin 2008; Trevelyan 2008).

REFERENCES AVAILABLE FROM THE AUTHOR