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Failing and exiting in social and commercial entrepreneurship: The role of situated cognition



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ABSTRACT

This paper explores the decision-making process social entrepreneurs go through when faced with a failing venture, in comparison to commercial entrepreneurs. Findings point towards the role of situated cognition. Using a ‘think-aloud’, scenario-based experiment and two assessments of cognitive effort, our research reveals a unique “person-in-situation” decision-making process in failing situations. The entrepreneurs’ sequences of cognitive activities and cognitive effort are distinctively influenced by the nature of the failing venture as they reach the decision to persist or exit, regardless of the entrepreneurs’ baseline motivations. This is counterintuitive against the predominance of explanations emphasizing the relevance of orientation and intentions to address social needs or maximize profit as well as the role of escalation of commitment in the termination/persistence decision.

1. Failing and exiting in social entrepreneurship

Failing and exiting decisions are fundamental parts of the entrepreneurial process and central to entrepreneurial decision-making research (DeTienne, 2010; Shepherd et al., 2015). When a venture is failing, the entrepreneur must make a decision about whether to persist in an attempt to turn the venture around or pull the plug and exit the venture; typically resulting in the closure of the venture too (Khelil, 2016). Despite being commonplace, the decision-making processes surrounding the exit decision have received limited attention relative to other decisions in the entrepreneurial process (Shepherd et al., 2015). This is particularly prominent in social entrepreneurship (SE) research, where new knowledge is much needed. In this context, failing and exiting might have much more profound consequences given the role social entrepreneurs at times play in their communities.

This under appreciation of failing and exiting in SE stems from both a general lack of attention to the conjunctive role of individual and contextual variables in entrepreneurs’ decision making facing failure (Shepherd et al., 2015; Welter, 2011) and the frequent heroic characterization of the social entrepreneur which places emphasis on the entrepreneurs who are successfully improving people’s lives, with limited focus on those who have less positive stories to tell (Alvord et al., 2004; Martin and Osberg, 2007; Seelos, 2005; Kimmitt and Muñoz, 2018).

Social entrepreneurs and their ventures face a number of unique challenges that make failure just as likely and which arguable make

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the exit decision when confronted with a failing venture even more complex (Tracey et al., 2011). In this sense, what we know about failing and exiting decisions in commercial entrepreneurship might be insufficient to understand and explain failing and exiting decisions in social entrepreneurship. Our study therefore seeks to address two interrelated research questions: what decision-making process do social entrepreneurs go through when faced with a failing venture? How, if at all, does this process differ for commercial entrepreneurs? These questions are critical because they can shed further light on a fundamental decision in the entrepreneurial process: the exit decision (Shepherd et al., 2015). From a comparative perspective (Rousseau and Fried, 2001), these questions allow to understand the role of values and motivations, since social entrepreneurs typically report different values and motivations than commercial entrepreneurs, and the decision-making context (social venture versus commercial venture) (Welter, 2011) as boundary conditions in entrepreneurial cognition and decision-making.

2. Research methods

To address our research questions, we deployed Verbal Protocol Analysis (VPA) (Ericsson and Simon, 1993). VPA involves making inferences about cognitive processes by careful analysis of a written transcript and segments of text gained from individuals thinking aloud as they perform a task. VPA is viewed as an ideal method for gaining insight into the cognitive underpinnings of complex behaviors and decisions. While retrospective recall allows subjects to make up good stories about how they believe they solve problems, and stimulus-response methods force us to deduce subjects' decision processes after the fact, concurrent verbalization allows the researcher to look directly inside the black box of cognitive processing, because of the structure of the short term memory system of the human brain (Ericsson and Simon, 1998). VPA is a well-established methodological approach in studies investigating the decision making of entrepreneurs (Carter et al., 2007; Choi and Shepherd, 2005; Dew et al., 2009; Mason and Stark, 2004; Sarasvathy et al., 1998), where it has also proved helpful to uncovering differences between groups of individuals. Methodological limitations and mitigation measures are discussed in Appendix A.

Data collection. In VPA studies, data collection usually involves three stages: scenario building, instruction and training, and scenario recording. As the aim of the study is to understand the differences in decision making of social and commercial entrepreneurs while facing a failing situation, we elaborated the scenarios using descriptions from actual ventures, one social venture and one commercial venture. We pilot tested the instrument with six entrepreneurs before proceeding with data collection. Participants were recruited via the alumni networks of two universities in the United Kingdom.¹ The research instrument can be found in Appendix B.

Sampling. In establishing the sample, we drew on prior research (Choi and Shepherd, 2005; Sarasvathy et al., 1998) and selected nine social entrepreneurs and nine commercial entrepreneurs (profiles in Appendix C), which is consistent with current practice² (Cable and Graham, 2000; Dew et al., 2009; Gregoire et al., 2010). We used universities Alumni networks, social enterprise associations, and a snowball sampling strategy to identify participants for the study. In order to discriminate social from commercial entrepreneurs, we provided the participant with the following definition: 'a social entrepreneur is the individual whose primary mission is to create social value by providing solutions to social problems' (Dacin et al., 2011:1204), and then asked whether the participant identified themselves as a social entrepreneur. To gain richer data regarding the entrepreneur's reaction to potential failure, we selected entrepreneurs with 2+ years of entrepreneurial experience in their particular domain, as failing for nascent entrepreneurs is largely theoretical, not an actual stressful situation that they have encountered or are likely to encounter in the near future (Ucbasaran et al., 2013). In that sense, they all have familiarity with the concept of business failure as highlighted by Cacciotti et al., (2020). While none of our participants had experience of venture failure in terms of total collapse of the venture, they all experienced small failures in dealing with obstacles, demands, unclear responsibilities, diverse tasks, and complex decisions that are part of the entrepreneurial process (Cacciotti et al., 2020).

Procedure. Before the experiment, we explained the procedure and logic of thinking aloud and then provided the participants with three exercises to practice thinking aloud.³ After instruction and practice, we asked the participants to respond to six different decision scenarios⁴ involving two different failing ventures contexts - three in a familiar context and three in an unfamiliar context⁵ - and to think

¹ Given that VPA studies rely on the capacity of the participants of providing verbal accounts (i.e. verbalization), the testing of the instrument allowed to improve the readability and flow of the experiment, as well the thinking out loud training. We asked the participants to specifically reflect on their own experience after completing the experiment. All of them indicated that the scenarios felt real, they got immersed in the different failing situations and that their responses were similar to what they would experience in a real-life situation.

² Given the demanding nature of the procedures, verbal protocol studies tend to trade large sample sizes that would warrant statistical validity for methodological strategies that emphasize the internal, construct, and external validity of the observations.

³ The exercises were simple arithmetic problems, for example: how much is 235 plus 73? If the participant simply states the answer without talking aloud, the experimenter helped them to model the appropriate responding by saying, "Assume the problem is 235 plus 66. To solve it, I will think 235 plus 6 makes 241, plus 60 makes 301."

⁴ In order to capture significant data from protocols, all subjects were asked to set aside at least 90 min to complete the problems analyzed in this study, and all completed the task without time pressure.

⁵ For the purposes of our study, we define context familiarity as the current sphere of activity of the participant, which is established based on the last two years of continuous venture-related experience. Since our comparison is based on type of entrepreneurial activity, not on industry, we draw on Dacin et al.'s (2011) definition provided above. Thus, the familiar context for self-identified social entrepreneurs would be that of a venture whose primary objective is to create social value by providing solutions to social problems. An unfamiliar context for such individuals would be a venture whose primary objective is to create economic returns. The opposite applies for self-identified commercial entrepreneurs.

aloud continuously as they reached a decision. A number of control tests were applied.⁶ After reading each scenario we asked the participants to think about the specific consequences of venture failure and the consequences of an eventual exit, to think about possible alternatives and solutions regarding how he/she would deal with the various situations.⁷ Responses to the six different decision scenarios by the 18 entrepreneurs yielded 102 verbalizations.⁸

3. Data analysis

Our analysis of verbalization was conducted in a stage-wise fashion including: abductive coding scheme development of cognitive activities, thought segment analysis of cognitive effort and sequential pattern mining.

Abductive coding scheme development. To conduct our analyses, we first used an abductive approach (Walsh and Bartunek, 2011) to identify the central elements of the decision-making process and develop a structured coding scheme for the subsequent analyses. Procedure and data structure can be found in Appendix D. The main outcome of this process was the construction of a cognitive activity scheme with three general and eight specific thinking, reasoning, or remembering operations that enable processing and making sense of information and stimuli that entrepreneurs use in failing situations. Each cognitive activity was operationalized to assist the following analytical stages (Table 1).

Thought segments and coding. This stage involves analyzing information processing actions independently. To individualize and analyze them, VPA requires breaking the verbalizations into thought segments, which are statements, sentences or phrases that are independent units normally identified by pauses of speech (Patzelt and Shepherd, 2010). 1042 thought segments emerged from the 102 verbalizations. This allowed us to explore frequencies of cognitive activities and cognitive effort associated with each cognitive activity involved in failing decision-making (Gray et al., 2014). This is done by looking at the level of cognitive effort invested in a single information processing action in connection to the type of cognitive activity utilized, both first- and second-order. Cognitive effort refers to the total amount of cognitive resources needed to complete a task. Each of the 1042 thought segments was coded and assessed by two researchers simultaneously using the cognitive activity scheme.⁹ We also coded the orientation of the content of the segments, either: social, commercial or neither¹⁰.

Assessment of cognitive effort within and across thought segments. Three assessments were conducted. First, we measured cognitive effort by counting the total amount of words used in a thought segment. Since some people simply talk more than others, in a second assessment we assessed the relative weight of cognitive effort in relation to the total length of the verbalization where that segment is located (i.e. length of segment divided by length of verbalization). Finally, we assessed frequency of cognitive activity by looking at the number of times the participants engaged in each cognitive activity within each of the verbalizations, both in absolute and relative terms. Appendix E provides a set of examples of our coding and assessments of thought segments.

Through these three alternative assessments, we were then able to analyze the differential amount of cognitive effort put in by social and commercial entrepreneurs facing the various failing situations and whether such effort changed when they were asked to make decisions in an unfamiliar context (UC). Fig. 1 provides an overview of the relative cognitive effort across segments (N = 1042). It compares the different cognitive activities used in familiar and unfamiliar contexts using the proportion of cognitive effort over the total length of the verbalization. Fig. 2 provides a comparative assessment of changes in orientation in the alternative failing scenarios, social and commercial. Appendix F provides the full set of results.

Sequential pattern mining. In this final stage, we analyzed the sequence of cognitive activities, examining the position of each cognitive activity within the verbalizations and the pattern of sequences across verbalizations. To do so, we conducted a sequential pattern mining analysis with SPADE: Sequential Pattern Discovery using Equivalence classes algorithm (Barry, 1999). The aim of sequential mining is to discover frequent sequential patterns, this is sets of attributes, shared across time among a large number of objects in a database. By doing so, we were able to uncover the most predominant sequential patterns of cognitive activities used by social and commercial entrepreneurs in the different failing situations. Methodological details and detailed results can be found in Appendix G.

⁶ Since reactions to failing may change depending on the source of venture failure, we incorporated scenarios where there is no evident source or cause of failure as well as scenarios that state explicitly the underlying causes of failure which could be internal (e.g. lack of skills or expertise to face new challenges) or external (e.g. changes in market environment or consumers' needs) causes. To control for alternative explanations, we also included exit scenarios where evidence of failure was absent by telling the participants to assume that the firm is performing well and that there is no risk of failing but that for some reason they are considering exiting the firm.

⁷ The sessions lasted between 50 and 60 min, and these were recorded and transcribed. In the experimental setting, we did not observe significant differences between the reactions to the problems when the source of potential failure changed. Most entrepreneurs reflected on the source of failure, e.g. "oh, ok, here it says that this is related to personal problems", but then came back to use and reinforce the same cognitive activity used in the main decision-making scenario, e.g. "... ok, I think I would do it in the same way".

⁸ From the 108 verbalizations, we excluded six instances where some entrepreneurs decided to skip a particular problem indicating "I would do exactly the same as before", which resulted in 102 verbalizations. This had no effect on the results since we captured and analyzed the length of segments and verbalizations in both absolute and relative terms.

⁹ Collective coding allowed us to resolve discrepancies "in-the-process" by discussing the coding selection for that particular thought segment.

¹⁰ A social orientation can be recognized when actors make reference to or show personal commitment to social factors such as community engagement, responsible employment practices and fair trade. On the contrary, a commercial orientation can be identified when terms such as profitability, growth, cost reduction and liquidation are used (Leiserowitz et al., 2006; Surie and Ashley, 2008).

Table 1
Operationalization of cognitive activities.

Dimension/SPADE code	Operationalization
Reflection	
Context/1	The statement consists primarily of comments, observations, questions, issues suggesting a reflection on the context or external circumstances surrounding the failing situation. These included, for example, thoughts about community, competitive environment or industry-level issues.
Firm/2	The statement consists primarily of comments, observations, questions, issues suggesting a reflection on firm circumstances related to the failing situation. These included, for example, thoughts about employment issues, business model, or supply chains.
Self/3	The statement consists primarily of comments, observations, questions, issues suggesting a reflection on the self or personal-level circumstances of the entrepreneur in the context of the failing situation. These included, for example, thoughts about personal values, past experiences, direct family implications, or personal finances.
Assessment of consequences	
Negative/4	The statement consists primarily of comments, observations, questions, issues suggesting an appreciation of the potential negative consequences of the entrepreneur's decisions in the context of the failing situation. These included, for example, thoughts about not being able to deliver social value to the communities, employees losing their jobs or stop supporting the local producers.
Personal/5	The statement consists primarily of comments, observations, questions, issues suggesting an appreciation of the potential individual-level consequences of the entrepreneur's decisions in the context of the failing situation. These included, for example, thoughts about having to go back to live with parents, emotions such as shame or regret, loss of income or saving, or having to find another job.
Alternative/6	The statement consists primarily of comments, observations, questions, issues indicating an assessment of alternative or possible ways forward before the final decision in the context of the failing situation. These included, for example, thoughts about possible business remodeling, alternative forms of liquidation, or bringing some else on board to cover skills shortages.
Decision	
Exit/7	The statement consists primarily of comments, observations, questions, issues suggesting the decision to exit the venture in the context of the failing situation, regardless of the form of exit. These included, for example, thoughts about selling shares, liquidation, or leave and bring some else as replacement.
Persist/8	The statement consists primarily of comments, observations, questions, issues suggesting the decision to persist and not abandon the venture in the context of the failing situation, regardless of the form of persistence. These included, for example, thoughts about saving the business, reducing wages to avoid bankruptcy and making people redundant, or simply stay putting more effort.

Table 2
Frequent sequential patterns.

SE FC	(25)	SE UC	(25)	CE FC	(27)	CE UC	(24)
Sequence	#protocols	Sequence	#protocols	Sequence	#protocols	Sequence	#protocols
4 8	6.0	6 7	7.0	6 8	9.0	4 8	5.0
3 8	13.0	2 7	13.0	2 8	10.0	3 8	5.0
2 8	12.0	2 6	11.0	6 7	10.0	2 8	7.0
1 8	11.0	2 4	7.0	2 7	8.0	1 8	5.0
2 3	8.0	2 3	7.0	2 6	18.0	1 4	5.0
1 2	7.0	1 2	8.0	1 6	9.0	1 2	5.0
2 3 8	8.0	2 6 7	7.0	2 6 8	8.0		
1 2 8	6.0						

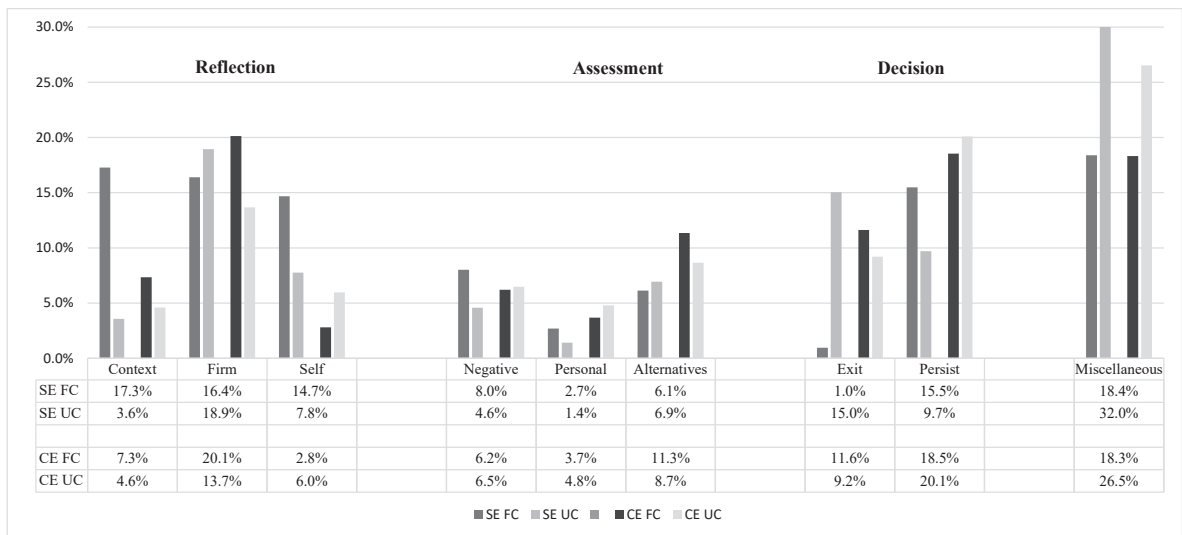
SE = social entrepreneur, CE = commercial entrepreneur, FC = Familiar context, UC = unfamiliar context.

4. Results

Overall, our results point towards the role of situated cognition. However, and contrary to current literature, we observe a venture-pulling effect where exit decisions of social and commercial entrepreneurs are largely shaped by the nature of the venture they are asked to imagine themselves managing (i.e. social or commercial venture), not the kind of entrepreneur they define themselves as. Regardless of their entrepreneurial experience or baseline motivation to either address social needs or maximize profit, both groups of entrepreneurs invested more cognitive effort in making commercially oriented decisions in a commercial failing contexts (e.g. abandon by selling shares) and making socially oriented decisions in a social failing contexts (e.g. persist to keep social mission alive). Moreover, most participants' decisions also changed, as measured by cognitive effort, from one failing scenario to the other. We noticed, for example, that social entrepreneurs tend to spend more time thinking about persisting in social failing scenarios than in commercial failing scenarios (Fig. 1, Decision column). In the latter, decisions change and revolve around exiting the firm: selling shares, getting a new job and liquidating. We found evidence of the above across our assessments of cognitive activities and effort, including changes in cognitive activities, changes in orientation of the cognitive activity, and changes in the sequences of cognitive activities.¹¹

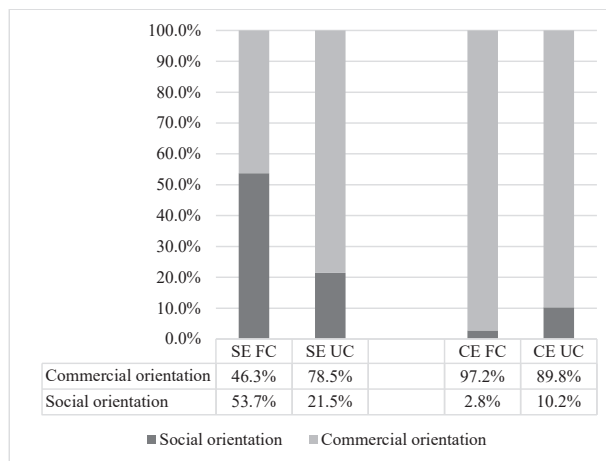
Changes in the reflection cognitive activity. In terms of the *reflection cognitive activity*, we noticed important changes in social entrepreneurs' cognitive effort when making decisions in an unfamiliar (commercial) context (Fig. 1), where the focus on community context (from 17.3% to 3.6%) and personal values (from 14.7% to 7.8%) becomes substantially less prominent because these two cognitive

¹¹ Changes are evident in the overview provided in Fig. 2 and in rows seven and eight in Tables E1, E2 and E3 of Appendix E.



SE = social entrepreneur, CE = commercial entrepreneur, FC = Familiar context, UC = unfamiliar context
 * Measured as proportion of cognitive effort per activity over the length of the protocols

Fig. 1. Comparison of cognitive efforts* per activity across alternative failing scenarios.



SE = social entrepreneur, CE = commercial entrepreneur, FC = Familiar context, UC = unfamiliar context
 Distribution based on cognitive effort (word count per orientation) across N=1,042 thought segments

Fig. 2. Comparison of changes in orientation in alternative failing scenarios.

activities seem less important to decision-making in a commercial context. This is particularly prominent when it comes to reflecting on the broader social context of decision-making, where we observed a substantial decrease in all three assessments of cognitive effort.¹² In contrast, reflections on firm-related issues increase as the social entrepreneur switches to an unfamiliar commercial context (from 16.4% to 18.9%), as it can be also observed in an increase in the number of verbalizations where we noticed this cognitive activity.¹³ Interestingly, we observed a reverse effect in commercial entrepreneurs when making decisions in an unfamiliar social context, where they spent less effort reflecting on firm-level issues (from 20.1% to 13.7%) and more on themselves - their values and personal circumstances (from 2.8% to 6.0%). These results combined suggest that social mission is much more contextual in nature and tends to remain attached to one context in particular, influencing the focus of reflection in failing situations. Whereas profit-making looks inwards, moving the focus of reflection to the firm and the self. We found support for this across all three assessments of cognitive effort, i.e. average amount

¹² Such changes are also shown A/7 in Tables E1 and E2 and C/7 in Tables E3 and 5.

¹³ See B/7 in Tables E2 and E3 in Appendix E.

of cognitive effort per activity, number of verbalizations involving a particular second-order cognitive activity and number of thought segments using the different activities across all verbalizations.¹⁴

Changes in the assessment cognitive activity. In this assessment, the cognitive effort of social entrepreneurs with respect to assessing the negative consequences declines in the unfamiliar context as the community is no longer part of the decision-making frame (from 8% to 4.6%). We also observed a decrease in cognitive effort involved in assessing the personal consequences of a venture failing in a commercial context (from 2.7% to 1.4%).¹⁵ We did not observe differences in their assessment of alternative paths. This suggests that the portfolio of resources available to social entrepreneurs when facing failing situations is likely narrower, due to the relatively less commercial mindset of social entrepreneurs. Conversely for commercial entrepreneurs operating in the unfamiliar context, they spent less time evaluating alternative options (from 11.3% to 8.7%), because failing in social venturing might not be considered as possible given the relationship between the venture and its beneficiaries.¹⁶ Also, the range of alternative solutions might narrow down in line with the social commitments acquired by the social venture as it grows. As expected, the cognitive effort in the assessment of personal and negative consequences increases when commercial entrepreneurs are asked to assess contexts involving broader social implications.¹⁷ However, the time committed to the evaluation of negative consequences is less presumably because of the lack of familiarity with the potential negative consequences of failing as a social venture.

Changes in the decision cognitive activity. Changes here are particularly salient. We noticed an important increase in the social entrepreneurs' cognitive effort invested in reaching an exit decision when they move from a failing social venture to a failing commercial venture (Fig. 1 decision column).¹⁸ A closer examination of the verbalizations suggests that this may be due to the fact that social entrepreneurs see exiting as a possible and perhaps likely option when running a commercial venture, but less so when running a social venture. As seen in Fig. 1, while social entrepreneurs invest only 1% of the time considering exiting as they deal with a failing social venture, this increases to 15% of the thinking time when dealing with a failing commercial venture. The restrictions posed by growing commitments to a broader set of stakeholders in a social enterprise setting are not experienced in the commercial context. This reduces potential concerns when it comes to making an exit decision. Consequently, the cognitive effort invested in persisting decreases for social entrepreneurs when dealing with a commercial failing scenario, decreased from 16.5% to 9.7% of the thinking time. We observed a similar change for commercial entrepreneurs. Similar to social entrepreneurs managing a failing social venture, cognitive effort of commercial entrepreneurs increases when making the decision to persist, from 18% to 20% of thinking time, but decreases for the exit decision (from 11.6% to 9.2%). This is likely due to fact that commercial entrepreneurs may feel compelled to sustain effort because of the additional social commitments involved in the social entrepreneurship setting. For both entrepreneurs, if the situation requires, they will sustain efforts by selecting someone who shares the values and spirit needed to help them continue with the business. It seems that the lack of specific knowledge of this particular kind of business activity (i.e. social venturing) leads the entrepreneurs to engage in particular activities that, in their view, will allow the venture to continue producing social impact. Table 3 provides illustrative quotes for the changes in cognitive activity presented above.

Changes in miscellaneous thinking. There is a final interesting difference between the two groups when dealing with unfamiliar failing scenarios, which relates to the overall and average lengths of other segments, i.e. statements and phrases used in between reflection, assessment and decisions. As expected, both groups increase their cognitive effort rambling or talking about miscellaneous topics. This, given the time it requires to gain familiarity with the novel context. This involves more cognitive effort and an increased need to spend more time processing new information, as evidenced in the "Miscellaneous" columns in Fig. 1.

Changes in orientation. If social and commercial entrepreneurs are in fact different individuals given their baseline motivations, one would expect that their orientations would remain stable when making decisions in both familiar and unfamiliar contexts. Entrepreneurs motivations are often underpinning by their values. These values are relatively stable and tend to transcend situations and serve as guiding principles (Schwartz, 1992). As such, we would expect a social entrepreneur to spend more time examining social considerations regardless of the failing scenario. Likewise, a commercial entrepreneur should spend more time examining economic considerations regardless of the failing scenario. Surprisingly, we noticed that the distribution of cognitive effort per orientation changed from one failing scenario to the other. As seen in Fig. 2, while social entrepreneurs spent 54% of their time "thinking social" when dealing with a failing social venture, such "thinking social" time drops to 21.5% when dealing with a failing commercial venture. We observed the opposite for commercial entrepreneurs, who decreased their "thinking commercial" time, from 97% to 89%, when dealing with failure in a social venture.¹⁹

Patterns of sequences of cognitive activities also changed depending on the failing scenario (Table 2). In the case of social entrepreneurs facing a failing social venture scenario, for example, the most predominant sequential pattern was 2-3-8, occurring in eight verbalizations, meaning that *reflection on firm circumstances* (2) was most frequently followed by *reflection on personal circumstances* (3) and then the *decision to persist* (8). This was reinforced by the 3-8 sequential pattern, which was the most prominent 2-item sequential pattern being present in 52% of the verbalizations. This cognitive pattern [(3-8) → (2-3-8)] has a 61.5% confidence. In other words, if 3-8 occurs together, then there is a 61.5% chance that 2 will also occur, if gaps are allowed in the sequential pattern. While this is acceptable

¹⁴ See also Table E1 A/8 and C/8 in Appendix E.

¹⁵ This result is consistent with Table E1 E/7 in Appendix E.

¹⁶ See Table E1 F/8 in Appendix E.

¹⁷ Such change is substantial in terms of the number of verbalizations and segments where we observed the activity (D/8 and E/8 in Tables E2 and E3).

¹⁸ This is also consistent across all three assessments of cognitive effort in Tables E1, E2 and E3 in Appendix E.

¹⁹ The 2-way ANOVA in Figure E4 shows similar results.

Table 3
Illustrative quotes of changes across cognitive activities.

Change observed	Illustrative
Change in the reflection cognitive activity - social entrepreneurs facing failure in a commercial venture	"I am not clear on what the vision is, what is the purpose of this company, because as it is presented it seems to be like a tools mall."
Change in the reflection cognitive activity - commercial entrepreneurs facing failure in a social venture.	"I would not exit as if closing down and just leaving, because I think that the community relies on the business, the shops rely on the business."
Change in the assessment cognitive activity - social entrepreneur facing failure in a commercial venture.	"This is broader than the other case, we should focus on the more profitable business, on a specific product line, consumer-oriented, or perhaps focus on quality tools and maybe leasing equipment is a good business"
Change in the assessment cognitive activity - commercial entrepreneur facing failure in a social venture.	"Normally, of course, based on sustainability and that there is a community project behind, I guess maybe selling a product to a low-income client and another one to high-income clients is not compatible."
Changes in the decision cognitive activity - social entrepreneurs facing failure in a commercial venture.	"... there are no real other people involved, I would go with an even lighter heart ... growth and profitability are the main targets ... if I could go with quite some earnings, quite some – yeah, some profit on a personal side, why not?" "I would go with an even lighter heart than in the example before. Because I understand the scenario is a rather commercial one, as an old-school example where growth and profitability are the main targets."
Changes in the decision cognitive activity commercial entrepreneurs facing failure in a social venture.	"For me personally, as I said before, I would not exit as in closing down and just leaving because I think that the community relies on the business ... the shops rely in the business, the farm community relies on the business and also the local disadvantaged and unemployment of the community rely on this business for the income and for the living." Commercial Entrepreneur. "If I am about to fail, I would try and get together with someone who is on the same page, hopefully another social venture in the same industry, and then figure out how the both of us together can continue delivering social value." Social Entrepreneur.

in other sequence analyses (e.g. shopping patterns), our work is focused on understanding precise, distinct and complete cognitive sequences. In this sense, we stress that the *reflection on personal circumstances* (3) after the *reflection on firm circumstances* (2) matters for the final *decision to persist* (8), which is mostly influenced by social orientation, as shown in Fig. 2, and which might surpass the relevance of firm-level considerations. Further reflections on these results can be found in Appendix G .

5. Discussion

In this study, we set out to explore what decision-making process social entrepreneurs go through when faced with a failing venture; and how, if at all, this process differs for commercial entrepreneurs. We reveal that the decision-making process of social and commercial entrepreneurs is distinctively influenced by the nature of the failing venture as they reach the decision to persist or exit, regardless of the entrepreneurs' baseline motivations. Although scholars have often claimed that individual differences such as motivations matter in the recognition of social opportunities (Miller et al., 2012; Seelos, 2005) and in social entrepreneurship in general (Koe Hwee Nga and Shamuganathan, 2010), we found that the nature of the venture is largely responsible for shaping entrepreneurs' responses to failing ventures and their subsequent decisions.

When confronted with a failing social venture, social entrepreneurs' cognitive activity is dominated by considerations for the broader set of stakeholders that gravitate around the social venture. This implies that their decision-making process is framed in terms of doing everything that is possible to "keep the social mission alive". Accordingly, the decision to persist is reached by social entrepreneurs because exit is not perceived as a palatable option in this context. These cognitive processes differ from those of commercial entrepreneurs facing a failing commercial venture in that, here, the decision in response to the failing commercial venture is more complex (e.g. requires more cognitive effort) because both persistence and exit are considered as options. If social and commercial entrepreneurs are actually different, decision-making should remain relatively stable regardless of the type of venture in play.

Against our expectations, however, both groups of entrepreneurs increased their cognitive activity and changed their decision patterns making similar decisions when confronted with an unfamiliar venture context. Both were more inclined to exit in commercial contexts and to persist in social contexts. Thus, exit decisions of social and commercial entrepreneurs facing a failing venture seems to be influenced more by the nature of the venture they are managing, than by the type of entrepreneur they are, given their baseline motivations. This is consistent across cognitive activities - as portrayed in a stage-wise fashion: reflection, assessment and decision - and corroborated by each of our three assessments of cognitive effort, orientation and cognitive activity sequences.

We make two contributions to literature. First, we show how the cognitive processes leading up the exit/persist decision might be influenced by the decision-making context (i.e. social or commercial failing venture), responding directly to calls for scholars to go deeper into the cognitive processes and dynamics that underpin entrepreneurial action at different stages of the entrepreneurial process (Gregoire et al., 2015) and in alternative contextual situations (Dew et al., 2015; Shepherd et al., 2019; Welter, 2011). By showing how decisions change when confronted with differing failing venture contexts, we shed light on the boundary conditions of entrepreneurial decision-making and lend support to a more situated cognitive approach (Dew et al., 2015). We go beyond the notion of escalation of commitment to explain the termination/persistence decision (Shepherd et al., 2009), the latter having dominated the discussion so far. We know that this decision is influenced by many individual level factors such as motivations and emotions (DeTienne, 2010; Holland and Shepherd, 2013; Khelil, 2016; Shepherd et al., 2015). However, a more situated cognitive approach requires to consider the nature

of the context to understand why individuals make certain decisions. While commercial ventures are primarily created with the general goal of making profit, social ventures are developed to serve a specific social mission which is often bound to an identified social, cultural, and physical context (Dacin et al., 2011). By applying this theoretical perspective, we argue that, these inherent contextual qualities allow the entrepreneur to make certain decisions and perform certain actions (but not others) within the specific context.

Second, we contribute to the social entrepreneurship literature by exploring exit and underlying decision-making; an aspect of the entrepreneurial process that has been largely neglected by social entrepreneurship scholars in favor of earlier stages of the entrepreneurial process. Specifically, we demonstrate that, irrespective of the primarily social orientation of social entrepreneurs, the exit decision is very much influenced by situational stimulus as well as the underlying cognitive processes supporting those decisions. Interestingly, these findings could be used to speculate on the broader understanding of who a social entrepreneur is or who consider him/herself a social entrepreneur. Although the social entrepreneurs in our sample identified themselves as social entrepreneurs in line with the definition provided by Dacin et al. (2011), de facto their decision-making processes show differences and similarities with commercial entrepreneurs that are driven by the specific failing situation and not by their baseline motivations that are supposed to be used to identify the type of entrepreneurs they represent. This raises the question: does pursuing a social venture make an individual a social entrepreneur? If we only consider the decision-making process, we realize that we are not able to distinguish social from commercial entrepreneurs. What we see, instead, are entrepreneurs that make more socially-oriented or commercially-oriented decisions depending on the situational stimulus they receive. This makes the labels “social” and “commercial” attributes of the decision and not of the entrepreneur.

Author statement

All persons who meet authorship criteria are listed as authors. All authors certify that they have participated sufficiently in the work to take public responsibility for the content, including participation in the concept, design, analysis, writing, and revisions of the manuscript.

Declaration of competing interest

None.

Appendix A. Methodological limitations and mitigation measures

Our work and VPA studies in general present some limitations. As mentioned, VPA studies tend to trade large sample sizes that would warrant statistical validity for strategies that emphasize the comprehensive validity of the observations and facilitate in-depth understanding of the phenomenon. In dealing with potential problems of generality, as Dew et al. (2009) stress, “it is the method itself that provides the remedy” (p.300). The unit of analysis for VPA studies is the verbalization and not the participant. Each of the 18 entrepreneurs provided a large number of analyzable bodies of text rich (1042 thought segments), enough to make valid inferences. Although our study is in line with current practice, we do believe that external validity can be improved by using a larger sample size and we encourage our scholarly community to do so.

Another limitation relates to potential biases in the verbal account of entrepreneurs when facing the different failing situations, in particular social desirability, retrospection and introspection biases. In general, the validity of verbally reported thought sequences stem from its immediacy: the very short interval between the occurrence of thoughts and their verbalization (Dew et al., 2009). Therefore, the concurrent verbalization technique suffers little from retrospection and introspection biases. Social desirability bias represents a major concern in studies dealing with social and environmental issues (Roxas and Lindsay, 2011), in that it may alter the responses when dealing with a failing venture situation. Authors argue that likelihood of biased verbalizations, given social desirability, increases when there is a significant interaction between the participant and the experimenter (Austin and Delaney, 1998). We minimized this risk by keeping the interaction to a minimum and by maintaining no direct eye contact with the participant. Following prior VPA studies, all interactions were geared towards reinforcing verbalizations without triggering other social responses. Nevertheless, we see possibility to complement this study with future research that, for example, examines the decision-making processes leading up to the decision to exit (or persist) a failing venture using methods that minimize the risk of social desirability, retrospection and introspection biases.

Appendix B. Research instrument

Scenario 1 - The Food Company Ltd

Problem 1: You are one of the founders of *The Food Company Ltd*, a store that offers healthy, local food at reasonable prices. By connecting an urban community with the local farming community, your store has sought to achieve its growth and profitability targets whilst operating within values based on community development and cohesion. The store sells a wide variety of produce, from locally sourced fruits and vegetables to branded cupboard and frozen food. By doing so, it supports local producers and reduces waste and emissions, while maintaining a diverse stock of products at reasonable prices. The customer base of *The Food Company Ltd* is diverse. Given its strategic location, it serves people from both low- and high-income communities. Together with selling food and helping clients make healthy decisions, the shop has contributed to the community by providing training and job opportunities to unemployed members of the community. Since you started this business three years ago the situation has changed, the business is not performing as it used to be, there is a risk of failing and you are considering exiting the firm. Before we look at some possible reasons for this problem, please answer the following questions, one at a time:

- What are the consequences of failing, and how would you deal with this?
- What might be the consequences of exiting *The Food Company*, and how would you deal with this? So far, it is not clear if the business will remain open or not.
- In case you decide to exit *The Food Company*, what alternatives do you see in this situation, and how would you proceed?

Problem 2 – Internal sources: In reflecting about some of reasons for your possible exit of the firm, you come to the conclusion that there are several internal issues that may be the cause of the current risk of failing. Your business is going through a new phase of development where objectives such as growth and profitability require different skills. A complex and changing market environment has increased the perceived uncertainty of your business (Perceived uncertainty). You need velocity and agility but you have realized that your expertise and your knowledge are not enough to put together a successful strategy to manage the future of your venture (Personal ability). Notwithstanding your investment of money, time, and energy into this business, the recent poor performance and the risk of failure make you think about whether you have done the right thing in pursuing this business opportunity (opportunity costs).

- With these internal issues in mind, how would you respond in this situation?
- In case you decide to exit *The Food Company*, what alternatives do you see in this situation, and how would you proceed?

Problem 3 – External sources: In reflecting about some of reasons for your possible exit of the firm, you come to the conclusion that there are also several external issues that may be the cause of the current risk of failing. The food industry is a complex and changing market environment and the ability to predict consumer food trends is one of the key success factors. You are convinced that your team executed the wrong marketing plan and you think that the poor financial results are attributed to ineffective communication and advertisement (venture's ability to execute). In addition, the lack of trend awareness due to an incorrect market research is threatening your ability to respond to consumers' requests as effectively as you did in the past. Consequently, your customer base and your market share have decreased and you are now wondering whether your business will still be able to achieve growth, profitability and the social goal of community development and cohesion (increasing commitment). You may want to reduce your personnel but you are worried about disappointing community expectations on job opportunities provided by your business (threat to social esteem).

- With these external issues in mind, how would you respond in this situation?
- In case you decide to exit *The Food Company*, what alternatives do you see in this situation, and how would you proceed?

Scenario 2 - The Tools Company Ltd

Problem 4: You are one of the founders of *The Tools Company Ltd*, a store that offers tools and building materials at reasonable prices. By importing products from Asia, your store has sought to achieve its growth and profitability targets whilst operating within standards based on quality and affordability. The store sells a wide variety of products, from cheap workshop tools and materials to branded hand and power tools. By doing so, it provides individuals and professional builders with tools and materials to develop construction projects at affordable prices, while maintaining a range of top end products. The customer base of *The Tools Company Ltd* is diverse. Given its strategic location, it serves people from both low- and high-income communities. Together with selling building equipment and helping individual clients make decisions on their projects, the shop has a rental service that offers to small construction firms the possibility of renting a range of workshop tools by hour. Since you started this business three years ago the situation has changed, the business is not performing as it used to be, there is a risk of failing and you are considering exiting the firm. Before we look at some possible reasons for this problem, please answer the following questions, one at a time:

- What are the consequences of failing, and how would you deal with this?
- What might be the consequences of exiting *The Tools Company*, and how would you deal with this? So far, it is not clear if the business will remain open or not.

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- In case you decide to exit *The Tools Company*, what alternatives do you see in this situation, and how would you proceed?

Problem 5 – Internal sources: In reflecting about some of reasons for your possible exit of the firm, you come to the conclusion that there are several internal issues that may be the cause of the current risk of failing. Your business is going through a new phase of development where objectives such as growth and profitability require different skills. A more competitive environment has increased the perceived uncertainty of your business (Perceived uncertainty). Your customers require more sophisticated solutions and you have realized that your expertise and your knowledge are not enough to put together a successful strategy to manage the future of your venture (Personal ability). Notwithstanding your investment of money, time, and energy into this business, the recent poor performance and the risk of failure make you think about whether you have done the right thing in pursuing this business opportunity (opportunity costs).

- With these internal issues in mind, how would you respond in this situation?
- In case you decide to exit *The Tools Company*, what alternatives do you see in this situation, and how would you proceed?

Problem 6 – External sources: In reflecting about some of reasons for your possible exit of the firm, you come to the conclusion that there are also several external issues that may be the cause of the current risk of failing. Recently, a new store that offers tools and building materials opened in your area. Your team, which failed to predict such event, is not able to effectively manage the market environment with an increased competition (Venture's ability to execute). In order to achieve growth and profitability, for some of your products you decided to decrease the prices at the expenses of quality and affordability. This choice generated a lot of complains from your customers as you were no longer able to deliver the expected high quality products (increasing Commitment). You are now worried about your reputation and you do not want to disappoint the small construction firms that rely on your service (Threat to social esteem).

- With these external issues in mind, how would you respond in this situation?
- In case you decide to exit *The Tools Company*, what alternatives do you see in this situation, and how would you proceed?

Control

Problem 1

Let's go back to *The Food Company Ltd*, the store that offers healthy, local food at reasonable prices, and of which you are one of the founders. In this part of the experiment we will assume that *The Food Company* is performing well. After three years everything looks in order and there is no risk of failing. However, for some reason you are considering exiting the firm. Please answer the following questions, one at a time:

- What are the consequences of exiting *The Food Company*, and how would you deal with this?
- In case you decide to exit *The Food Company*, what alternatives do you see in this situation, and how would you proceed?

Problem 2

Let's go back to *The Tools Company Ltd*, the store that offers tools and building materials at reasonable prices, and of which you are one of the founders. In this part of the experiment we will assume that *The Tools Company* is performing well. After three years everything looks in order and there is no risk of failing. However, for some reason you are considering exiting the firm. Please answer the following questions, one at a time:

What are the consequences of exiting *The Tools Company*, and how would you deal with this?

In case you decide to exit *The Tools Company*, what alternatives do you see in this situation, and how would you proceed?

Appendix C. Profiles

ID	Relevant background	Venture	Experience ^a
Commercial entrepreneurs			
Alejandro	Business administration degree Experience in cargo and international delivery services	Freight transport and storage	10
Hector	Business administration and sales degree Experience in incubation and entrepreneurship support	Quinoa-based ready meals	2
Marcelo	Food and business administration degree	Catering and food services	6
Mario	Business administration degree Experience in incubation and entrepreneurship support	Leadership consulting and job marketplace platform for young people, focused on internships and entry-level positions	3
Lorraine	PhD in entrepreneurship Experience managing consulting ventures focused on business strategy	Consulting venture providing support for strategy development, growth and organizational change	10
Marcello	Business administration degree Experience managing high tech ventures	Engineering consulting venture	7
Francesca		Restaurant	3

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ID	Relevant background	Venture	Experience ^a
	College degree Experience with managerial roles in the food and beverage industry		
Steve	College degree Experience with managerial roles in the food and beverage industry	Restaurant	3
Vish	PhD in entrepreneurship Experience in managerial roles in commercial ventures	Consulting venture providing strategy development, support, research and training for creative businesses and cultural organizations	3
Social entrepreneurs			
Jose	Engineering degree Volunteering work for international NGO (war and displacement)	Equity-based crowdfunding platform focused on supporting Latin American social entrepreneurs	3
Oscar	Business administration and marketing degree Involved in several social innovation projects and initiatives, including clothing and energy efficiency	Social space offering incubation and support to local artisans	5
Sebastian	Business administration degree Volunteering work for international NGO (poverty and enterprise)	Training program for entrepreneurs living in rural areas	3
Sylvia	Psychologist and writer Experience raising environmental awareness, promoting collaboration and providing emotional support to disadvantaged groups in school age	Education program for at-risk youth	4
Vicente	Education and philosophy degrees Experience in secondary education, ethics training and social investment	Social venture and social innovation consulting	3
Lorenzo	Business administration degree Involved in social innovation projects	Application that allows deaf make phone calls by transforming text into artificial voice	3
Michael	Business administration degree Involved in several social sustainability initiatives, including zero waste and up-cycling projects and awareness campaigns.	Sustainability projects and social venture consulting	5
Rafael	Marketing degree Volunteering work for international NGO (housing for the poor)	Head hunting for third sector organizations	4
David	Fundraising officer at international NGO Business administration degree	Entrepreneurship support for university students engaged in social venture projects	4

^a years of entrepreneurial experience with current venture at the time of data collection.

Appendix D. Abductive development of coding scheme

We first coded sections of text with representations of cognitive activities people used to make decisions (Figure D1). We focused on those elements in the narrative emerging across scenarios and shared by both social and commercial entrepreneurs. We identified 15 representations of cognitive activities (Column B). To enhance validity, two of the authors evaluated the verbalizations collectively (Madill et al., 2000), from exploratory codes to categories. Discrepancies were resolved by discussing the coding selection in that particular transcript. As these elements emerged, we engaged in a process of deductive reasoning, searching the existing literature on decision-making processes for concepts and frameworks to better organize and explain what we saw in our data. Using abductive reasoning, we clustered the 15 representations thematically into second-order (Column C) and first-order (Column D) cognitive activities. For example, extant research on entrepreneurial decision-making suggests that reflection on context, firm and individual level circumstances is an essential part of the individual's ability to identify opportunities which are overlooked by others (Tang et al., 2012).

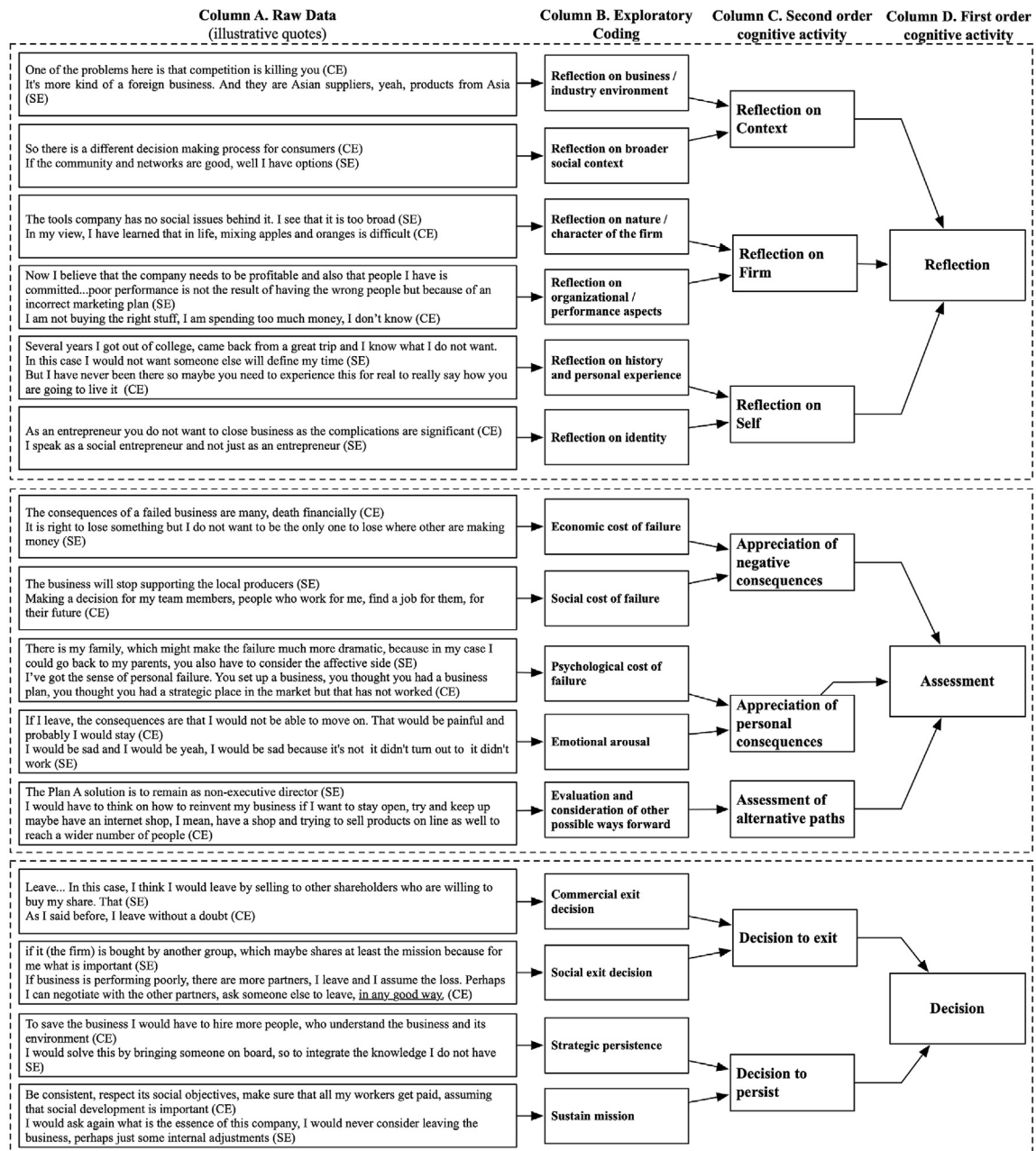


Fig. D1. Data structure.

Appendix E. Examples of coding and assessments of thought segments

TS#	Thought segments	Cognitive activity			TS cognitive effort	
		First order	Second order	Orientation	Total	Relative ^a
1	After three years the situation has changed and perhaps I have fewer customers and the performance has decreased,	Reflection	Context	Commercial	18	0.044
2	It does not say that this is just about sales issues but operational issues,	Reflection	Firm	Commercial	14	0.034
4		Assessment	Negative	Social	13	0.032

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TS#	Thought segments	Cognitive activity			TS cognitive effort	
		First order	Second order	Orientation	Total	Relative ^a
Social entrepreneur in social failing scenario (familiar context)						
	The consequences would be that the business will stop supporting the local producers,					
8	I would try to get together with someone who is in the same page,	Decision	Persist	Social	14	0.034
11	I can minimize my distribution costs and create some synergies between the two,	Decision	Persist	Commercial	13	0.032
12	For me it would be a shame if this fails even if someone buys us out,	Assessment	Negative	Social	16	0.039
14	we can't forget that we also have a commitment with the people who work with us,	Reflection	Context	Social	16	0.039
Commercial entrepreneur in social failing scenario (unfamiliar context)						
		First order	Second order	Orientation	Total	Relative ^b
1	one of the consequences is that the business will go bankrupt,	Assessment	Negative	Commercial	12	0.0632
2	I let the farmers down with no sales,	Assessment	Negative	Social	8	0.0421
3	I would have to lay off a lot of people,	Assessment	Negative	Commercial	10	0.0526
5	I would solve the problem as Nokia did,	Decision	Exit	Commercial	8	0.0421
6	during bankruptcy they supported their employees all the way through,	Decision	Exit	Commercial	10	0.0526
7	they were allowed to use the facilities to explore alternatives and find a new job.	Decision	Exit	Commercial	15	0.0789
11	If I have a personal problem I would just step aside and look for someone else who knows better and can do a better job,	Decision	Exit	Commercial	26	0.1368
12	If I'm doing bad financially I would hire someone with more appropriate skills to fix the problem,	Decision	Exit	Commercial	17	0.0895
Commercial entrepreneur in commercial failing scenario (familiar context)						
		First order	Second order	Orientation	Total	Relative ^c
1	Here I will react according to what I think,	Miscellaneous	–	–	10	0.0376
2	A business that has operated for many years is tools stores,	Reflection	Context	Commercial	11	0.0414
3	Thinking about the competition,	Reflection	Firm	Commercial	4	0.0150
4	One solution is to import directly reducing costs by partnering with others so I can compete with other large companies,	Assessment	Alternatives	Commercial	20	0.0752
11	If there is competition why are they doing good and we are doing bad?,	Reflection	Firm	Commercial	14	0.0526
15	Viewed this way where something was done already I leave first of all because the manager messed it up I lost customers.	Decision	Exit	Commercial	23	0.0865
17	As I said before I leave without a doubt,	Decision	Exit	Commercial	10	0.0376
Social entrepreneur in commercial failing scenario (unfamiliar context)						
		First order	Second order	Orientation	Total	Relative ^d
1	TC has no social issues behind it I see that it is too broad,	Reflection	Firm	Commercial	15	0.0240
2	I do not like big chain models which although are efficient I prefer more diversified and niche models,	Miscellaneous	–	–	18	0.0288
3	If there are problems there is the issue of integration.	Reflection	Context	–	10	0.0160
10	I would focus on the suppliers I work with on processes and certifications they may have and somehow I'd focus on having not too many distribution channels.	Decision	Persist	Commercial	27	0.0433
18	In this case I would not want someone else will define my time.	Reflection	Self	–	13	0.0208
22	Ideally I can pivot and grab all the resources I have and build on it in a new direction,	Decision	Exit	Commercial	19	0.0304
23	If I am to leave I have learned from other projects,	Decision	Exit	Commercial	12	0.0192

^a Number of words over total effort in protocol: 1 = 407.

^b Number of words over total effort in protocol: 2 = 190.

^c Number of words over total effort in protocol: 3 = 266.

^d Number of words over total effort in protocol: 4 = 624.

Appendix F. Full set of results

Tables F1, F2 and F3 show the results of three assessments of cognitive effort. Table F1 shows the average amount of cognitive effort per activity as well as the changes in cognitive effort (absolute and relative) when the entrepreneur is asked to respond to the failing situation in an unfamiliar context. Table F2 shows the number of verbalizations involving a particular second-order cognitive activity over total number of verbalizations ($N = 102$). Table F3 presents the number of thought segments using the different activities across all 102 verbalizations. Fig. 2 in the main text and F4 provide alternative comparative assessments of changes in orientation in the alternative failing scenarios, social and commercial.

The most salient changes across scenarios are highlighted in rows seven and eight in each of the Tables. Table F1, for example, shows that when social entrepreneurs move to an unfamiliar context, they spend less than half of the time thinking about the context (column A/row 7 = 0.45), relative to the familiar context, and three times more thinking about exiting (Table F1 G/7 = 3.0). Similarly, their orientation changes and they appear spending almost the triple amount of time thinking about issues in reference to commercial factors such as liquidation and selling shares (Table F1 L/7 = 0.91). This is also evident in Fig. 2 in the main text and F4.

Conversely, commercial entrepreneurs spend three times more thinking “social” (Table F1 K/8 = 3.19) and reflecting on their

personal values (Table F1 C/8 = 1.25) when managing a failing social venture. Tables F2 and E3 show similar patterns. Reflections on context for social entrepreneurs decrease in the number of verbalizations where that cognitive activity appears (Table F2 A/7 = 0.69) and also in terms of the total numbers of thought segments using such cognitive activity (Table F3 A/7 = 0.31). The increase in thinking “social” and reflecting on personal values is salient for commercial entrepreneurs managing a failing social venture in the number of verbalizations and total of thought segments, as evidenced in C/8 = 1.8 and I/8 = 6.50 of Table F2, and C/8 = 2.43 and I/8 = 8.25 of Table F3.

Changes in the final decision are also salient for both social and commercial entrepreneurs when facing an unfamiliar failing context, in terms of the number of verbalizations and total of thought segments where exit and persist appear. For social entrepreneurs instances of exit increase significantly (Table E2 G/7 = 6.50 and Table F3 G/7 = 18.00) whilst instances of persist decrease (Table F2 H/7 = 0.45 and Table F3 H/7 = 0.76). For commercial entrepreneurs instances of exit decrease significantly (Table F2 G/8 = 0.75) whilst instances of persist increase (Table F2 H/8 = 1.90 and Table F3 H/8 = 1.62).

Table F1

Level of cognitive effort of cognitive activities, overall and orientation.^a

		Reflection			Assessment			Decision			Orientation		
		A	B	C	D	E	F	G	H	I	J	K	L
		Context	Firm	Self	Negative	Personal	Alternat.	Exit	Persist	Miscell. ^b	Total ^c	Social	Commer.
1	SE FC	57.23	50.43	48.62	43.13	38.67	44.00	20.50	33.35	33.00	179.46	51.04	43.96
2	SE UC	25.63	51.67	49.44	37.43	27.00	36.09	61.50	69.50	76.42	238.58	35.00	128.04
3	CE FC	48.50	53.25	29.60	41.00	32.50	33.33	51.25	98.00	35.89	195.85	4.93	171.04
4	CE UC	28.56	54.57	37.11	32.91	33.50	60.50	57.22	59.11	54.93	207.04	15.70	137.56
5	SE FC > UC	-31.61	1.24	0.83	-5.70	-11.67	-7.91	41.00	36.15	43.42	59.13	-16.04	84.08
6	CE FC > UC	-19.94	1. ^b 2	7.51	-8.09	1.00	27.17	5.97	-38.89	19.04	11.19	10.78	-33.48
7	SE FC > UC ^d	0.45	1.02	1.02	0.87	0.70	0.82	3.00	2.08	2.32	1.33	0.69	2.91
8	CE FC > UC ^d	0.59	1.02	1.25	0.80	1.03	1.82	1.12	0.60	1.53	1.06	3.19	0.80

SE = social entrepreneur, CE = commercial entrepreneur, FC = Familiar context, UC = unfamiliar context.

^a Average length of segment by word count.

^b Average length of other segments.

^c Average length of full protocol.

^d In bold numbers differences of <0.7 and >1.3 between familiar and unfamiliar contexts.

Table F2

Number of verbalizations involving particular cognitive activities.^a

		Reflection			Assessment			Decision		Orientation	
		A	B	C	D	E	F	G	H	I	J
		Context	Firm	Self	Negative	Personal	Alternative	Exit	Persist	Social	Commercial
1	SE FC	13	14	13	8	3	6	2	20	16	22
2	SE UC	9	21	9	8	3	11	13	9	15	24
3	CE FC	8	20	5	8	6	18	12	10	2	27
4	CE UC	9	14	9	11	8	8	9	19	13	27
5	SE FC > UC	-4	7	-4	0	0	5	11	-11	-1	2
6	CE FC > UC	1	-6	4	3	2	-10	-3	9	11	0
7	SE FC > UC (%) ^b	0.69	1.50	0.69	1.00	1.00	1.83	6.50	0.45	0.94	1.09
8	CE FC > UC (%) ^b	1.13	0.70	1.80	1.38	1.33	0.44	0.75	1.90	6.50	1.00

SE = social entrepreneur, CE = commercial entrepreneur, FC = Familiar context, UC = unfamiliar context.

^a Over total number of verbalizations N = 102.

^b In bold numbers differences of <0.7 and >1.3 between familiar and unfamiliar contexts.

Table F3

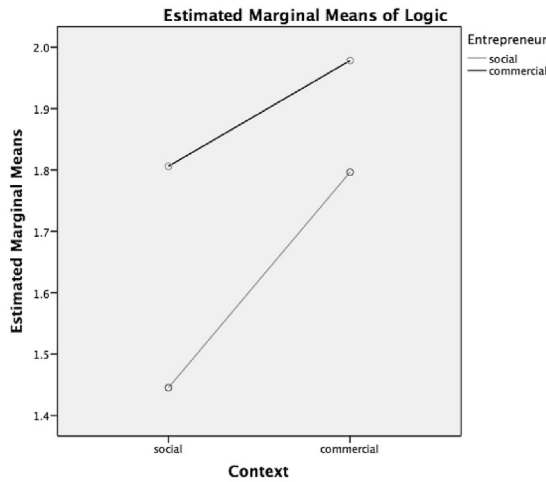
Total number of thought segments across all verbalizations.^a

		Reflection			Assessment			Decision		Orientation	
		A	B	C	D	E	F	G	H	I	J
		Context	Firm	Self	Negative	Personal	Alternative	Exit	Persist	Social	Commercial
1	SE FC	42	40	42	20	8	20	2	42	74	60
2	SE UC	13	47	17	15	3	19	36	32	40	137
3	CE FC	17	42	7	13	8	27	25	34	4	181
4	CE UC	19	39	17	23	17	22	31	55	33	183
5	SE FC > UC	-29	7	-25	-5	-5	-1	34	-10	-34	77
6	CE FC > UC	2	-3	10	10	9	-5	6	21	29	2
7	SE FC > UC (%) ^b	0.31	1.18	0.40	0.75	0.38	0.95	18.00	0.76	0.54	2.28
8	CE FC > UC (%) ^b	1.12	0.93	2.43	1.77	2.13	0.81	1.24	1.62	8.25	1.01

SE = social entrepreneur, CE = commercial entrepreneur, FC = Familiar context, UC = unfamiliar context.

^a N = 102.

^b In bold numbers differences of <0.7 and >1.3 between familiar and unfamiliar contexts.



Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	21.681 ^a	3	7.227	52.176	0
Intercept	1962.873	1	1962.873	14171.145	0
Scenario	10.892	1	10.892	78.634	0
Entrepreneur	11.695	1	11.695	84.432	0
Scenario * Entrepreneur	1.272	1	1.272	9.182	0.003
Error	89.202	644	0.139		
Total	2166	648			
Corrected Total	110.883	647			

^a R Squared = .196 (Adjusted R Squared = .192)

Analysis of variance is based on logic of each thought segments (N=1,042). 1= social orientation, 2=commercial orientation

Fig. F4. Two-way Anova of changes in orientation in alternative failing scenarios.

Appendix G. Procedure and results from sequential pattern mining analysis

The input required for sequential pattern mining analysis is a sequence database, for which we transformed each cognitive activity into a number (see Table 1 SPADE code) and then sorted the verbalization as lists of numbers, defined as itemsets. A frequent sequential pattern is the one exhibiting a support no less than the *minsup* value defined in the parameters' specifications. The *minsup* parameter is a user-defined support threshold that establishes the minimum percentage of itemsets exhibiting the sequence to be included in the analysis. Table G1, G2, G3, and G4 show the results of the sequential pattern mining analysis for all four entrepreneur/context combinations.

Table G1
Social Entrepreneur (*minsup* 0.25)

Sequence	#protocols SUP	Specific protocol showing pattern SID
4 8	6.0	1 4 6 7 12 13
3 8	13.0	2 4 5 8 9 12 13 14 16 17 19 20 24
2 8	12.0	1 6 7 8 9 12 14 15 16 17 19 24
1 8	11.0	1 3 4 5 6 7 11 13 15 17 24
2 3	8.0	8 9 12 14 16 17 19 24
1 2	7.0	1 6 7 15 17 18 24
2 3 8	8.0	8 9 12 14 16 17 19 24
1 2 8	6.0	1 6 7 15 17 24

Table G2
Social Entrepreneur – unfamiliar domain (*minsup 0.25*)

Sequence	#protocols SUP	Specific protocol showing pattern SID
6 7	7.0	3 4 5 8 12 13 15
2 7	13.0	3 4 5 7 8 11 12 13 14 15 18 24 25
2 6	11.0	1 3 4 5 6 8 10 12 13 15 23
2 4	7.0	1 7 8 15 17 23 25
2 3	7.0	8 10 15 16 20 23 24
1 2	8.0	1 4 5 6 7 10 16 23
2 6 7	7.0	3 4 5 8 12 13 15

Table G3
Commercial Entrepreneur (*minsup 0.23*)

Sequence	#protocols SUP	Specific protocol showing pattern
6 8	9.0	4 6 15 17 18 20 28 30 31
2 8	10.0	3 6 9 15 17 18 20 28 30 31
6 7	10.0	4 5 11 14 19 21 25 26 30 33
2 7	8.0	5 10 14 19 21 26 30 33
2 6	18.0	5 6 8 14 15 17 18 19 20 21 22 24 26 27 28 30 31 33
1 6	9.0	4 5 8 11 17 20 28 30 31
2 6 8	8.0	6 15 17 18 20 28 30 31

Table G4
Commercial Entrepreneur – unfamiliar domain (*minsup 0.25*)

Sequence	#protocols SUP	Specific protocol showing pattern
4 8	5.0	1 2 8 9 10
3 8	5.0	1 8 9 14 17
2 8	7.0	1 5 6 8 9 10 13
1 8	5.0	1 2 8 10 13
1 4	5.0	1 2 4 8 10
1 2	5.0	1 8 10 12 13

Reflection on the SPM results

When social entrepreneurs were confronted with a failing commercial venture, the sequential pattern: *firm reflection* → *reflection on self* → *persist decision* was replaced by a business-centered decision sequence of 2-6-7. Here, the assessment focused mostly on *firm level circumstances* (2), followed by assessment of *alternative decision paths* (6) and then the immediate *decision to exit* (7). From this we can infer that the cognitive process of social entrepreneurs in a commercial context becomes one of “how do I exit” rather than “should I exit or not”. This is further reinforced by the predominance of the 2–6 sequential pattern, with 44% confidence. Interestingly, we observed a faster transition from reflection to decision, where the simple reflection on the firm in a commercial scenario lead to an exit decision (2–6 → 7). This sequential pattern was present in 52% of the SE UC verbalizations. In the case of commercial entrepreneurs facing a failing situation in a familiar context, the most predominant three-item sequential pattern was 2-6-8, occurring in eight verbalizations, which means that *reflection on firm circumstances* (2) is most frequently followed by the *assessment of alternative decision paths* (6) and then the immediate *decision to persist* (8). This is reinforced by the 2–6 sequential pattern, which was the most prominent 2-item sequential pattern covering 67% of the verbalizations.

We found further support for the *firm reflection* → *alternatives assessment* → *persist decision* (2-6-8) sequence in the two-item 6–8 sequence. From these results we can argue that the cognitive sequences [(2–6) → (2-6-8)] and [(6–8) → (2-6-8)] have a 44.4% and 88.8% of confidence, respectively. If 2–6 and 6–8 occur together, it is highly likely that 8 will follow the former and 2 will precede the latter. Unlike social entrepreneurs, where there was a clear emphasis on persisting when it comes to decision-making in a familiar context, commercial entrepreneurs exhibited both types of final decisions, influenced in large proportion by business-related reflection (2–7) and assessment (6–7). Prioritizing persistence over exit becomes more likely however, when commercial entrepreneurs make decisions in a failing social venture, decisions are preceded by a balanced reflection on the context (1–8), firm (2–8) and self (3–8) and then the assessment of potential negative consequences (4–8).

References

- Alvord, S.H., Brown, L.D., Letts, C.W., 2004. Social entrepreneurship and societal transformation an exploratory study. *J. Appl. Behav. Sci.* 40 (3), 260–282.
- Austin, J., Delaney, P., 1998. Protocol analysis as a tool for behavior analysis. *Anal. Verbal Behav.* 15, 41.
- Barry, B., 1999. Sustainable and intergenerational justice. In: Dobson, A. (Ed.), *Fairness and Futurity Essays on Environmental Sustainability and Social Justice*. OUP, Oxford.
- Cable, D.M., Graham, M.E., 2000. The determinants of job seekers' reputation perceptions. *J. Organ. Behav.* 21 (8), 929–947.

- Cacciotti, G., Hayton, J.C., Mitchell, J.R., Allen, D.G., 2020. Entrepreneurial fear of failure: scale development and validation. *J. Bus. Ventur.* 35 (5) (in press).
- Carter, S., Shaw, E., Lam, W., Wilson, F., 2007. Gender, entrepreneurship, and bank lending: the criteria and processes used by bank loan officers in assessing applications. *Enterpren. Theor. Pract.* 31 (3), 427–444.
- Choi, Y.R., Shepherd, D.A., 2005. Stakeholder perceptions of age and other dimensions of newness. *J. Manag.* 31 (4), 573–596.
- Dacin, M.T., Dacin, P.A., Tracey, P., 2011. Social entrepreneurship: a critique and future directions. *Organ. Sci.* 22 (5), 1203–1213.
- DeTienne, D.R., 2010. Entrepreneurial exit as a critical component of the entrepreneurial process: theoretical development. *J. Bus. Ventur.* 25 (2), 203–215.
- Dew, N., Read, S., Sarasvathy, S.D., Wiltbank, R., 2009. Effectual versus predictive logics in entrepreneurial decision-making: differences between experts and novices. *J. Bus. Ventur.* 24 (4), 287–309.
- Dew, N., Grichnik, D., Mayer-Haug, K., Read, S., Brinckmann, J., 2015. Situated entrepreneurial cognition. *Int. J. Manag. Rev.* 17 (2), 143–164.
- Ericsson, K.A., Simon, H.A., 1998. How to study thinking in everyday life: contrasting think-aloud protocols with descriptions and explanations of thinking. *Mind Cult. Activ.* 5 (3), 178–186.
- Ericsson, K.A., Simon, H.A., 1993. *Protocol Analysis: Verbal Reports as Data*. MIT Press.
- Gray, B.J., Duncan, S., Kirkwood, J., Walton, S., 2014. Encouraging sustainable entrepreneurship in climate-threatened communities: a Samoan case study. *Enterpren. Reg. Dev.* 26 (5–6), 401–430.
- Gregoire, D.A., Cornelissen, J., Dimov, D., Burg, E., 2015. The mind in the middle: taking stock of affect and cognition research in entrepreneurship. *Int. J. Manag. Rev.* 17 (2), 125–142.
- Gregoire, D.A., Barr, P.S., Shepherd, D.A., 2010. Cognitive processes of opportunity recognition: the role of structural alignment. *Organ. Sci.* 21 (2), 413–431.
- Holland, D.V., Shepherd, D.A., 2013. Deciding to persist: adversity, values, and entrepreneurs' decision policies. *Enterpren. Theor. Pract.* 37 (2), 331–358.
- Khelil, N., 2016. The many faces of entrepreneurial failure: insights from an empirical taxonomy. *J. Bus. Ventur.* 31 (1), 72–94.
- Kimmit, J., Muñoz, P., 2018. Sensemaking the 'social' in social entrepreneurship. *International Small Business Journal* 36 (8), 859–886.
- Koe Hwee Nga, J., Shamuganathan, G., 2010. The influence of personality traits and demographic factors on social entrepreneurship start up intentions. *J. Bus. Ethics* 95 (2), 259–282.
- Leiserowitz, A.A., Kates, R.W., Parris, T.M., 2006. Sustainability values, attitudes, and behaviors: a review of multinational and global trends. *Annu. Rev. Environ. Resour.* 31 (1), 413–444.
- Madill, A., Jordan, A., Shirley, C., 2000. Objectivity and reliability in qualitative analysis: realist, contextualist and radical constructionist epistemologies. *Br. J. Psychol.* 91 (1), 1–20.
- Martin, R.L., Osberg, S., 2007. Social entrepreneurship: the case for definition. *Stanford Soc. Innovat. Rev.* 5 (2), 28–39.
- Mason, C., Stark, M., 2004. What do investors look for in a business plan?: a comparison of the investment criteria of bankers, venture capitalists and business angels. *Field Methods* 22 (3), 227–248.
- Miller, T.L., Grimes, M., McMullen, J., Vogus, T., 2012. Venturing for others with heart and head: how compassion encourages social entrepreneurship. *Acad. Manag. Rev.* 37 (4), 616–640.
- Patzelt, H., Shepherd, D.A., 2010. Recognizing opportunities for sustainable development. *Enterpren. Theor. Pract.* 35 (4), 631–652.
- Rousseau, D., Fried, Y., 2001. Location, location, location: contextualizing organizational research. *J. Organ. Behav.* 22 (1), 1–13.
- Roxas, B., Lindsay, V., 2011. Social desirability bias in survey research on sustainable development in small firms: an exploratory analysis of survey mode effect. *Bus. Strat. Environ.* 21 (4), 223–235.
- Sarasvathy, S., Simon, H.A., Lave, L., 1998. Perceiving and managing business risks: differences between entrepreneurs and bankers. *J. Econ. Behav. Organ.* 33 (2), 207–225.
- Schwartz, S.H., 1992. Universals in the content and structure of values: theoretical advances and empirical tests in 20 countries. In: *Advances in Experimental Social Psychology*, vol. 25. Academic Press, pp. 1–65.
- Seelos, C., 2005. Social entrepreneurship: creating new business models to serve the poor. *Bus. Horiz.* 48 (3), 241–246.
- Shepherd, D.A., Wiklund, J., Haynie, J.M., 2009. Moving forward: balancing the financial and emotional costs of business failure. *J. Bus. Ventur.* 24 (2), 134–148.
- Shepherd, D.A., Williams, T.A., Patzelt, H., 2015. Thinking about entrepreneurial decision-making: review and research agenda. *J. Manag.* 41 (1), 11–46.
- Shepherd, D.A., Wennberg, K., Suddaby, R., Wiklund, J., 2019. What are we explaining? A review and agenda on initiating, engaging, performing, and contextualizing entrepreneurship. *J. Manag.* 45 (1), 159–196.
- Surie, G., Ashley, A., 2008. Integrating pragmatism and ethics in entrepreneurial leadership for sustainable value creation. *J. Bus. Ethics* 81 (1), 235–246.
- Tang, J., Kacmar, K.M., Busenitz, L.W., 2012. Entrepreneurial alertness in the pursuit of new opportunities. *J. Bus. Ventur.* 27, 77–94.
- Tracey, P., Phillips, N., Jarvis, O., 2011. Bridging institutional entrepreneurship and the creation of new organizational forms: a multilevel model. *Organ. Sci.* 22 (1), 60–80.
- Ucbasaran, D., Shepherd, D.A., Lockett, A., Lyon, S.J., 2013. Life after business failure: the process and consequences of business failure for entrepreneurs. *J. Manag.* 39 (1), 163–202.
- Walsh, I.J., Bartunek, J.M., 2011. Cheating the fates: organizational foundings in the wake of demise. *Acad. Manag. J.* 54 (5), 1017–1044.
- Welter, F., 2011. Contextualizing entrepreneurship-conceptual challenges and ways forward. *Enterpren. Theor. Pract.* 35 (1), 165–184.