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# “Yes and. . ., but wait. . ., heck no!”: A socially situated cognitive approach towards understanding how startup entrepreneurs process critical feedback

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## ABSTRACT

We examine sensebreaking, a meaning void, that entrepreneurs experience due to critical feedback from early stakeholders using the socially situated cognition perspective. We show that sensebreaking aids novel sensemaking via three mechanisms—redirecting, reframing, and questioning—through longitudinal analysis of weekly diary reports that we collected from 30 entrepreneurs for one year. We describe the cognitive changes due to novel sensemaking. We derive a process model that illustrates how sensebreaking-sensemaking iterations over time effect changes to the shared cognition between entrepreneurs and their stakeholders while driving opportunity development. We advance the opportunity coconstruction literature by adding microlevel understanding of stakeholder interactions and explicating their effects on entrepreneurial cognition.

## KEYWORDS

Sensemaking; opportunity development; socially situated cognition; negative feedback; time

## Introduction

*Opportunity development* is defined as “the process by which entrepreneurs attempt to develop an entrepreneurial idea into a profitable venture offering” (Clausen, 2020, p. 25). Studying the interactions between entrepreneurs and their stakeholders during opportunity development is pivotal to the opportunity coconstruction perspective (Dimov, 2007; Fletcher, 2006; Tocher et al., 2015). Several theoretical works in the past have attempted to explain the nature of the social exchanges and the role played by its participants (Clausen, 2020; Dimov, 2011; McMullen & Dimov, 2013; Vogel, 2017). For instance, Wood and McKinley (2010) have argued that entrepreneurs are required to build “consensus-driven entrainment” of their stakeholders to exploit an opportunity. Throughout the period of opportunity development, entrepreneurs are expected to nurture the engagement of the stakeholders to ensure continued access to resources and feedback (Snihur et al., 2017). As Dimov (2020, p. 24) asserts, these interactions

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constitute the “building blocks of the actual relationships and commitments that ultimately comprise the realized entrepreneurial effort.” The significance of the social interactions is affirmed through recent empirical evidence in the opportunity development literature. Hoyte et al. find that entrepreneurs sharpen their ideas with stakeholders acting as “sensegivers” (Hoyte et al., 2019). Founding teams that engaged more often with start-up coaches, mentors, and potential customers advanced more rapidly during opportunity development (Shepherd et al., 2020). For technology ventures, researchers have identified the interactive mechanisms that drive the opportunity development process forward by mitigating market and technology-related tensions that arise among stakeholders (Seyb et al., 2019).

Despite these advances, scholars have called for more research attention into the microlevel aspects of social exchanges and the cognitive consequences of the interactions for all parties involved (Berglund et al., 2020; Pryor et al., 2016). To be precise, our motivation for this study stems from the intersection of three distinct issues in the extant literature on stakeholder interactions during opportunity development. First, scholars acknowledge that not all feedback that entrepreneurs receive from their stakeholders has the same effect (Dimov, 2020; Grimes, 2018; Haynie et al., 2012). Clausen (2020) proposes that although positive feedback helps entrepreneurs formulate the venture offerings, negative feedback from the stakeholders challenges their assumptions, thereby enabling them to assess the viability of the venture. How entrepreneurs make sense of critical feedback from stakeholders during opportunity development has not been studied in detail. Second, researchers who subscribe to the cognitivist tradition view sensemaking as “a process of interpreting stimuli and constructing cognitive frames and mental schemata” (Sandberg & Tsoukas, 2020, p. 2). Sensemaking resulting from social interactions affects the cognitive frames and mental schemata of the entrepreneurs and thus their entrepreneurial cognition. However, empirical studies that have investigated the contribution of sensemaking to the microlevel development of entrepreneurial cognition are sparse (Krueger, 2003, 2007). Socially situated cognition (SSC) is a theoretical approach that views cognition as shared and distributed among multiple individuals, including entrepreneurs and their community of collaborators (Dew et al., 2015; Mitchell et al., 2011). Recent studies have suggested studying entrepreneurial sensemaking related to opportunity development using the SSC approach (Berglund et al., 2020; Hoyte et al. 2019). Third, opportunity development typically stretches over a long period of time, and researchers have cautioned against the “temporal collapse” of moments of insight and their concrete realization, which typically take place in the future (Dimov, 2007; McMullen & Dimov, 2013). Real-time data collection and longitudinal research designs are recommended as a remedy to address the complications that occur due to the temporal breadth of the opportunity development process (Dimov, 2020; McMullen & Dimov, 2013; Vogel, 2017). Even though several studies have used longitudinal data drawn from different time points using interviews and archival material (for example, Preller et al., 2020; Seyb et al., 2019), their ability to account

for the time perspective is limited due to the number of interviews that can be conducted and inherent retrospective bias when entrepreneurs relate their experiences.

We address these gaps by studying entrepreneurs' sensemaking of critical feedback from their stakeholders and its effect on their entrepreneurial cognition using *sensebreaking* as a conceptualization of critical feedback (Maitlis & Lawrence, 2007) under the theoretical lens of socially situated cognition (Mitchell et al., 2011). Microlevel observations of the interactions between entrepreneurs and their stakeholders are made possible through our unique real-time data set consisting of weekly diary reports provided by 30 entrepreneurs engaged in opportunity development whom we followed for a year. Through longitudinal qualitative analysis of these data, we examine socially situated sensebreaking episodes that occur when stakeholders challenge the existing assumptions of entrepreneurs (Maitlis & Christianson, 2014; Pratt, 2000). We find that sensebreaking prompted by critical feedback leads to novel sensemaking via three sensebreaking mechanisms of redirecting, reframing, and questioning and report on the resultant cognitive changes caused by each mechanism. We develop a socially situated cognition-based process model that illustrates how sensebreaking-sensemaking iterations advance the opportunity development process. The implications of our findings both complement and extend the opportunity coconstruction literature. Specifically, we extend the literature on social exchanges during opportunity development (Seyb et al., 2019; Shepherd et al., 2020) by describing how entrepreneurs make sense of critical feedback from their stakeholders and by compiling the cognitive changes from novel sensemaking. We add to the entrepreneurial sensemaking literature by describing the process of sensebreaking, which has not been empirically explored in this context compared to related processes such as sense-giving or sense-receiving (cf., Cornelissen et al., 2012; Hoyte et al., 2019). To the qualitative toolbox within entrepreneurship research, we add longitudinal analysis using the diary method. In doing so, we answer to the scholars who recommend conducting process studies taking temporality into account (Dimov, 2019; McMullen & Dimov, 2013). From empirical observations on the action-oriented practice of opportunity development, we uncover the recursive loops between objectification and enactment phases of opportunity production and thus contribute to the extension of Wood and McKinley's (2010) influential work on opportunity coconstruction.

## **Theoretical background**

### ***Sensemaking and sensebreaking during entrepreneurial opportunity development***

*Sensemaking* is defined as “a process, prompted by violated expectations, that involves attending to and bracketing cues in the environment, creating intersubjective meaning through cycles of interpretation and action, and thereby

enacting a more ordered environment from which further cues can be drawn” (Maitlis & Christianson, 2014, p. 67). Sensemaking processes direct the ex ante or ex post construction of meaning about novel or unexpected events, situations, and processes (Sandberg & Tsoukas, 2015, 2020; Weick, 2012; Weick et al., 2005). Entrepreneurial sensemaking is a socially situated process wherein stakeholder interactions form an important source of feedback for the entrepreneurs developing an opportunity (Clausen, 2020; Haynie et al., 2012; Tocher et al., 2015). Social ties with whom entrepreneurs exchange ideas not only facilitate sensemaking of the entrepreneurial opportunity but also help them enact the opportunity by committing tangible resources toward the venture (Dimov, 2020). Entrepreneurs seek to resolve inherent uncertainty related to entrepreneurial decision-making by “iterating through the sense-making process and continuously incorporating feedback” (Pryor et al., 2016, p. 11).

Even as they receive endorsement and validation of their ideas from their stakeholders, at times entrepreneurs do encounter disagreements and negative feedback (Perkins, 2019). Scholars have observed that positive and negative feedback have different effects on the entrepreneur’s self-efficacy and action (Clausen, 2020; Hsu et al., 2017). The term *negative feedback* is emotionally laden, and quite often it might be construed solely as downright rejection of one’s ideas. Furthermore, in practice not all negative feedback is expressed in negative terms or language due to social norms and cultural conventions. It is often difficult to classify feedback as categorically positive or negative without any gray zone in between. Researchers have taken an events-based approach to studying the consequences of negative feedback through product failures, loss of customers, investors, or partners (Domurath et al., 2020). Therefore, micro-level understanding of the entrepreneurs’ response to negative feedback is still lacking. To resolve this, we have adopted a nuanced approach that aligns with how Maitlis and Lawrence (2007) conceptualize sensebreaking—experiences that cause actors to reassess their current basis for understanding. We use the term *negative feedback* to denote the theoretical construct used widely in the literature and *critical feedback* as its empirical manifestation prompting sensebreaking in our research setting. The terms are used interchangeably.

When entrepreneurs receive critical feedback through social interactions with the stakeholders, they experience a meaning void in their current sensemaking. The breaking down of the meaning in the extant sensemaking process occurs especially when a person’s existing understanding and the current process of sensemaking is disrupted by contradictory evidence or values (Pratt, 2000; Vlaar et al., 2008). This disruption is termed as sensebreaking. Drawing on Vlaar et al., we theorize that critical feedback prompts sensebreaking instances, which in turn induce entrepreneurs engaged in opportunity development to *redirect* their strategy or actions by shifting their attention to something new, *reframe* their interpretations of a situation or beliefs, and

*question* their current understanding and conceptions of the venture offerings (Vlaar et al., 2008). It is important to understand that the three mechanisms are *socially situated* since they are prompted explicitly through critical feedback from the stakeholders.

*Redirecting* deals with the transformation of focus regarding an element and thus requires an existing behavior or idea that will be “worked upon.” For example, redirecting can relate to the replacement of an object under attention such as a specific problem with another one (Van Merriënboer et al., 2002). Researchers describe how “overly bureaucratic rules” that negatively affect entrepreneurial growth incentives and intentions can cause entrepreneurs to redirect their “attention, time, and energies” (Batjargal et al., 2013, p. 1029). The shift in focus caused by redirecting feedback leads to adapting an existing idea or behavior into a different one. Unlike reframing, during redirection the original belief or attitude regarding a problem remains unaltered. Within teams, redirecting can be used to draw other team members’ attention to different aspects and aid in the searching of a diverse set of solutions for a given problem (Vlaar et al., 2008).

*Reframing* involves the changing of beliefs and attitudes in the process of making sense of new information and typically involves a deep conceptual reorganization of explanatory reasoning to account for discrepant cases or situations encountered (Spillane et al., 2002). Recognized as a cognitive act, reframing is associated with the replacement of existing understandings, previously held conceptions, and lines of thinking by others (Vlaar et al., 2008). Reframing enables individuals to formulate “alternative ways of interpreting situations in accordance with different perspectives on various dimensions” (Garbuio et al., 2018, p. 13). Applied to our context, feedback leading to reframing would mainly involve changes in belief or attitude toward aspects of opportunity development.

*Questioning* is “motivated by the need to problematize the understandings held by others” (Vlaar et al., 2008, p. 241). It is meant to interrupt undesirable courses of action that subjects have taken or are currently taking (Maitlis & Lawrence, 2007; Vlaar et al., 2008). Borchert and Rochford (2009) showed that negative feedback during opportunity exploitation such as questioning positively affects the extent of product change. Questioning encourages “self-organizing behavior by creating an environment that is open to new opportunities and new ways of doing things” (Nicholls-Nixon, 2005, p. 82). Negative feedback related to questioning may manifest in terms of disapproval, discontentment, harsh refutations, and rejections regarding the business opportunity aspects.

Sensebreaking instances drive entrepreneurs to alter their cognition as well as action (Maitlis & Christianson, 2014), and as a result of this, they arrive at novel sensemaking, which helps them enact their venture ideas in new ways. In organizational settings, prior studies have analyzed the consequences of

sensebreaking as a result of failure of strategic change (Lawrence & Maitlis, 2005; Mantere, Schildt, & Sillince, 2012). Pratt (2000) applied sensebreaking to explain the construction of self-identity. Sensebreaking has been used to analyze processes of learning and training of virtual teams that are geographically dispersed (Vlaar et al., 2008). Recently, researchers have employed media sensebreaking to explain how the image of a celebrity transforms rapidly in the face of a scandal (Bishop et al., 2019). To understand the entrepreneurial sensemaking of the critical feedback, we empirically analyze these three mechanisms of sensebreaking—redirecting, reframing, and questioning—that are sparked through social exchanges as reported in the diary entries of the entrepreneurs.

### ***Socially situated cognition and sensebreaking***

Our adoption of the SSC perspective is driven by two main reasons. First, researchers often refer to sensemaking as a cognitive process (Elsbach et al., 2005; Weick et al., 2005). However, within the sensemaking literature two major schools of thought exist—the cognitivist and the constructivist approaches to understanding the phenomenon. In their review of the sensemaking literature, Sandberg and Tsoukas (2015, p. S9) summarize by saying: “whereas in the cognitivist version, sensemaking leads to the formation of shared mental cause maps, in the constructivist version, sensemaking leads to actionable intersubjectivity constructed through language.” Scholars have also underscored that the boundaries between these approaches are often “permeable” (Sandberg & Tsoukas, 2020, p. 2). Some authors have taken an integrative approach to understanding sensemaking by bringing the cognitivist and constructivist threads of literature together (for example, Maitlis & Christianson, 2014; Sandberg & Tsoukas, 2015, 2020). The theoretical lens of socially situated cognition integrates both constructivist and cognitivist viewpoints on sensemaking by focusing on intersubjective sensemaking between actors and the formation of shared mental maps among them (Dew et al., 2015). Here, cognition is regarded as action-oriented, embodied, situated, and distributed across relevant social actors (Mitchell et al., 2011; Smith & Semin, 2004).

Second, in contrasting the theoretical traditions within the opportunity development literature, Wood and McKinley (2010) observe that objectivist studies maintain that the information supplied by stakeholders modifies the entrepreneurs’ cognitive schemata, and the constructivists view is that it is the entrepreneurs who must “entrain” the stakeholders to build consensus for their ideas, thus altering the mental models of the stakeholders. A principal benefit of the SSC perspective is that it helps us move past the issue of unidirectional conceptions of influence as a result of social interactions. SSC falls within the constructivist tradition in recognizing the contribution of multiple participants as opposed to a single astute entrepreneur uncovering opportunities. In terms of outcomes, SSC



strongly indicates the alteration of the shared mental models of both the entrepreneurs and their collaborators as a result of their interactions. The social model for opportunity development by Shepherd et al. specifies that the information exchanges and influence are bidirectional between founding teams and their communities of inquiry (Shepherd et al., 2020); our approach is in line with this observation. Applying SSC to entrepreneurial opportunity development, we argue that novel sensemaking via intersubjective sensebreaking episodes enables entrepreneurs to arrive at negotiated agreements as to what is possible and what gets enacted (cf. Hoyte et al. 2019). We are able to examine how the sensebreaking iterations and the resultant novel sensemaking contribute to the shared cognition between entrepreneurs and their stakeholders by analyzing the microlevel interactions from the diary data.

### ***Sensemaking, entrepreneurial cognition, and metacognition***

Wood and McKinley (2010) argue that social exchanges result in sensemaking processes that help entrepreneurs objectify the entrepreneurial opportunity. They contend that the entrainment of the stakeholders by the entrepreneurs leads to changes in the mental models of the stakeholders. Even though these scholars acknowledge that social exchanges would result in “cognitive shifts” and changes to the mental models, the nature of the cognitive changes and their contribution to the development of entrepreneurial cognition have not been explored empirically. *Entrepreneurial cognition* refers to the “knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation, and growth” (Mitchell et al., 2002, p. 97). Researchers have shown that the content of these knowledge structures includes information on markets and technology and that the knowledge structures are altered as a result of social exchanges during opportunity development (Seyb et al., 2019). Categories, mental models, scripts, and schemas are “knowledge structure forms” that underpin entrepreneurial cognition (Shepherd & Patzelt, 2018, p. 127). Sensemaking has been shown to affect the cognitive frames and mental schemata of individuals (Elsbach et al., 2005). Entrepreneurial sensemaking is closely linked to the decision-making processes related to control and allocation of resources in new ventures (Foss et al., 2008). By extension, novel sensemaking via socially situated sensebreaking-sensemaking iterations adds to the development of entrepreneurial cognition of the entrepreneurs as well as their stakeholders through changes in shared mental models. Using the diary accounts of the entrepreneurs, we examine the cognitive and metacognitive changes reported explicitly due to sensebreaking occurrences. In following up on the cognitive consequences of sensebreaking, we answer the calls from researchers to empirically study entrepreneurial cognition (Pryor et al., 2016; Shepherd, 2015) and metacognition (Grégoire et al., 2011; Haynie et al., 2012).

## **Methodology**

### ***Research setting***

We studied the sensebreaking initiated by the stakeholders and its cognitive implications by examining written self-reports of entrepreneurs. The setting of our study was an incubator/accelerator program run by one of the top technology universities in the Netherlands. The university has been the recipient of numerous awards for its central role in building an entrepreneurial ecosystem bolstered by strong spin-off activity in the past three decades. All the entrepreneurs were involved in opportunity development activities for their technology-based venture that they had started recently before entering the program. They were accepted into the incubator/accelerator program based on the quality criteria set by experts in respective fields and a vetting process that involved interviews conducted by the program managers to assess credibility. The incubator/accelerator provided office space, start-up coaching and mentoring, and access to market research through online databases; facilitated networking with industry partners and investors; and offered numerous trainings by experts and academics on business strategy, marketing, product management and commercialization of technology, team building and operations, venture financing, writing business plans, shark-tank style pitches before expert-panel members; among others. Entrepreneurs were accepted in batches and were supported for a period of one year from the start of the program.

### ***Research design***

The self-reports from the entrepreneurs were collected through weekly digital diary entries. Diary studies offer the opportunity to investigate microlevel processes within their natural context. They are suitable for three types of data collection goals: (a) reliable person-level information, (b) estimates of within-person change over time as well as individual differences in that change and, (c) the causal analysis of within-person change and differences in that change (Bolger et al., 2003). The diary analysis method fits very well with the purpose of our study since we are interested in following the microlevel aspects of entrepreneurial sensebreaking-sensemaking iterations that manifest from the social interaction between the entrepreneurs and their stakeholders. A distinct strength of diary research is the high validity and reliability of the qualitative data collected through nearly real-time accounts of individual experience accompanied by reduction in biases due to retrospection. Also, the diary method is well suited for longitudinal data collection and serves well when dealing with the issue of temporality in qualitative research.

## Data collection

The psychology literature distinguishes between three types of diary collection methods: interval, signal, and event contingent diary design (Bolger et al., 2003; Wheeler & Reis, 1991). The interval-contingent protocol requires participants to communicate their experiences at regular, predetermined intervals. Both the signal-contingent and the event-contingent protocol designs prompt participants to self-report each time the given signal or event occurs. We chose the interval-contingent protocol for our study, which was appropriate for capturing the “heat of the moment” of entrepreneurial thinking or action during which entrepreneurs may not be reflexively aware of which events or signals deserve reporting. The time-based design of this study involved weekly intervals for the diary collection. Weekly intervals were meant to provide enough time for entrepreneurs, who tend to be extremely busy with their venture efforts. At the same time, they could also report on the progress of their ventures with as little retrospection bias as possible.

We piloted the data collection and revised the instructions when the entries were too general and did not provide information at an appreciable level of detail. The diary entries were designed to capture a limited number of topics on which the entrepreneurs could freely elaborate. There were no word limits. Based on the feedback received from the pilot, the final diary assignment was restructured along the following four items. We converged on these four items based on the ability to reliably follow the opportunity development progress and practical considerations such as time commitment, usefulness, and relevance for the entrepreneurs who took part in the program:

- (1) Learning: What were the most important things that you learned in the past week? *Learning* here must be interpreted as a practitioner’s term rather than the rigorous construct of entrepreneurial learning.
- (2) Results: What results have you achieved in the past week?
- (3) Issues: What issues have you been most concerned with in the past week?
- (4) Next Steps: What are the next steps that you are going to take in the coming weeks?

We use the term *entry* to denote a meaningful set of sentences reported by the entrepreneurs at any one time point. Thus, answers to each of the four items would have multiple entries. Each entry can be broken down further into multiple units of analysis containing particular information on several opportunity development related topics. In addition to the diary entries, we received further information on entrepreneurs and their experience from a survey that was conducted among all participants at the time of exiting the one-year business incubation program. Each participant was requested to fill in the

diary every single week for one whole year, which also coincides with the support they received from the incubator/accelerator. If a participant missed making an entry during a week, they were reminded through e-mail and were followed up via phone calls from the program managers at the incubator/accelerator who monitored their progress.

### **Sample**

We only sampled entrepreneurs who were engaged in new opportunity development activities for their venture rather than those entrepreneurs who were trying to grow and scale an existing venture through the accelerator. This sampling method resulted in the inclusion of only those entrepreneurs who would have started gestation activities for their venture no earlier than two years prior to the start of the incubation program but were still involved in developing that business opportunity. Owing to the acceptance criteria of the incubator/accelerator that served entrepreneurs pursuing technology-based ventures, we encountered inherent homogeneity in the characteristics of entrepreneurs in terms age, gender, and prior entrepreneurial experience. This precluded us from sampling based on some known criteria that are recognized by extant literature as control variables. For instance, various studies have shown that an increase in entrepreneurial experience affects self-employment success as well as entrepreneurial cognition (Bingham & Eisenhardt, 2011; Robinson & Sexton, 1994). Similarly, formal education and gender might play a role in the development of entrepreneurial cognition as well (Baron & Ensley, 2006). We could not sample our study based on these attributes since the participants of the business incubator/accelerator program consisted of predominantly male entrepreneurs with advanced degrees who were pursuing ventures in technical fields such as software and IT services or machinery, equipment, and components. Our final research sample consists of 30 entrepreneurs (4 women and 26 men, mean age = 45 years) performing opportunity development activities. We derived this sample from an overall population of 50 entrepreneurs who had completed the one-year incubation program and who had filled in a sufficient amount of diary entries throughout that year. Due to the time constraints of the practicing entrepreneurs, we were able to collect diary entries at an average of 30 weeks per year from the participants. Our cut-off point for inclusion was diary entries spread across a minimum of 20 distinct weeks during the year. As one would expect, some entrepreneurs were very elaborate and descriptive, and some of them were quite brief in their diary reports. At an average of two units of analysis per entry, four entries per week minimum for a participant, and an average of 30 weeks' worth of records per entrepreneur, the diaries yielded more than 7,200 discourse units for our analysis.

### **Data coding and analysis**

Discourse analysis is a data coding process that involves the development of categories to describe consistencies across cases and is termed *cross-analysis* (Byrne, 2016; Hill et al., 1997; Silverman, 2001). Using this method of qualitative data analysis, we distinguished frequently occurring, categorically different topics in the entrepreneurs' diaries. This helped us to delineate meaningful concepts associated with negative feedback in the reports of respondents. First, all the data were entered in the qualitative software program NVivo. From the 7,200 discourse units, we eliminated extraneous information that did not have any relevance to opportunity development. For example, when an entrepreneur reported that, "I am on vacation/sick this week" or "We did not make any progress this week," such information was excluded. Those entries deemed pertinent by the researchers were coded as sensebreaking based on the three mechanisms of reframing, redirecting, and questioning. During the coding and cross-analysis of data, researcher triangulation (Flick, 2007) was employed to ensure validity of the data analysis. To facilitate triangulation, we designed a codebook based on the existing literature of sensebreaking. The codebook contained signal words that served as empirical indicators that facilitated the identification of relevant quotes from the diary reports and ensured the reliability of the coding process. Signal words can be phrases, expressions, or verbal structures for the three sensebreaking mechanisms of reframing, redirecting, and questioning. Three researchers independently read the diaries and retrieved those quotes that they deemed to reflect sensebreaking. The results of a first coding round of 15 respondents were thoroughly discussed among the three coders. Interrater reliability was calculated through Cohen's Kappa at 0.8, which is considered excellent (Fleiss, 1981). Based on this initial coding round, the codebook for the different sensebreaking mechanisms was refined. The operationalization of the sensebreaking mechanisms is explained with example quotes on Table 1. Reports in which entrepreneurs expressed that they shifted their focus due to critical feedback are coded as redirecting. Reports of the entrepreneurs who dealt with changes in belief or attitude toward an aspect of opportunity development due to stakeholder feedback were coded as reframing. Reports on disapproval, rejections, and discontentment from the stakeholders were coded as questioning.

For each sensebreaking instance, the stakeholder group initiating the sensebreaking was noted down and classified. As much as possible, we grouped similar parties into the same stakeholder group. For example, we categorized banks, business angels, and venture capitalists as "Investors." Our focus and scope for this study were limited to sensebreaking occurrences that were explicitly initiated through social interactions rather than other types of information sources such as books. In the next round of coding, we aggregated the identified

**Table 1.** Operationalization of sensebreaking.

Sensebreaking Mechanism	Operationalization	Example Quotes
Redirecting	Reports about different behavior or adaptation of the business opportunity, such as strategy changes, identification of new/different markets, different or new applications, incremental changes of the product, or service offered	<ul style="list-style-type: none"> <li>• “I received an interesting idea from prof. X. to perform a test. This test must show that [my business idea works]. . . . I will visit professor X. We will discuss several things and will probably decide to go to Germany again to perform the test.”</li> <li>• “Working on a light weight and cheaper version of our X product, that according to our distributor, will have better chances to be introduced in the market fast.”</li> </ul>
Reframing	Reports on changes in or reconfiguration of previously held beliefs or attitude toward the business opportunity. Changes that lead to thinking about business opportunity development in a different way.	<ul style="list-style-type: none"> <li>• “A meeting with a former client of mine made me realize how important it is to have someone in the core team that has a technical way of thinking.”</li> <li>• “During expert meeting . . . we became aware that we have to think more about the advantages the [product] offers potential clients. Which items of the system makes their live easier?”</li> </ul>
Questioning	Reports about disapproval, discontentment, or questions regarding the business opportunity.	<ul style="list-style-type: none"> <li>• “A negative result”: The tentative pilot company has withdrawn itself; it appears mostly because they feel this project is out of their scope.</li> <li>• “One potential new customer would not take me seriously because my office is in my house. Do I need him?”</li> </ul>

sensebreaking instances into recurrent themes by a specific opportunity development activity on which the entrepreneurs had to make new decisions. For example, several entrepreneurs reported the effect of sensebreaking on their business models; therefore we assigned these quotes to the theme of “business models.” Finally, for every sensebreaking instance involving redirecting, reframing, and questioning, we also examined the corresponding cognitive outcome by inductively analyzing the accounts of the entrepreneurs.

## Results

From the microlevel observations of social exchanges, we were able to temporally follow the sensebreaking instances and trace the resultant socially situated cognitive outcomes. Out of the 7,200 discourse units we reviewed, 400 units were coded as relevant to socially situated sensebreaking. From this, we were able to identify and track 115 unique occurrences of sensebreaking initiated by the stakeholders. Out of these, 50 occurrences were classified as redirecting (44 percent), 38 as reframing (32 percent), and 27 as questioning (24 percent). The summary of our findings organized based on the three sensebreaking mechanisms is displayed in Table 2. In this table, for each sensebreaking mechanism we report on (a) frequency of occurrences; (b) the specific stakeholder groups that initiated them most frequently; (c) the high-level theme of associated opportunity development activity such as strategy/business

**Table 2.** Summary of findings.

Description	Sensebreaking Mechanisms		
	Redirecting	Reframing	Questioning
Frequency of occurrences (as a percentage of total) Top stakeholder groups triggering the sensebreaking mechanisms	50 (44%)	38 (32%)	27 (24%)
Novel sensemaking of opportunity development activities frequently reported per sensebreaking mechanism	<ul style="list-style-type: none"> <li>● Nonformal network</li> <li>● Customers (existing &amp; potential)</li> <li>● Peer Entrepreneurs at incubator/accelerator</li> <li>● Looking for new or different application of the technology or product</li> <li>● Strategy/Business Plan</li> </ul>	<ul style="list-style-type: none"> <li>● Coach at incubator/accelerator</li> <li>● Expert trainers &amp; Trainers</li> <li>● Peer Entrepreneurs at incubator/accelerator</li> <li>● Changes to the business model and value proposition</li> <li>● Some aspects of strategy/business plan</li> </ul>	<ul style="list-style-type: none"> <li>● Customers (existing &amp; potential)</li> <li>● Investors</li> <li>● Coach at incubator/accelerator</li> <li>● Customer validation</li> <li>● Value proposition</li> <li>● Funding</li> </ul>
Resultant cognitive change from novel sensemaking and corresponding opportunity development activities for each sensebreaking mechanism	<ul style="list-style-type: none"> <li>● Cognitive adjacency on:</li> <li>● Commercialization choices, value proposition, new markets</li> <li>● New network ties, key customers, and key suppliers</li> <li>● Equipment needed, prototype development</li> </ul>	<ul style="list-style-type: none"> <li>● Metacognitive restructuring on:</li> <li>● Value proposition</li> <li>● Business model design</li> <li>● Customer orientation</li> </ul>	<ul style="list-style-type: none"> <li>● Temporary cognitive breakdowns on:</li> <li>● Collaborations, organizational structure, legal issues</li> <li>● Funding and expectation management with banks</li> </ul>

planning, business models, etc.; and (d) the cognitive outcomes that result from novel sensemaking. Minor overlap between the mechanisms on opportunity development activity are cataloged as well.

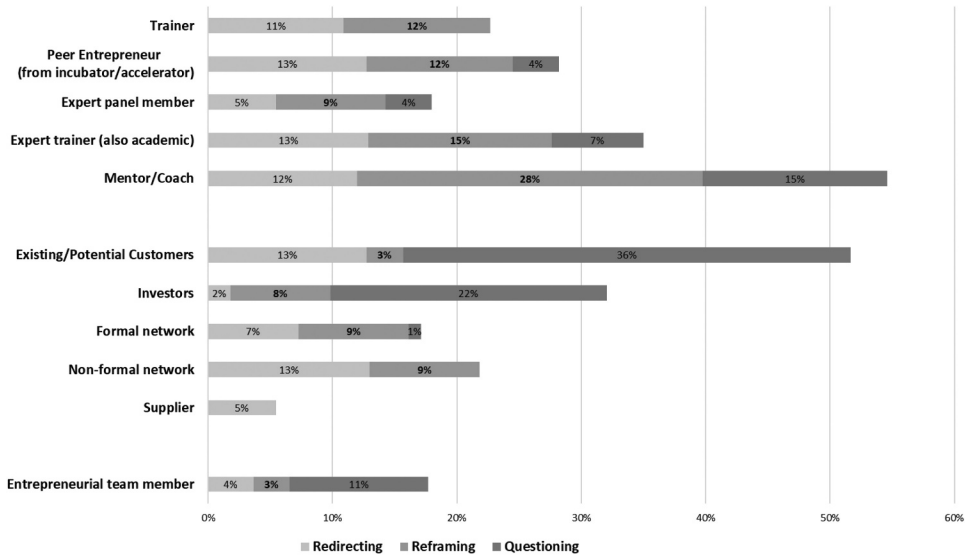
### ***Sensebreaking, stakeholders, and opportunity development activity***

Even though entrepreneurs engage with numerous actors during their opportunity development efforts, 11 stakeholder groups emerged in our observations that were repeatedly involved in socially situated sensebreaking. We refer to them as “early stakeholders.” The fact that the entrepreneurs took time to discuss these exchanges at length in their diary entries underscores the crucial nature of their contribution to opportunity development. Five of these stakeholder groups were associated with the business incubator/accelerator program: coaches, trainers, fellow program participants, expert trainers, and expert panel members. The other six categories were independently accessible to the entrepreneur stemming from their own network: existing and potential customers; suppliers; the formal network of the entrepreneur (friends, families, former colleagues or employers); formal networks that included governmental bodies and various other institutes (universities, research organizations); investors—including banks, investment funds, and business angels; and teams that consisted of the entrepreneur’s own employees or management team members. In [Figure 1](#), we provide the total distribution of sensebreaking instances per stakeholder group expressed as a percentage of total occurrences.

Some stakeholders are more involved in initiating sensebreaking in terms of both number and variety of instances. These groups prompt more than one type of sensebreaking mechanism in their interactions with the entrepreneurs. For example, existing and prospective customers are instrumental in redirecting and questioning. Peers who are fellow entrepreneurs at the incubator could offer feedback that leads to both redirecting and reframing. Coaches give advice that help entrepreneurs reframe and also at times question their choices critically. On the other hand, some stakeholder groups feature exclusively in one type of sensebreaking mechanism. Members of nonformal networks initiate redirecting, trainers and expert trainers prompt reframing, and investors induce questioning.

Opportunity development encompasses a series of decisions by which entrepreneurs attempt to turn their business idea into a concrete venture (Clausen, 2020). In our analysis, we first isolated the instances involving sensebreaking mechanisms from the diary reports. From these collected observations, we aggregated various themes pertinent to opportunity development activity. We found that the 115 sensebreaking instances can be classified into 11 opportunity development activity themes on which the entrepreneurs arrived at novel sensemaking: strategy and business planning, funding, organization (administration), networking, resources, partnerships, business model design, value propositions, customer orientation, identity, and





**Figure 1.** Distribution of sensebreaking per stakeholder group (in percentage of total sensebreaking reports of respectively questioning, reframing, and redirecting).

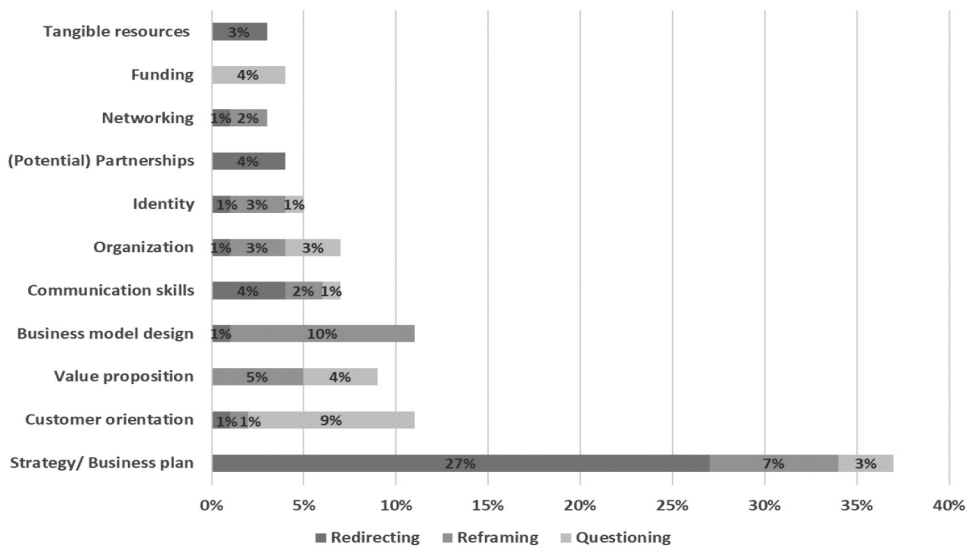
communication. In [Figure 2](#), we depict the opportunity development activity themes associated with the three sensebreaking mechanisms expressed as a percentage of total occurrences.

***Sensebreaking and its effect on entrepreneurial cognition and metacognition***

Novel sensemaking achieved through the sensemaking mechanisms contributed to cognitive and metacognitive changes in the entrepreneurs. We illustrate the cognitive changes induced by each sensebreaking mechanism by using quotes from the participants. During redirecting instances, we found that the attention of the entrepreneurs was shifted to technology, products, or markets that are contiguous to their current pursuits. For example, a new product that is an improved or modified version of the current specifications of an existing product, a different application of an existing product, and possible new but related market segments were frequently reported. The following quotes illustrate our observations.

We are going to visit on Monday the customer who visited us on Wednesday. They need [name of the product] bigger than 1000 x 600 mm. When everything goes well, we could make 30–40 [of the product] a year. I am thinking to make more [name of the product]. Because they will be paid better and with a lower risk than the [other potential product technology]. (E09)

I had a meeting with a possible new partner from the medical device industry. This contact may lead to interesting collaborations and possible new business for our



**Figure 2.** Opportunity development activity affected by sensebreaking mechanisms (as a percentage of total sensebreaking episodes).

company. This is a rather new niche for us to explore with numerous of clinical trials to be monitored and managed. (E12)

Other participants also reported similar changes regarding new methods for commercializing their product or service, leveraging network ties for new customer acquisitions, new equipment needs, and prototype development. Some of the relevant quotes include:

[Peer entrepreneur from the incubator/accelerator] took me to his lab and showed me some short videos. Their technology [...] might be applicable in the [the entrepreneur's own product] sector to detect decay and [disease causing] bacteria. (E22)

We have to think about [Medical Devices] market which has very much synergy with our market. It might be interesting to enter this market more frequently as we do now. (E21)

We observed that the reported instances of redirecting mainly dealt with incremental changes to products, technology, or markets. There were no hard pivots to dramatically different products or markets. Since the overwhelming majority of the changes induced by redirecting are quite proximate to the existing ideas of the entrepreneurs, we dub the resultant cognitive change from redirecting as *cognitive adjacency*.

Reframing induces entrepreneurs to reconfigure their currently held conceptions. To a large extent, reframing instances that led to novel sensemaking consisted of critical feedback on business model design elements and conceptualization of the value proposition of the venture:

Realized the relevance of a specific business model as a combination of looking closer at a company (SpringSource) with that business and [a training at the incubator]. (E23)

Had a clarifying training about value propositions by [Prof. James Anderson, Kellogg School of Management visiting the incubator/accelerator]. Value proposition is not about technology, but what the technology can do for the customer. Always search for the top priority of the customer!! (E21)

Changes in thinking and attitude about training, networking, and organizational structure were also reported, as illustrated in the following quotes by the entrepreneurs. Entrepreneurs reported their experiences of novel sensemaking from reframing as reflections consisting of drawing new awareness, changes in viewpoints, new realizations, perspective taking, invoking the mind, and altering current ways thinking:

At the first business panel presentation ... my [views on] my business plan [changed] because of the remarks and input from panel members and coach. (E28)

Sometimes you think that these kinds of general instruction are not necessary for your [team/employees], but if I look to the questions of the [team] during the training, it really makes sense to perform such a training on regular basis. (E12)

Became aware that now we first must network more in our own circle... (E03)

Reframing instances directed entrepreneurs to reevaluate their notion about specific aspects of opportunity development in a way that reflected and altered their attitudes and beliefs. The pivoting as a result of reframing was not as explicit as prompted by redirecting, in our observations. The pattern we elicited from the reports on reframing instances points to *metacognitive restructuring* of thinking related to business model design, value propositions, and networking.

Questioning deals with those situations when entrepreneurs receive disconcerting feedback or rejections that were unexpected, as a result of which the entrepreneurs are forced to reassess the basis for their current assumptions. More often than others, questioning episodes dealt with customer relationships and funding. A decline in funding requests or dissatisfaction with turnover of the venture causing doubts in the minds of the investors may lead to questioning. Financial investors may pose questions on statutory organizational form, design of official rules, and the setup of legal business contracts of the venture. Prospective customers over the course of negotiations might refuse to collaborate or might not agree on the specifics regarding product features or sales agreements. The following quotes exemplify these situations.

The first assignment for [lead customer] is about to be withdrawn. The price has risen too far especially because the partner through whom we arrange things also wanted a percentage. (E11)

During a visit to a possible customer we were informed that they are not interested in the [product] as it is [in its current format] right know. (E20)

The investor was not pleased about the turnover so far and wanted to make new arrangements. This discussion went on for weeks and will come to conclusion next week. We still need to receive a contractual agreed sum of 50k. (E15)

We found that the feedback associated with questioning instances turned out to be the most negative. They were firm refutations that resulted in the termination of funding or collaborations. When entrepreneurs encounter such rejections from their potential collaborators, they experience *temporary cognitive breakdowns*. They examine their assumptions and reconsider their options. We observed that in some instances the cognitive breakdowns took them to a dead end. On other occasions, some entrepreneurs moved on from the temporary cognitive breakdown to cognitive adjacency by looking at a different yet related option or metacognitive restructuring by reconfiguring their understanding of the issue involved. These instances are captured by the following quotes.

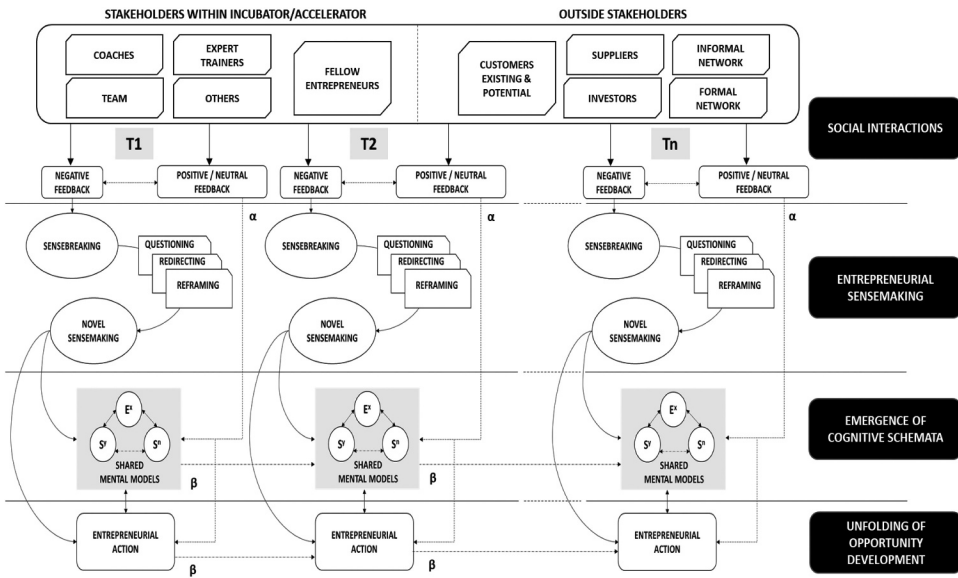
Municipalities do not want/cannot invest and do not want to do more than facilitate . . . it became clear that it might be better not to work with municipalities as a potential customer. With this we can push our business plan in another direction. (E16)

We had an order withdrawn by customer because he thought we couldn't get it ready on time. We got the drawing 2–3 days too late and we didn't say to him that the delivery of the product would also be 2–3 days later. We were 1/2 day late. So, COMMUNICATION is important!!! (E06)

In sum we found that redirecting led to incremental cognitive changes that we term *cognitive adjacency*, reframing caused *metacognitive restructuring* in thinking, and questioning led to temporary cognitive breakdowns. We uncovered that one of the primary reasons for such a difference in cognitive changes might be due to the nature and intensity of the critical feedback associated with each of the sensebreaking mechanisms. Therefore, sensebreaking via redirecting is akin to a stakeholder responding by saying, “Yes and . . . also consider this other but related option.” Reframing pertains to stakeholder feedback, causing entrepreneurs to contemplate, “But wait . . . ; we need a different revenue model or networking strategy.” Questioning can be viewed as receiving a “heck, no!” response from stakeholders that leads to temporary cognitive breakdowns from which they have to recover.

### **Process model of sensebreaking iterations advancing opportunity development**

The process model that we developed based on the principles of SSC from our findings is displayed in [Figure 3](#). To arrive at this model, we used discourse units on sensebreaking as well as those contiguous to them to understand the context in which socially situated sensebreaking instances occurred. In the top panel, we show the social exchanges between entrepreneurs and those early



**Figure 3.** Process model showing iterations of sensebreaking-sensemaking during opportunity development.

stakeholder groups that frequently interact with them during opportunity development. As they interact with their stakeholders, the entrepreneurs receive feedback that can be either positive, negative/critical, or neutral. We find that in rare cases, what is actually meant to be a positive response can be perceived otherwise and vice versa. The dotted lines between positive and negative feedback indicate the interchangeable and perceptual nature of feedback. In the diary reports we examined, such situations were not the norm. Critical feedback challenges the assumptions of the entrepreneurs and is instrumental in activating sensebreaking instances. Sensebreaking instances are prompted through either one of the mechanisms of reframing, redirecting, or questioning. The sensebreaking instances the entrepreneurs pursue lead to novel sensemaking. Novel sensemaking in turn has two specific outcomes. One, it affects the shared cognition or mental models that is socially situated between the entrepreneurs and the parties they interact with. The nature of the cognitive changes due to novel sensemaking via redirecting, reframing, and questioning can be described through the concepts of cognitive adjacency, metacognitive restructuring, and temporary cognitive breakdowns respectively. Any entrepreneur ( $E^x$ ) is connected to a number of stakeholders ( $S^y$  to  $S^n$ ). The dotted line between  $S^y$  to  $S^n$  shows the distributed nature of cognition according to SSC. This implies that since the interactions are socially situated, the resultant changes also affect the shared mental models of all the parties involved. Second, novel sensemaking also results in concrete entrepreneurial action that changes the venture attributes. Both changes to cognition, resulting from the sensebreaking-sensemaking process, and entrepreneurial action

toward opportunity development are “recursively linked” (Maitlis & Christianson, 2014). The content of this shared cognition could alternatively be thought of as mental models that are represented by images of the self, others, opportunity, and action that are shared by the entrepreneurs and their collaborators (Mitchell & Shepherd, 2010).<sup>1</sup> The changes to shared mental models through successive sensebreaking—novel sensemaking iterations, when aggregated over time (T1, T2, . . . , Tn and beyond)—contribute to the emergence of cognitive schemata that entrepreneurs build by leading the opportunity development process. Thus, the iterations offer important scaffolds for building entrepreneurial cognition—knowledge structures that help entrepreneurs make venture decisions—over time. The lines connecting positive and neutral feedback to shared cognition (marked by  $\alpha$ ) are dotted to indicate that they are not part of our empirical observations. They are included for model parsimony. The lines connecting socially situated shared mental models (marked by  $\beta$ ) at successive time points indicate the inherent path dependencies in the emergence of entrepreneurial cognition. The same principle applies to lines connecting entrepreneurial action from T1 to Tn.

## Discussion

### *Understanding critical feedback during opportunity development*

The role of stakeholders as sources of information, feedback, advice, and mentorship throughout the entrepreneurial process is well known (Ozgen & Baron, 2007). Recent works in the opportunity coconstruction research stream have renewed the focus on social exchanges between entrepreneurs and “communities of inquiry” who help the entrepreneurs with developing the opportunity (Seyb et al., 2019; Shepherd et al., 2020). These studies have dealt with disagreements between team members (Seyb et al., 2019) and building on negative feedback (Shepherd et al., 2020). We extend this line of research inquiry by looking deeper into the microlevel interactions between the entrepreneurs and their stakeholders, which form the source of the critical feedback. The three mechanisms of sensebreaking—redirecting, reframing, and questioning—we assembled from prior theory and supported with empirical evidence help us illustrate the entrepreneurs’ response to the critical feedback. By highlighting the positive outcomes of redirection and reframing, such as finding new products and markets that are adjacent or gaining a better understanding of business model design respectively, we show how entrepreneurs’ novel sensemaking triggered by critical feedback can be productive in propelling the opportunity development process forward. Questioning instances

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<sup>1</sup>We thank Rob Mitchell and Trevor Israelsen for their feedback on the socially situated cognition-based process model and the insight on content of mental models that can be viewed as images of self, other action, and opportunity.

describe how entrepreneurs facing dead ends could recover from their temporary breakdowns to find a way to move forward. We find support for Clausen's (2020) proposition that negative feedback can be useful in aiding entrepreneurs to assess the viability of their venture ideas through the sensebreaking mechanism of questioning. These insights help researchers move past the monolithic notion that all negative feedback is hostile or the perception that persistence in the face of negative feedback adds to entrepreneurial perseverance and eventual success (see Grimes, 2018).

### ***Implications for sensemaking, entrepreneurial cognition, and metacognition***

Previous studies on sensemaking have predominantly focused on the positive consensus through sensegiving and sense-receiving (Hill & Levenhagen, 1995; Hoyte et al 2019). The dynamics of criticism and negative feedback are underexplored. We complement this literature by explicitly focusing on the sensebreaking-sensemaking processes that deal with critical feedback and potential disagreements between the actors. From a theoretical perspective, several studies follow the language-based approach to understanding sensemaking (for example, Cornelissen et al., 2012; Hoyte et al. 2019). We add to the research stream that views sensemaking as a cognitive process situated at the intersection of actors and environment (Elsbach et al., 2005; Sandberg & Tsoukas, 2020). Wood and McKinley (2010) have posited that social exchanges will result in a shift or change in cognition by altering the mental models of the stakeholders. The nature of the cognitive changes due to social exchanges has not been described erstwhile. We describe three cognitive outcomes that occur from novel sensemaking caused by the sensebreaking mechanism: cognitive adjacency, metacognitive restructuring, and temporary cognitive breakdowns. *Adjacency* is a term that implies proximity, and it is adopted in a variety of disciplines such as graph theory, computer science, and decision-making. It is also used in decision studies that deal with cognition and information search behavior of individuals (Costa-Gomes et al., 2001). In our context, we use the term *cognitive adjacency* to describe the shift in the attention of entrepreneurs caused by redirecting instances in which stakeholders prompt them to consider new markets, new products, or technologies that are either related to their existing ideas or adjacent to their fields. Restructuration denotes changing the interrelationships between entities in an organized whole. Metacognitive restructuring implies the reflective changes in the beliefs and attitudes about the entrepreneurial issues. We find evidence that reframing instances cause entrepreneurs to reflect on their existing conceptions and renew them accordingly, thus resulting in *thinking about thinking*, which we dub *metacognitive restructuring*. Temporary cognitive breakdowns are brief periods where the entrepreneurs' assumptions are interrupted by stakeholders' critical feedback, and we find preliminary

evidence that some resilient entrepreneurs are able to move past it by pursuing cognitive adjacency or metacognitive restructuring.

The cognitive outcomes we have described have several implications for theory. Cognitive adjacency is useful in understanding the degree of pivots that entrepreneurs go through during the opportunity development process. In empirically clarifying what pivots actually are, researchers find that “pivots were not accomplished with one sweeping strategic decision or single catalyzing event, but rather through the accumulation of a series of decisions to either exit or add elements to the strategy over time” (Kirtley & O’Mahony, 2020, p. 27). This observation is in line with our finding that redirecting instances cause incremental changes in opportunity development through cognitive adjacency, and the change can be termed as a “micro-pivot.” Over time, iterations of proximate searches via cognitive adjacency, metacognitive restructuring, and temporary cognitive breakdowns in aggregate could manifest into a major pivot in the venture idea being developed. Researchers find that novice entrepreneurs who exhibited high metacognitive abilities were also able to incorporate feedback in better ways during entrepreneurial tasks (Haynie et al., 2012). We find additional supporting evidence for the recursive relationship highlighted by Haynie et al. on feedback and metacognition through the observations on metacognitive restructuring due to reframing. Lastly, scholars have investigated the effect of negative feedback, resulting from the loss of a relationship of a crucial stakeholder like a launch customer or an investor, on the organizational identity (Domurath et al., 2020). Examining temporary cognitive breakdowns, occurring due to disconcerting feedback by stakeholders, and the entrepreneur’s ability to move on from them can have important implications for understanding the changes to organizational identity of nascent ventures.

### ***Implications for process studies and temporal perspective in entrepreneurship***

Scholars researching entrepreneurial opportunities have commented on the difficulties in setting up process studies which take time perspective into consideration (Dimov, 2020; Lévesque & Stephan, 2020; McMullen & Dimov, 2013). We address this through the diary-based longitudinal data collection and analysis from practicing entrepreneurs thus making a methodological contribution to the qualitative studies within entrepreneurial cognition literature (see Narayanan et al., 2020). The process model we derived from our observations explicitly takes the time element into account (see Wood et al., 2021).

An additional insight we gained from fine-grained observations of the unfolding of the opportunity development process from the reported diary data as a whole is the incessant action that entrepreneurs are immersed in throughout. This is an important insight because it contributes to the recursive style of process theorizing as opposed to staged models (Cloutier & Langley, 2020).



Many of the process models attempt to delineate the different phases involved in the entrepreneurial process to highlight the different types of activities that entrepreneurs need to perform. For instance, Wood and McKinley (2010) divide the stages of opportunity development into opportunity identification, objectification, enactment, and abandonment. Objectification, according to them, is largely viewed as a cognitive task occurring in the minds of entrepreneurs through sensemaking interactions with their peers. The evidence we found based on time-based observations suggest that opportunity objectification and enactment may not always manifest as temporally distinct or successive events. We find that entrepreneurs commit to resources, build prototypes or minimum viable products, and enter into binding agreements with stakeholders to test or prelaunch products or services, all of which require resource commitments from the stakeholders (Sarasvathy, 2001; Sarasvathy et al., 2008). This observation is in line with the central tenets of the lean startup method (Blank, 2007; Leatherbee & Katila, 2020; Ries, 2011). The lean startup method recommends involving the stakeholders early in designing value propositions and adopting a hypothesis testing and validation approach through a series of experiments (Camuffo et al., 2020; Shepherd & Gruber, 2020).

The action-oriented dynamics of the opportunity development practice that proceeds through entrepreneurial experimentation might diffuse the boundary between objectification and enactment phases. This observation opens up the possibility to extend the process model of opportunity production by Wood and McKinley (2010). We suggest that, in some situations, objectification and enactment could be viewed as concurrent activities timewise, running in recursive loops with the participation of entrepreneurs and stakeholders engaged in viability experiments. When a concrete gestalt for the opportunity emerges, the recursive loops between objectification and enactment terminate. Now, actual enactment of the entrepreneurial opportunity could begin. This experimental phase can be considered a set of preenactment activities that entrepreneurs need to perform with crucial early stakeholders who write them the first check or the first order. Once viability has been established in collaboration with early stakeholders, the entrepreneurs can move to actual enactment by taking their venture to the larger world of business. At this point the entrepreneurs have to find further resources for the scaling and growth of their venture. Our observations here are also in line with empirical studies on opportunity cocreation that underscore the importance of open engagement with stakeholders to “test opportunity conjectures to iterate dynamically during opportunity development” (Shepherd et al., 2020, p. 15) and fostering experimentation (Hasan & Koning, 2019; Lingo, 2020). In a larger sense, results of our analysis provide empirical evidence and support for the central assumptions of continuous hypothesis testing and validation that underlie the lean start-up method.

## Practical implications

Sensebreaking not only serves as a descriptive concept that illuminates what happens during opportunity development, it also has prescriptive value.<sup>2</sup> University-based entrepreneurship centers, incubators and accelerators, business coaches, and consultants who contribute to the development of the entrepreneurial ecosystems would gain from understanding how to use critical feedback in constructive ways. Applying redirecting, reframing, and questioning, these entrepreneurial ecosystem builders could challenge the mental models and assumptions of the entrepreneurs, upend their current passive sensemaking processes, and encourage proactive experimentation to test their hypotheses related to opportunity development. Furthermore, when entrepreneurs face criticism, they tend to react defensively since they exhibit a high degree of psychological ownership of their venture ideas. Even though sensebreaking experiences cannot always be as pleasant as endorsements and positive validations from the stakeholders, resolving the meaning void leads to novel sensemaking whereby new solutions to problems pertaining to opportunity development can be found. This awareness would help entrepreneurs to evaluate critical feedback more carefully and explore productive avenues to which to shift their attention. Educators could tap into the concept of cognitive adjacency to teach students that not all pivots are dramatic shifts from the original versions of their venture ideas (cf., Camuffo et al., 2020). Questioning instances show that sometimes receiving a strong refutation from a possible collaborator could lead to creative solutions. This understanding would contribute to developing resilience in the minds of the entrepreneurs, thereby encouraging them to hustle on.

## Limitations and future research directions

Applications of diary methods are scarce in the entrepreneurship literature (for exceptions, see Kato & Wiklund, 2011; Wach et al., 2020), but this method also has its own limitations. In our sample, the entrepreneurs were free to write down their thoughts on opportunity development guided by only the four chosen topics within each weekly diary report. This design was adopted due to the limitations of recruiting participants who are going through real-world opportunity development experience as well as retaining their participation for a period of one year. The result is data that could be chaotic in the form of unfinished sentences, a list of issues being mentioned in general without getting into adequate detail on any of them, names or categories of stakeholders left unmentioned, and so on. This strictly limited the number of discourse units that

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<sup>2</sup>We are immensely grateful to the constructive feedback from the three anonymous reviewers and the editors on the development of this manuscript. Specifically, we thank one of the reviewers for providing the insight on the descriptive and prescriptive uses of sensebreaking and the connections to the lean startup method.

we could incorporate in our analysis. However, and on a more positive note, the resulting real-time data also make it authentic, unique research data that have never been collected in this format hitherto. Another limitation is that we did not code episodes of sensebreaking that were triggered by books, social media, or other relevant information sources due to our interest in socially situated sensebreaking through interactions with stakeholders. Such instances were not reported as frequently by our participants. Finally, we drew our data exclusively from diaries of entrepreneurs in a business incubation program. Inherent homogeneity among entrepreneur and venture characteristics from the technology-based incubator/accelerator also limited our choices in setting up theory-based sampling by which we could, for instance, compare novices and experienced entrepreneurs.

Building on the results of our study, we identify three promising research directions for future studies. First, the sensebreaking mechanisms themselves can be examined in further detail. Our findings indicate that questioning that leads to temporary cognitive breakdowns occurs not as frequently as redirecting and reframing. However, these hard rejections have the most disruptive effects on the entrepreneurs as they have to either dismiss the advice, abandon a relationship with a stakeholder, or stop pursuing a potential course in opportunity development. This is ripe for systematic research inquiries in the future. Researchers could investigate what characteristics of the entrepreneurs or the environment would help them move from temporary cognitive breakdowns toward productive pivots. Second, we acknowledge that the cognitive developments that ensue from resolving critical feedback have profound implications for entrepreneurial learning (Cope, 2005, 2011; Ravasi & Turati, 2005). Entrepreneurs in our study briefly mentioned the acquisition of declarative knowledge about new markets, products or technology, and procedural knowledge on how to design a business model or raise investments (see Kraiger et al., 1993; St-Jean & Audet, 2012). However, these descriptions were episodic due to the open-ended nature of the diary entries. Since our study was not designed to debrief, follow-up, clarify, or triangulate findings in the immediate aftermath of the entrepreneurs recording their experiences, we were not able to draw strong inferences from the observed relationship between sensebreaking and entrepreneurial learning. Experimental study designs (Hsu et al., 2016; Williams et al., 2019) that account for baseline knowledge measures, control the nature of the learning intervention at the incubator/accelerator setting, and collect data on postmeasures would be able to tease out the effect of feedback on entrepreneurial learning rigorously. Third, scholars have stressed the importance of understanding the role of emotions and affect on entrepreneurial decision-making (Shepherd, 2015). We briefly observed that questioning episodes most frequently prompted strong emotional responses such as disappointment or frustration. Reframing also elicited some emotions. Future empirical examination of the role of emotion during sensebreaking episodes would contribute to

understanding how and why some entrepreneurs are receptive to change and pivoting than others when receiving critical feedback.

## Conclusion

Social exchanges with early stakeholders are an important source of information and feedback to entrepreneurs pursuing opportunity development efforts for their ventures. The diary method enables longitudinal microlevel observations and analysis of the social interactions and facilitates time-based process studies. We contribute toward a nuanced understanding of how entrepreneurs process critical feedback through the concept of sensebreaking and discuss the resultant cognitive changes using the socially situated cognitive perspective. We add to the research literature that expounds on the advantages that entrepreneurs could derive from tapping into the collective wisdom of their stakeholders and incorporating feedback early as they coconstruct entrepreneurial opportunities.

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