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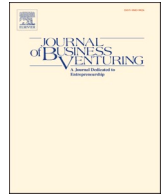
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In the heat of the game: Analogical abduction in a pragmatist account of entrepreneurial reasoning

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ABSTRACT

We draw on Searle's philosophy of language to distinguish between "opportunities" as intentional content directed towards a preferred future that entrepreneurs aim to fulfill and opportunities as conditions to be met for their satisfaction. We maintain that studying the former requires adopting a *player stance* rather than the *analyst stance* that prevails in the current literature. We build on pragmatist conceptions of truth and imagination to elaborate on the player stance and propose analogical abduction as a mechanism for conceiving and fulfilling "opportunities". We develop a pragmatist process model of entrepreneurial reasoning that balances the two stances, and derive action principles for entrepreneurs from it.

Executive summary

Navigating the entrepreneurial journey entails looking ahead to decide what to do next as well as looking back to take stock and learn. In this paper, we provide a model of reasoning that balances these two stances of player and analyst as distinct ways for an entrepreneur to relate to the world: one acting upon it to make her intentions work; the other taking it in to evaluate her premises. We use Searle's theory of speech acts and intentionality (1969, 1979, 1983) to distinguish "opportunities" as utterances signifying an agentic stance towards the world, reflecting what entrepreneurs aim to make work; and opportunities as external conditions of satisfaction, or the way the future world will need to be for them to succeed. The relationship between the two is characterized by different directions of fit. Under the player stance, one aims for the world to fit the mind (world-to-mind fit). Under the analyst stance, one aims for the mind to fit the world (mind-to-world fit).

With current scholarship primarily focused on the analyst stance, we aim to advance the player stance and elaborate on how entrepreneurs reason about what to do next. We also direct attention to overcoming *metacognitive rigidity* that impedes toggling between the player and analyst stances. To develop our model of entrepreneurial reasoning and action, we draw on three features of American pragmatism that render it well suited for advancing the player stance. First, the pragmatist conception of truth is unique in that it evaluates the merits of beliefs in terms of the actions they enable and the consequences they bring (Peirce, 1923). This allows us to conceptualize "opportunity" as something that, from the player perspective, one intends to *make work*. Second, this school of thought recognizes that in a complex world characterized by emergence and unknowability, beliefs are fallible, which, in turn, requires revising them in light of new experiences (Bromley, 2006; James, 2017 [1907]). Third, American pragmatists consider as empirical,

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and place at the center of their analysis, unobservable entities such as values, desires, and intentions (Misak, 2013). Adopting a pragmatist perspective of entrepreneurial reasoning and action opens up new exciting avenues in entrepreneurship research.

Our model zooms in on abduction, the central element of the pragmatist conception of imagination, as the driver of the entrepreneur's quest for realizing her "opportunity". More specifically, we propose that analogical abduction – drawing on existing stock of knowledge and framing unfamiliar situations *as if* they were similar to familiar situations – fosters the process of articulating the "opportunity" for further action. We unpack the logical structure of analogical abduction and explicate how it triggers both action and the reflexive process of revising the underlying analogy or its operationalization in the face of the incoming flow of experience. We express this pragmatist process model of entrepreneurial reasoning and action as action principles for entrepreneurs and conclude with reflections on its implications for entrepreneurship scholarship.

1. Introduction

As humans, we reason both about the future – an imaginary space of possibilities – and about the past – an actual space of facts, each informing the other. Interspersing this relationship are our actions that stir the world to settle possibilities into facts. Our actions are infused with our hopes and aspirations to shape the world; the facts they reveal enable us to calibrate our models of the world and think about the future anew. The spirit of an entrepreneurial journey is captured by this ongoing interplay between the mind of an enterprising individual and the world – she proposes, and the world disposes or responds with cryptic clues. Threading this journey is the entrepreneur's evolving intent (McMullen and Dimov, 2013) enacted in ensuing action – in keeping the play alive and thus the world in check. As long as the play continues, the journey has an "edge": the place where facts end and possibilities begin. Poised at the edge, one can reflect on the journey so far, traversing it backward to understand how one got there; or one can look ahead, reasoning about how to push forward. The former presents a case of achievement that invites explanations, while the latter presents a case of trying that involves deciding what to do next.

There is a shared sense in the entrepreneurship literature – and indeed a distinct focus of our field – that the destination of this journey is revealed by the concept of opportunity as market conditions that make certain venturing efforts profitable (Alvarez and Barney, 2007; Shane and Venkataraman, 2000). There is also agreement that, so conceived, an opportunity is not revealed or actualized until the journey is complete (Davidsson, 2015; Ramoglou and Tsang, 2016) and, as such, is not something that can be known beforehand, save for some piecemeal ingredients or current facts (Ramoglou, 2021). Nevertheless, standing at the edge, our enterprising individual projects an end state and is energized or pulled by it. In giving account of what they are doing, entrepreneurs speak of "opportunities" as the changes they would like to bring to the world. "Opportunity" in this sense is the content of their intention, something they are trying *to make work*. It is necessarily something imagined (for the state it depicts does not yet exist), reflects their beliefs, aspirations, and judgments as to what is possible, and is expressed in actions as resource commitments (Klein, 2008; Packard, 2017).

Studying opportunity as market conditions that make venturing efforts profitable and "opportunity" as the content of entrepreneur's intentions entails different scholarly stances. Focusing on opportunity invites the totalizing stance of an analyst, whereby one reasons about the present and future *in a single time frame* to evaluate individual efforts in terms of their veracity or ability to reach a given state. The analyst stance affords explanation of why entrepreneurial efforts succeed or fail. Focusing on "opportunity" invites the stance of a player, for whom events unfold *in succession*, and for whom the focus is on what to do next. The player stance affords understanding of the reasoning process and deliberation of action. What for the analyst is a discrete event (e.g., action, commitment), is for the player the result of a reasoning process. In this sense, an entrepreneur alternates between player and analyst stances – looking ahead and reasoning about their next step, while also looking back, taking stock, learning, and re-evaluating her premises.

In the current paper, to distinguish between, elaborate, and interlink the analyst and player stances, we use Searle's (1979, 1983) direction-of-fit terminology for how words and minds relate to the world. We propose that scholars of entrepreneurship can adopt either stance, each directed towards achieving different ends – explaining entrepreneurial outcomes or unpacking future-focused reasoning processes. Reflecting on the current entrepreneurship literature, we maintain that as compared to the player stance, the analyst stance has received greater attention and elaboration in the scholarly discourse on opportunities, marked by its focus on explaining (future) outcomes. Thus, prominent work on opportunity identification and recognition (e.g., Baron and Ensley, 2006; Grégoire and Shepherd, 2012; Gruber et al., 2008; Shane, 2000) exudes the premise that successful entrepreneurs get something right. Similarly, perspectives that emphasize the endogenous role of entrepreneurial efforts in effect focus on explaining how opportunities – understood as favourable market conditions – come about (e.g., Alvarez et al., 2015; Korsgaard, 2011; Maine et al., 2015). Aiming to articulate and advance the player stance, we ask *how entrepreneurs conceive and enact "opportunities,"* and focus our inquiry on how entrepreneurs reason about and fulfill their intentions.

Our interest in the experience of the acting entrepreneurs invites a pragmatist perspective that views the entrepreneurial journey as a process of change-oriented inquiry directed at transforming an existing state of affairs into a desired one (Dewey, 1991 [1938]). In particular, we draw on Peirce's conceptualization of abduction (CP¹) and propose *analogical abduction* as one of the mechanisms for reasoning about and articulating "opportunities". Analogical abduction involves drawing on existing stock of knowledge and framing unfamiliar situations *as if* they were similar to familiar situations (Thagard, 1993: 60–63).

Since the complexity of the world far exceeds the grasp of bounded human cognitive capacity (Simon, 1983), this "as if"

¹ CP refers to *The Collected Papers of Charles Sanders Peirce*. <https://colorysemiotica.files.wordpress.com/2014/08/peirce-collectedpapers.pdf>.

formulation and resulting conjecture of “opportunity” as a gateway to action are likely to meet some resistance from the world by not yielding desired consequences (Dewey, 1921: 206). Our pragmatist entrepreneur then, predicated on feedback from the world, puts on her analyst hat, and engages in learning (Argyris, 1976; Romme and Van Witteloostuijn, 1999), that is, an iterative process of revising her conjectures and corresponding intentions to make the pursued “opportunity” work. In other words, the entrepreneur guided by the desire to “make it work” can reflect on her past actions and make forward projections (Schön, 1983) by toggling between the player and analyst stances. Naturally, doing so is not effortless, and we refer to the impediment in toggling as *metacognitive rigidity*. We posit that metacognitive rigidity impedes learning because it precludes any attempts at even trying to update mental schemas (see also Greenberg et al., 2012).

Our paper makes at least three contributions, outlined as follows. First, by distinguishing between the analyst and player stances as different ways of relating to the world and introducing the construct of metacognitive rigidity, we provide a fuller picture of entrepreneurial reasoning and action, which reconciles divergent voices in the debate about the nature of entrepreneurial opportunities. The entrepreneurial journey begins with “opportunity” as an intended future and concludes with opportunity as propitious market conditions, with the entrepreneur toggling between the analyst and player stances along the way. Second, we present American pragmatism as a potentially fruitful intellectual foundation that provides vocabulary and useful insights for further developing the player stance. Finally, we enrich the literature on entrepreneurial cognition and imagination by unpacking a specific mechanism of conceiving and articulating new “opportunities” – analogical abduction – and deriving action principles that can guide entrepreneurs in reasoning about what to do next.

2. Distinguishing between opportunity and “opportunity”

Observing that present economic activity is different from the past and intuiting that future economic activity will be different from the present, scholars of entrepreneurship ask how future goods and services emerge if markets for them have not obtained yet (Venkataraman, 1997). While such emergence can readily be attributed to human enterprise in a necessary sense – for without its initiative there would be no change – there is also a strong sense that human effort alone is not a sufficient condition for propitious developments. That complementary sense of possibility, the unfolding of matters in a favourable sense, has been captured by a term well established in our daily language – opportunity. To say that there is an opportunity is to say it is possible “to do something” (McMullen, 2015: 659, emphasis in original).

2.1. Speech acts and directions of fit

With the acting entrepreneur on the scene, a gap opens up between opportunity as the future state of affairs rendering her efforts profitable, and “opportunity” as an expression of her intention to act upon the world. To use a football (soccer) analogy, what is done can be described from the in-action perspective of a player in task terms (e.g., making a shot) and from the totalizing stance of an analyst in outcome terms (e.g., scoring a goal). Only the former description captures intention in action in the sense that when asked “what are you doing?” one is unlikely to say, “I am scoring a goal” (Anscombe, 1957). When a goal is scored, saying that the player intended to score the goal may be intelligible; but when a goal is missed, it would not make sense to say the player intended to *not* score the goal. There is thus a distinction between the content of intention (“goal” as something the player aims to make work) and its object (goal) as the external conditions for its satisfaction. Players reason about “goals” as intended; analysts explain goals as outcomes.

In current theories of entrepreneurship, both opportunities and “opportunities” are implicated, which leads to confusion. One of the closest attempts to resolve this confusion lies in McMullen’s (2015) distinction between opportunity to try and opportunity to succeed, the former affirmed by engaging in action and the latter by obtaining certain outcomes. The hurdle that remains is the subtle trap posed by the language of describing entrepreneurs as having beliefs (about opportunity) whose evaluation (judgment) constitutes the premise for action (e.g., Klein, 2008; Shepherd et al., 2007). This language trap locks us in a one-way relationship with the world.

The philosophies of language and mind explore how words and minds relate to the world. Uttering words can confer university degrees, make promises, or even inspire someone to invest in an entrepreneurial project. Such utterances are performative sentences (Austin, 1962) or speech acts (Searle, 1969) in which we can distinguish between their propositional content (locution) and illocutionary force (e.g., statement, assertion, command, pronouncement, attitude expression, promise, or belief). Illocutions reflect different psychological modes of the speaker (Searle, 1979), which, in turn, are intentional states in that they are directed at external objects or states of affairs as defined in their propositional content (Searle, 1983).

For example, the Bristol-based start-up *Space Forge* has articulated a vision “to harness the power of Space by manufacturing high-performance products impossible to produce on Earth.²” They speak of reusable manufacturing satellites launched and re-launched into space and brought back safely to Earth with newly produced alloys and even diamonds. Such speech acts have clear propositional content (e.g., satellites growing diamonds in Space) that we, as an audience, can easily picture as to what the entrepreneurs are talking about. These speech acts also have a distinct illocutionary force in that this content is not something that the founders of *Space Forge* assert to exist, but something they hope, promise, and intend to produce and operate in the future – they signify entrepreneurial intent. In other words, *Space Forge* imagines a future of Space manufacturing. Crucially, *Space Forge* is not engaged in armchair daydreaming, but is actively seeking to make such a future real – to make the envisioned satellites work – through their current actions

² <https://spaceforge.co.uk/hello-world/>.

(which have helped them raise around £1 m in seed funding so far).

In categorizing different speech acts and intentional states, Searle (1979, 1983) distinguishes two possible directions of fit between words/minds (content) and the world (objects or states of affairs): *mind-to-world* and *world-to-mind*. In some cases, one aims to get words or mind to match the world, for example when making an assertion or holding a belief. Under such a mind-to-world direction of fit, speech acts can be true or false. For example, the claim that reusable manufacturing satellites will exist in the future can be settled at some point as true or false. In contrast, in other cases, one aims to get the world to match their words or mind, for example when making a promise or request, or when having a certain intention. Under such a world-to-mind direction of fit, speech acts or intentional states can be fulfilled or unfulfilled. Thus, the entrepreneurial intent behind *Space Forge* – to make the manufacturing satellites – is something they can fulfill or not; it makes no sense to speak of it as true or false at present.

In both cases, there are external *conditions of satisfaction* – representing the way the world needs to be or become – for the speech acts or intentional states to be rendered true/false or fulfilled/unfulfilled. In our *Space Forge* example, we can readily list factors such as manufacturing, transportation and communication infrastructure, industry demand, cost effectiveness, regulations, etc. that will be needed for the venture to operate as a viable business. The distinction between opportunity and “opportunity” is thus the distinction between the conditions of satisfaction and propositional content (of a speaker). A hint of this distinction lies in Wood and McKinley's (2010) discussion of opportunity objectification as a bridge between the ideas of an entrepreneur's mind and the objective reality of an external world.

The “opportunity” of *Space Forge* is the vision they have so clearly and compellingly articulated. It provides the meaning of their actions and thus helps us understand what they are doing. In turn, the opportunity of *Space Forge* is the way the world will need to be in the future for *Space Forge* to succeed. Making this distinction is of utmost importance. To discuss the opportunity of *Space Forge* is to engage in debates about a future that is – at this point in time – unknowable. It is to seek mind-to-world fit for a world that does not yet exist. To discuss the “opportunity” of *Space Forge* is to acknowledge that enterprising individuals seek to shape the world according to their visions – akin to Alvarez and Barney's (2007) mountain-builders, imagining the future and enacting their visions (Klein, 2008; Packard, 2017) – i.e., a world-to-mind fit.

Bringing in our earlier distinction between analysts and players, analysts operate under mind-to-world direction of fit: they aim to match their propositional content to an already settled, independently existing world. In contrast, players operate under a world-to-mind direction of fit: they aim to unsettle the world, to bring changes in it in line with their propositional content. Under the same conditions of satisfaction, we can state that analysts got it right or wrong, that is, what they said or believed was true or false, and that players succeeded or failed, that is, their promises and intentions were fulfilled or unfulfilled. Crucially, all intentional states are articulated and thus function within a network of other intentional states (e.g., core beliefs) and a background of cultural capacities (Searle, 1983). In other words, players reason about their next move from within a set of premises (for without premises one cannot reason). When one's intentions are rendered fulfilled or unfulfilled by the outcomes they encounter, one can reason as an analyst to adjudicate certain prior beliefs as right or wrong and thus refresh the premises in contemplating the next move. To conclude, in seeing entrepreneurs as players, we recognize that they aim to make things happen. In seeing them as analysts, we recognize that they can learn from what happens.

2.2. Entrepreneurs as players

By treating entrepreneurs only as analysts, we lose sight of the world-to-mind direction of fit and thus the creative force of human agency. Losing sight of the different directions of fit obscures two different explanatory foci of our theories of entrepreneurial action. Whether one refers to market conditions making venturing efforts profitable or propositional content of an acting entrepreneur depends on whether theory is directed at explaining eventual outcomes or explaining entrepreneurs' actions. One looks for attributable causes, the other looks for intelligible reasons. In one case, we focus on the future state that obtains and thus on broader social processes at play as well as on the degree to which they can be foreseen. In the other case, we focus on how entrepreneurs act and thus on their reasoning process of what to do next. As a result, the question about how entrepreneurs conceive and enact opportunities can be interpreted in two different ways: (1) how entrepreneurs judge the likelihood of actualization or success of their idea as a precursor to commitment; and (2) how entrepreneurs arrive at, articulate, and fulfill their intentions.

By making explicit the distinction between propositional content (what the speech act is about) and its object or conditions of satisfaction (the way the world needs to be) as well as between the different directions of fit involved, we offer a reconciliation of what appear to be disparate voices in current studies of entrepreneurial opportunities. The critical realist thesis about the existence of opportunities (Ramoglou and Tsang, 2016) and the notion that there may exist knowable “opportunity ingredients” (Ramoglou, 2021) are effectively arguments about the nature and knowability of the conditions of satisfaction as future states of affairs. The perspective of evolutionary realism in understanding opportunities (e.g., Alvarez and Barney, 2010) essentially argues that the conditions of satisfaction cannot be fully reflected in the propositional content, i.e., there are always surprises ahead. The same argument – but on the grounds of empirical verification – is reflected in the distinction between venture ideas and external enablers (Davidsson, 2015).

Social constructivist perspectives underscore the importance of social consensus that underpins the conditions of satisfaction while also distinguishing these from the premises (opportunity ideas) of the aspiring entrepreneurs (Wood and McKinley, 2010). Most recently, McBride and Wuebker (2020) remind us that, entwined with language and social facts, opportunities have an irreducible mind dependence; the distinction between subjective and objective reflects the degree of social consensus. This focus on the mind is a gateway to intentionality, bringing the stance of the acting individual to the fore. In this sense, interpretivist perspectives (e.g., Barreto, 2012; Packard, 2017) emphasize the propositional content of entrepreneurs' actions as being about yet distinct from an external world.

Propositional content and conditions of satisfaction are formally linked in accounts of entrepreneurial judgment, which rest on the

distinction between *belief about opportunity* and opportunity itself (Klein, 2008; McMullen and Shepherd, 2006; Wood et al., 2014) with an implied mind-to-world direction of fit. This analytical stance is also reflected in the consideration of the roles of *affect* (Baron, 2008; Goss and Sadler-Smith, 2018; Welpe et al., 2012) and *cognition* (Cornelissen and Clarke, 2010; Grégoire et al., 2010) in explaining entrepreneurs' veridical perceptions of the world. In contrast, the perspectives of *bricolage* (Baker and Nelson, 2005), *effectuation* (Sarasvathy, 2001), and *opportunity as a blueprint for action* (Dimov, 2011) recognize entrepreneurs as acting upon the world.

Our reconciliatory stroke lies in the recognition that “opportunity” represents an active stance towards the world whereas opportunity represents conditions for its satisfaction. Current perspectives tend to elevate the mind-to-world direction of fit in that they prioritize examination of opportunities rather than “opportunities,” and thus use entrepreneurial success as a guiding marker. We seek to balance the implicit analyst stance by developing a complementary player stance. To that end, we introduce American pragmatism as a promising intellectual foundation.

3. On taking a pragmatist stance

In developing the player stance as a pragmatist perspective on entrepreneurial “opportunities”, we predominantly draw on classical works – Dewey (1921), James (2017) [1907]), and Peirce (1923) – with a focus on pragmatist conceptions of truth and imagination.

3.1. Pragmatist conception of truth

James saw pragmatism as a mode of inquiry allowing to circumvent perennial insoluble questions by shifting the focus to practical consequences of beliefs (2017 [1907]: 17). *Inquiry* here should not be understood as an exclusively academic endeavour – from the pragmatist perspective, all human activity in the context of complexity and unknowability can be considered as such (Farjoun et al., 2015). Shifting focus to the practical consequences of beliefs means that the relevant question for an entrepreneur is not whether her belief about the existence of an opportunity is right or wrong, but whether her acting upon the world in pursuit of “opportunity” brings about the desired difference. This focus on the practical consequences, when understood in a utilitarian sense, has been subject to misguided criticism (e.g., Russell, 1966 [1908]) and requires some unpacking.

The starting point of the pragmatist conception of truth is that people experience frustration when their beliefs are proven wrong by their subsequent experience: “Above all we find consistency satisfactory” (James, 1909: 192). In light of this postulate, the belief is useful (it *works*), when it is robust to the incoming flow of experience, that is, it *agrees with reality* (James, 2017 [1907]: Lecture VI; Peirce, 1923: 53–54). However, neither experience nor beliefs are recognized as exclusive foundations of knowledge. There is, indeed, an external, objective reality that our experience encounters, which provides the “raw” content of our experience. But, at the same time, knowledge of such reality can only be expressed through our beliefs, which require conceptual categories for experience to be interpreted and made meaningful. This amalgamation becomes possible because pragmatists admit the inevitable fallibility of all knowledge (Dewey, 1921: 206). Reality exists externally and independently but remains inaccessible in its totality as any knowledge only partially describes it: our beliefs are “under penalty of endless inconsistency and frustration” (James, 2017 [1907]: 78). New truths constantly emerge, and if the truth exists, it is not more than “the opinion which is fated to be ultimately agreed by all who investigate” (CP 5.407).

This amalgamation allows us to distinguish between external conditions of satisfaction and an agent's propositional content while emphasizing that they can be implicated in different directions of fit (world-to-mind or mind-to-world) based on whether the agent reasons about what to do next (player stance) or reflects on what happened (analyst stance). By recognizing “the circumpressure of reality itself, which gets us sick of concrete errors” (James, 1909: 72), pragmatists embrace a core tenet of realist perspectives on opportunities (Alvarez and Barney, 2010; Ramoglou and Tsang, 2016) in the sense that there is something external that determines whether entrepreneurial efforts succeed or fail. By proposing that reality-as-known is mutable (James, 2017 [1907]: 83) and that “truth is *made* [...] in the course of experience” (James, 2017 [1907]: 80, emphasis in original), pragmatists embrace a core tenet of constructivist (McBride and Wuebker, 2020; Wood and McKinley, 2010) and interpretivist (Packard, 2017) perspectives on opportunities, namely that the propositional content reflects the stance of a mind acting upon the world. We highlight these connections to show that the pragmatist perspective is consistent with the current literature on entrepreneurship and that its power lies precisely in the commitment not to take sides.

Studies advocating a design-sciences approach to entrepreneurship (e.g., Berglund et al., 2020; Dimov, 2016; Ding, 2019) adopt core tenets of pragmatism more explicitly than other research streams within the field. In the spirit of pragmatism, such studies emphasize the importance of experiential learning and problem-solving nature of entrepreneurial action, focus on feedback loops and relational processes, and appreciate the irreducible complexity of the world entrepreneurs navigate. Indeed, pragmatism is a “problem-solving philosophy” and is particularly well-suited for studying how to organize “in the face of complexity” (Farjoun et al., 2015: 1789). Pragmatist understanding of complexity is not limited to the multiplicity of factors, their interactions (Clarysse et al., 2011: 140), and the associated probabilistic decision logic (Townsend et al., 2018: 675, see also Packard and Clark, 2020). Rather, it is rooted in the notion of *emergence* (Lichtenstein et al., 2007; Page, 2015), connotes with the *unknowability* of the future (O'Driscoll and Rizzo, 1985; Ramoglou, 2021), and thus is particularly useful for developing the player stance.

Emergence, as exhibited by complex systems, that is, systems comprising of two or more interacting parts (Simon, 1962), can be explained using the example of water. Water comprises of two hydrogen and a single oxygen atom, a perfectly reasonable description of it as a compound. But this reductive description cannot capture the property of “wetness” that water exhibits, nor is such a property “predictable” from its chemical composition. For the purposes of our inquiry, the key implication of emergence is captured by the idea that from a finite set of rules or interactions, infinite possible outcomes emerge (Waldrop, 1994: 152; see also Felin and Zenger, 2009).

Reasoning forward in time, entrepreneurs cannot possibly capture all the outcomes that may obtain in the course of their actions (O'Driscoll and Rizzo, 1985). This epistemological barrier is as much a result of bounded rationality as it is due to the impossibility of knowing how the world will respond to entrepreneurial action (Packard et al., 2017). After the world responds, the entrepreneur has the possibility to reflect on the goodness of her conjectures. To do so, she has to switch from the world-to-mind to a mind-to-world direction of fit.

The key here, regardless of the direction of fit between the world and mind, is unknowability – the player cannot possibly know *ex ante*, which “opportunity” will come to fruition (Hayek, 1989; Ramoglou, 2021), nor can she tell *ex post*, which opportunity should have been pursued. How this unknowability is classified (e.g., as risk or uncertainty) by an outsider is ultimately irrelevant to the player who, unlike analysts, seeks fulfillment rather than objective truth. This unknowability implies, in Peirce's vivid metaphor, that inquirers (*inter alia*, entrepreneurs) are walking on a bog: “[T]his ground seems to hold for the present. Here I will stay till it begins to give way” (CP 5. 589). Such a ground, that is, a conjecture about the state of the world treated as provisionally true, provides an enterprising individual with a basis for action as long as it is robust to the incoming flow of experience. The key question then becomes, how does she arrive at such a ground? Using Peirce's terminology, how does she *fix her belief* (1923: ch. 1) about “opportunity” that gives her a reason to move forward in a particular direction? When there is no empirical justification for inferring from the existing state of the world what the future might entail, *imagination* steps in (Alvarez and Porac, 2020; Kier and McMullen, 2018; Packard et al., 2017).

3.2. Pragmatist conception of imagination

The pragmatist conception of imagination is an invaluable source for enriching our understanding of how entrepreneurs conceive “opportunities” to pursue, as it considers any intelligible action as inherently imaginative:

“When a man desires ardently to know the truth, his first effort will be to imagine what that truth can be. He cannot prosecute his pursuit long without finding that imagination unbridled is sure to carry him off the track. Yet nevertheless, it remains true that there is after all nothing but imagination that can ever supply him an inkling of the truth. He can stare stupidly at phenomena; but in the absence of imagination they will not connect themselves together in any rational way.”

(CP 1.46)

Rather than counterposing creative power of imagination to rationality, as scholars of decision-making frequently do (Augier and Kreiner, 2000; Todd and Gigerenzer, 2003; see also Byrne, 2007), pragmatists believe that imagination is integral to any reasoning process and explored various ways of conceptualizing this insight (Misak, 2013). Peirce, who famously claimed, “Find me a people whose early medicine is not mixed up with magic and incantations, and I will find you a people devoid of all scientific ability” (CP 1.47), advanced the pragmatist conception of imagination by introducing *abduction* as a mode of inference that is distinct from deduction and induction.

Deduction is an inference from premises to a conclusion, and it underlies probabilistic approaches to decision-making (e.g., Campbell, 1992; Casson and Wadson, 2007; Norton and Moore, 2006). In a complex world characterized by the property of emergence, deduction does not constitute a sufficient basis for guiding action as not all premises for deriving conclusions exist at the moment when a decision is to be made (Arthur, 1994; Bromley, 2006: 88–96). Induction is an inference from a case to a rule, and some scholars maintain that it underpins analogical approaches to decision-making (Cornelissen and Clarke, 2010; Jones and Casulli, 2014). However, there are no epistemological grounds for transferring an inductive inference from one context to another, especially in a world characterized by emergence – the “source” and “target” contexts may differ in relevant respects (Hume, 2000 [1748]), as a player trying to replicate a once successful shot might know. Abduction is an inference from an outcome to an explanation, and since it allows for provisional acceptance and further modification of beliefs, it serves as the primary mode of inference for guiding action in a world replete with complexity and unknowability (CP 2.96, 5.145).

Abduction takes the following logical form (CP 5.189):

Premise 1: The surprising fact C is observed.

Premise 2: But if A were true, C would be a matter of course.

Conclusion: Hence, there is reason to *suspect* that A is true.

Abductive inference blends rationality and imagination: on the one hand, it has a “perfectly definite logical form” (CP 5.188); on the other hand, the conjecture that it yields (A) is weak as it is “nothing but guessing” (CP 7.219) akin to Gallileo's “*il lume naturale*” (CP 1.80–81). The conjecture can be improved through revision in light of new experience. This improvement is possible because it is not, in principle, unconstrained – at the heart of abduction lies coherence with the known. Not only must an abductively inferred conjecture mesh intelligibly with the observed surprising outcome that triggered the abductive search, but also with all relevant beliefs held to be true. Stated differently, it must render surprising fact C *unsurprising* in light of background knowledge – abduction turns on plausibility, and thus makes the world more intelligible.

Whereas induction and deduction are used to predict the future, and in doing so, provide a justification for action in the present, abduction is used to explain outcomes (Bromley, 2006: 137; Peirce, 1923), aid the entrepreneur to fix her belief, and provide a plausible guide for action required to realize a desired outcome (Bromley, 2006: 15, 127). Naturally, any guide to action entails imagination. Any action that “can still be chosen or rejected *has no objective outcome*. The only kind of outcome which it can have exists only in the imagination of the [entrepreneur]” (Shackle, 1969: 143, emphasis in original; see also Seligman et al., 2013). Dewey's work provides a broader perspective on this matter. He advocates for imaginative experimentation with the implications of various

possibilities to ensure “continuous, vital readaptation” of beliefs (Dewey, 1921: 240). Here, empirical contact with reality (the pragmatist test of “does it work?”) disciplines imagination, preventing it from running amok (Weick, 1989).

Overall, in a world replete with complexity and emergence, pragmatism provides us grounds to view imagination as an integral part of reasoning. However, from its logical form presented above, two aspects relevant for entrepreneurial reasoning remain unclear. First, although abductive inference is forward-looking in that it is open to alteration *via* feedback loops, it is nevertheless backward-looking in the manner it generates a conjecture. In other words, through a conjectured explanation, it links the past to the present. But, in the context of conceiving an “opportunity,” the entrepreneur is interested in projecting from the past and present to the future. Thus, the first question that remains to be answered is whether abduction is useful for such projecting. The second question is what specifically the source of an abductively inferred conjecture is – what helps identify a conjecture A among the multiplicity of possibilities to explain the surprising fact C? According to Peirce, a conjecture “does not come ex nihilo, but emerges from the matrix of experience itself” (Alexander, 1990: 329, see also Ward, 2004: 176), that is, it comes from the *familiar*. In the next section, we argue that the cognitive leap from a familiar past and present to an unfamiliar and unknowable future is essentially analogical, and present *analogical abduction* as mode of reasoning through which “opportunities” are conceived.

4. Analogical abduction in entrepreneurial reasoning

To act intelligibly in the face of an unknowable future, entrepreneurs have “to adapt [... their] conduct to future facts [... and] use the principle that things similar in some respects will behave similarly in certain other respects even when they are very different in still other respects” (Knight, 1921: 206). The principle that Knight proposes is essentially analogical – projecting that a course of action that worked in some past or present familiar context will also work in a future unfamiliar context is only possible by discerning relevant similarities between them (see Gilbert and Wilson, 2007, on the cognitive underpinnings of imagining essential features). This role of analogy-making has been discussed in entrepreneurship literature extensively. For example, it has been proposed that analogies can be used to convey entrepreneurial ideas (e.g., Cornelissen and Clarke, 2010; Hill and Levenhagen, 1995) and to frame unfamiliar situations as if they were familiar (e.g., Jones and Casulli, 2014; Martins et al., 2015), thereby enabling entrepreneurial action. Grégoire and Shepherd (2012) empirically examined how similarity comparisons (essentially an analogical activity) contribute to the identification of entrepreneurial opportunities. In light of the earlier distinction of different directions of fit between mind and world, we expand this work by blending analogical and abductive reasoning to provide a cognitive mechanism that enables entrepreneurs to make a creative leap from unfamiliar context to a familiar one and decide what to do next.

4.1. Analogical abduction

Analogical abduction, that is, the combination of analogical and abductive reasoning, enables the entrepreneur to make creative leaps that exceed those allowed by abduction alone. These leaps are aided by the power of analogies to connect ideas that were hitherto unconnected (CP 2.624; Thagard, 1993: 62). At the same time, abductive reasoning acts as a focusing device in that it directs analogical leaps along relevant attributes. Unlike abduction that begins with frustration caused by the surprising fact C in need of explanation, analogical abduction begins with dissatisfaction with the current state of the world. This is a common starting point for problem-solving approaches (Popper, 1999; Rudolph et al., 2009) and certainly a robust way to think about entrepreneurs adopting world-to-mind direction of fit in their reasoning. To alleviate this dissatisfaction, that is, achieve a desired outcome, the entrepreneur needs to take remedying action (von Mises, 2002: 25). To do so, the entrepreneur has to articulate the dissatisfaction as remediable. This articulation of dissatisfaction as remediable constitutes a conjecture about an “opportunity.” Analogical abduction enables the entrepreneur to provisionally arrive at such a conjecture and course of action aimed at remediation. In what follows, we adapt the logical form of analogical abduction from Haig (2014: 100-102) and Thagard (1993: 60-63) for the context of entrepreneurship:

Premise 1: Conjecture A regarding attribute X worked in source domain S1.

Premise 2: Target domain S2 is like source domain S1 on attribute X.

Conclusion: Hence A*, an analogue of A from source domain S1, is likely to work in target domain S2 to achieve desired outcome D*.

Premise 1 can be a fact. However, it is quite possible that the status of fact for the premise cannot be acquired, and in such cases, it is treated as *if* it were a fact (e.g., Augustine et al., 2019; Gartner et al., 1992). Without regarding Premise 1 as if it were true, that is, fixing a belief, the basis for further action is undermined. For example, Steve Jobs acted as if his premise that users wanted to develop their own personal music collections (analogous to private libraries) was true and proceeded to spearhead the development of the iPod (Cornelissen, 2013). Premise 1 is simply a reflection of prior knowledge or beliefs that the entrepreneur currently holds.

Premise 2 asserts that there are similarities between the source and target domains, and also requires some *a priori* understanding and knowledge of the world. The classification of a domain as being a source domain, by definition, implies that the entrepreneur is familiar with it, or takes inspiration from it. We include the latter because we recognize that familiarity may not always be rooted in deep knowledge or expertise but may simply act as a trigger to unlock imagination (Felin and Zenger, 2009). For example, German chemist August Kekulé proposed that the molecular structure of benzene was circular after seeing in a reverie an ancient symbol of ouroboros, a snake biting its own tail (Holyoak and Thagard, 1995: 13) and Benard D. Sadow invented the rolling suitcase after noticing “a worker effortlessly rolling a heavy machine on a wheeled skid” (cited in Von Hippel and Von Krogh, 2016: 207). It is important to note that both were experts in the target domains instead – Kekulé is widely regarded as one of the chief founders of modern organic chemistry, and Sadow worked in the luggage company.

To illustrate the overall logical structure of analogical abduction with a familiar example from entrepreneurship practice, consider

the case of Howard Schultz arriving at the conjecture about an “opportunity” to replicate the Italian coffee experience in the US. The analogical abduction leading to this conjecture can be presented as follows:

Premise 1: I am an American and I enjoyed [X] the Italian [S1] coffee shop experience [A].

Premise 2: Other Americans are like me in that they also like coffee and are sensitive to the atmosphere in which they spend their coffee time [X].

Conclusion: Other Americans who are like me but have not had the same Italian [S1] coffee experience might enjoy it too [A*] if it is imported to the US [S2], which may lead to potential profit [D*].

As the aforementioned example illustrates, analogical abduction concludes with a conjecture about an “opportunity,” which marks the beginning of an entrepreneurial journey. However, as analogical abduction is an ampliative form of reasoning that does not unfold the conclusion in its premises, the conjectures it yields are akin to hypotheses that must be tested empirically. Since no two domains are identical, analogies are never perfect. This lack of full alignment implies that analogies may need to be discarded or adapted – for entrepreneur trying to get the world to match her mind, there are always jagged edges to align. For example, to cater to the American taste, Schultz replaced Italian operas with jazz, introduced paper cups for coffee-to-go, and added flavored syrups to the menu, thus creating an idiosyncratic coffee culture phenomenon.

In the sense in which abnormal returns are associated with what venture capitalist Marc Andreessen terms “non-consensus” investments (Griffin and Andreessen, 2014), we suggest analogies leading up to such investments are likely to be more distant. Here, distance refers to how conventional the connection between source and target domain is – distant analogies connect domains that were not previously connected (see Gielnik et al., 2012, on divergent thinking). For example, the analogy between the architecture of locomotive engines and automobile engines employed to address the problem of planning manufacturing layouts is quite proximate. In contrast, consider the idea of echo-location used by bats to navigate darkness that has been employed to develop sonar for submarines (Office of Naval Research, 2002). Bats and submarines do not seem to be similar or have any connection, except that they navigate without sight. In this example, engineers were able to abstract away dissimilar and non-relevant considerations to focus on the problem at hand – navigating without sight.

4.2. Pragmatist model of entrepreneurial reasoning

After developing a conjecture about an “opportunity” via analogical abduction, entrepreneurs are confronted with the challenge of charting a course of action that would lead to the desired outcome – they need to reason as players to make the next move. They address this challenge by operationalizing the abduced conjecture as a well-structured problem (Simon, 1973), decomposing it along actionable dimensions, and then solving the sub-problems incrementally. In the context of entrepreneurship, such actionable dimensions, among others, can be market desirability, financial viability, and technical feasibility (Dimov, 2016). Entrepreneurs can derive the basis for their initial actions (in the form of solutions to the operationalized problem) by reasoning deductively from their problem statements along such dimensions. In projecting and exploring the implications of particular ways of operationalizing the

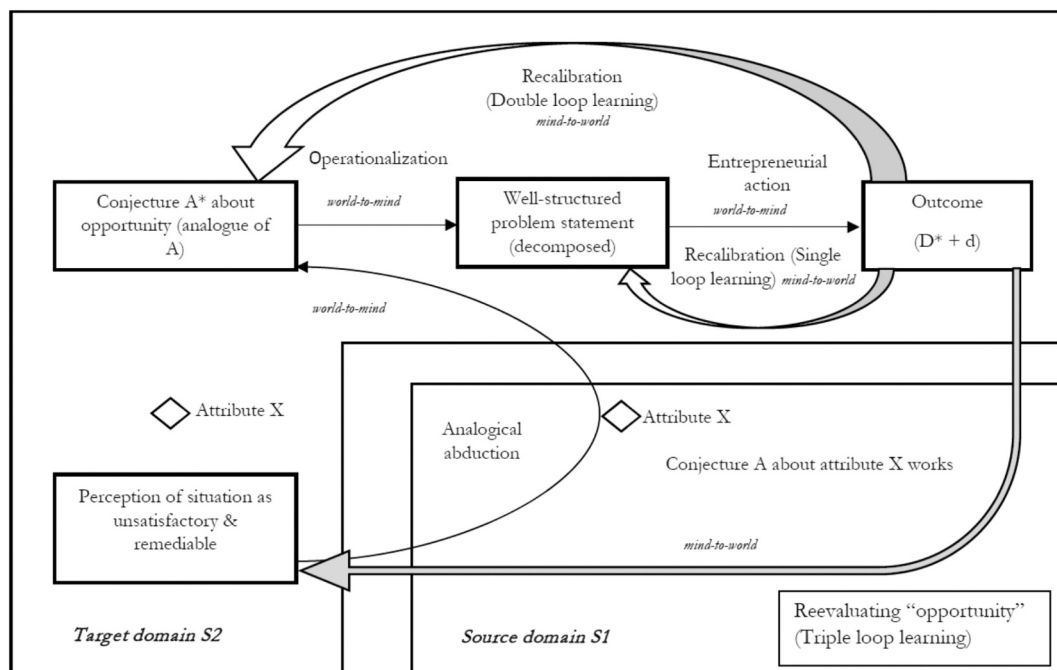


Fig. 1. The pragmatist process model of entrepreneurial reasoning.

problem to arrive at their next move, entrepreneurs reflect *in action* (Schön, 1983), that is, they engage in on-the-spot experimentation – a “conversation” with the situation – seeking to shape the situation in line with certain assumptions, while also allowing those assumptions to be shaped by the situation.

Subsequently, feedback obtained from enacting solutions and communicating with others enables entrepreneurs to reason as analysts and can lead them to revise their conjectures and update their solutions (Packard et al., 2017; Wood and McKinley, 2010). This revision or recalibration necessarily involves reflecting *on* action to improve the likelihood of fulfilling their intentions. Reflection on action refers to entrepreneurial efforts at criticizing and restructuring their understanding (Schön, 1983). In other words, entrepreneurs adopt the analyst stance of mind-to-world direction of fit to re-evaluate the premises from which to re-construct the blueprint for their next push for world-to-mind fit. This recalibration is likely as the entrepreneurs will not precisely achieve their desired outcomes – “any direction you proceed in has a very high *a priori* probability of being wrong” (Simon, 1992: 21; see also Dunne and Dougherty, 2016). In some cases, based on the feedback they receive over time, entrepreneurs may even abandon their initial conjecture about an “opportunity” altogether and start anew. Alternatively, entrepreneurs may commit to their conjectures with greater determination. These efforts can be represented as follows:

Action and feedback: Acting based on A^* yields outcome $D^* + d$.

Recalibration: Entrepreneur alters conjecture A^* or revises its operationalization to minimize d and/or update D^* .

Overall, our pragmatist process model of entrepreneurial reasoning that guides entrepreneurial action is presented in Fig. 1. The model shows the process of reasoning and recalibration for only one analogically abduced conjecture, which repeats for every additional conjecture generated by entrepreneurs. This process begins with the conjecture about an “opportunity” derived through analogical abduction and unfolds in aiming to get the world to fit the mind. Analogous to the process of inquiry, feedback from the world is incorporated as one becomes sensitive to the need of their mind to fit the world.

As such, mind-to-world and world-to-mind directions of fit act as complements – they reflect the alternating force in the interplay between the mind of an enterprising individual and the world. Entrepreneurs toggle back and forth between these directions of fit to reason about what to do next, to evaluate why they encountered an anomaly (why their analogically abduced conjectures did not work), as well as to test (new) conjectures. Naturally, there is a cognitive impediment in toggling back and forth between these different stances in that doing so is not effortless. We refer to this barrier experienced by entrepreneurs that impedes them from toggling between the mind-to-world and world-to-mind direction of fit as *metacognitive rigidity*.

Overcoming metacognitive rigidity enables entrepreneurs to interpret feedback from the world and act upon it with a renewed creative force. Positive feedback allows entrepreneurs to generate rules for action in similar situations in the future *via* induction, while negative feedback leads to altering analogically abduced conjecture or re-operationalizing problem statements deductively derived from it. It is noteworthy that the inference to whether recalibration is required and how to recalibrate may remain elusive even over time. In fact, it is entirely possible that a successful recalibration effort that leads to gains was successful for reasons that were exogenous to any entrepreneurial action. *Vice versa*, it is also entirely possible that a failed recalibration effort was sensible but led to losses for similarly exogenous reasons. Entrepreneurs are more likely to be successful in their efforts at recalibration when they test their conjectures piecemeal – one at a time and in a very limited manner – while trying to hold all other factors constant, not unlike sailors on Neurath's boat:

“We are like sailors who on the open sea must reconstruct their ship but are never able to start afresh from the bottom. Where a beam is taken away a new one must at once be put there, and for this the rest of the ship is used as support. In this way, by using the old beams and driftwood the ship can be shaped entirely anew, but only by gradual reconstruction.”

(Neurath, 1973: 199)

Of course, in the real world, this may be arduous, but multiple simultaneous changes are less likely to yield useful information for future recalibration.

The progress of recalibration can also be impeded if entrepreneurs attempt to force-fit anomalies from the world into existing mental schemas instead of critically re-evaluating them with each feedback loop. This proclivity to force-fit anomalies that may indicate flaws in conjectures based on existing schemas can originate in the experience (e.g., professional, cultural, political) that supplies them with deeply rooted beliefs and heuristics (Bhardwaj and Ketokivi, 2021; Carr and Blettner, 2010; Weick, 2005). Even when these beliefs are not robust to the incoming flow of experience and heuristics do not work, entrepreneur may still cling to them by generating protective *ad-hoc* hypotheses.

5. Playing the game

In the current section, we develop action principles that enhance entrepreneurs' reflexive capacities to fix their beliefs and act to bring about the desired difference to the world. These principles posit an instrumental relation between desired outcomes Y_i and antecedents X_i , where X_i are factors or conditions that can be manipulated by the entrepreneur (Bromley, 2006: 15, 74; Niiniluoto, 1993). Here, Y_i can be an intermediate or final desired outcome (or imagined state) for the entrepreneur, and in the spirit of pragmatism, our focus is on action that can be taken – what can the entrepreneur do to bring about the desired difference to the world, that is, make the pursued “opportunity” work?

5.1. Commitment to the analogy

All communities tend to share a set of assumptions about the world and how to navigate it. Ideas that do not rest on such shared assumptions are rejected, or, at the very least, vociferously challenged (James, 2017 [1907]; Kuhn, 2012 [1962]). The more radical the idea is (the more it departs from shared assumptions), the more difficult it is for it to gain acceptance. At the same time, there are no hard and fast rules to guide members of these communities on what is too radical, when to pursue a novel idea or “opportunity,” and when to abandon it. In other words, *ex ante*, whether an idea is too radical or novel is unknowable – such “knowing” rests on feedback from the world. Entrepreneurs can take incoming feedback suggesting that acceptance is unlikely as an invitation to persevere, look for different common grounds with the audience, stick with some ideas of unexhausted potential while abandoning others that have shown irremediable flaws, etc. Enfolded feedback from the world in this manner enables entrepreneurs to calibrate (or abandon) their business model in search of product-market fit (Dimov, 2010).

Generally speaking, entrepreneurs who choose to employ more distant analogies are at risk of encountering more resistance that stems, at least partially, from the lack of cognitive legitimacy and shared understanding rather than inherent flaws of such analogies (Kuhn, 2012 [1962]; Shepherd and Zacharakis, 2003). For example, the earlier mentioned analogy between bats and submarines is more distant than the analogy between locomotive and automobile engines, which can be described as being in the “immediate neighborhood” (CP 4.125). It is likely that the former analogy would meet more resistance than the latter – the connections between bats and submarines are less “visible” and more abstract than those between locomotive and automobile engines. This implies that relative to entrepreneurs employing a less distant analogy, entrepreneurs employing a more distant analogy have to put more efforts into, first, making this analogy work – it has more jagged edges than a more proximate one – and second, persuading relevant stakeholders of its value. Naturally then, making it work requires more commitment on entrepreneurs' part. Such commitment manifests through reluctance to hastily abandon the analogy and readiness to revise its operationalization. At the same time, cognizant of the fallibility of all conjectures obtained by analogical abduction, in the face of enduring resistance, entrepreneurs have to be willing to give up a fruitless analogy. While identifying the inflection point at which entrepreneurs stop persevering and relent their analogies is an empirical matter, we reason that more distant analogies require more commitment to make them work than less distant ones. Therefore, we propose:

Action principle 1. *Relative to less distant analogies, more distant analogies require commitment to more rounds and scope of recalibration.*

5.2. Re-operationalizing, altering, and re-evaluating the analogy

Analogically abducted conjectures about “opportunities” adopted by entrepreneurs may not be entirely useful or effective or may lead to unintended consequences (see Schindehutte and Morris, 2009; Waldrop, 1994). As a result, to bring about the desired difference to the world, entrepreneurs need to engage in single or double loop learning (Argyris, 1976). Here, single loop learning refers to a scenario where entrepreneurs do not question the underlying analogy, but instead engage in recalibration by adjusting its operationalization, tweaking the parameters that comprise its dimensions (e.g., market desirability, technical feasibility). In the case of double loop learning, entrepreneurs do question the merits of analogy and alter it by shifting the level of its abstraction. To provide a few examples, one might move from: a *bird* to a *flying object* or a *falcon* in the aircraft industry; the *Italian coffee culture* to a *coffee culture* or a *Milanese espresso bar* in the specialty coffee niche; an *online store* to an *online platform facilitating exchange* or an *online bookstore* in e-commerce. This trial-and-error approach involving either re-operationalization or altering the analogy is baked into analogical abduction in that it is a normal feature of the reasoning process. It is noteworthy that this trial-and-error process involves thoughtful invention of new trials based on an understanding of the results of earlier attempts (Schön, 1983).

The scenario where the level abstraction of the analogy is not altered, but rather a qualitatively different analogy is chosen can be characterized as triple loop learning (Isaacs, 1993; Romme and Van Witteloostuijn, 1999). Here, entrepreneurs re-evaluate the premises that led them to select the initial analogy and rethink the very “opportunity”, which, in turn, shifts attention to different desired outcomes. For example, what was initially the primary desired outcome can be re-conceptualized as an intermediary step to a broader desired state. Once entrepreneurs adopt as primary a desire at a higher level of abstraction, they may realize it is a better “opportunity.” However, in as much as cognitive shifts require reflexivity about previously adopted mental schemas and flexibility in altering them, harsh feedback from the world such as rejection, as opposed to welcoming feedback, seems more likely to trigger such shifts (Gilbert and Wilson, 2007). For example, a sports club may want to acquire a particular star player or set of players, but this desire can be conceptualized as an intermediary step to win a championship. Harsh feedback from the world such as the inability to acquire desired player(s) or continuing losses can result in reflection leading up to a completely different hiring strategy (e.g., Lewis, 2004).

To summarize, as entrepreneurs navigate the world that is complex, their analogies have jagged edges that do not perfectly align and require “smoothing” (Holyoak and Thagard, 1995). When the analogy appears to be working almost as entrepreneurs intend, this smoothing process requires recalibration *via* which the operationalization of the analogy is modified until a satisfactory fit with target domain is achieved. In other words, when the degree of deviation between intended outcomes and outcomes obtained is low, single loop learning suffices. In contrast, when the degree of deviation between intended outcomes and outcomes obtained is high, more significant modifications, such as shifting the level of abstraction of the underpinning analogy, may be needed for bringing about the desired difference to the world. Here, double loop learning is required. Finally, in some cases, the feedback from the world is harsh such that the flaws of the abducted analogy may appear to be irremediable. In such cases, entrepreneurs may engage in triple loop learning and abandon the analogy altogether to pursue what they perceive as a different “opportunity.” Predicated on this line of reasoning, we propose:

Action principle 2a. *Feedback indicating a relatively minor deviation from the intended outcome warrants engaging in single loop learning to revise the operationalization of the analogy underpinning the pursued “opportunity.”*

Action principle 2b. *Feedback indicating a major deviation from the intended outcome warrants engaging in double loop learning to shift the level of abstraction of the analogy underpinning the pursued “opportunity.”*

Action principle 2c. *Feedback indicating infeasibility of the intended outcome warrants engaging in triple loop learning to critically re-evaluate the pursued “opportunity.”*

5.3. Sensitivity to anomalies

Entrepreneurs look for patterns in the complexity of the world and seek to make sense of the new information arising from its changes (Baron and Ensley, 2006; Grégoire et al., 2010). Such simplified models necessarily leave discrepant cues as anomalies. Of course, pattern recognition is not the only source for forming expectations – they can also be formed based on analogies or conceptual combinations (Ward, 2004; Thagard, 1993), or analogical abduction as our model suggests. Regardless of their source, being sensitive to all types of anomalies is critical for overcoming two cognitive barriers that can impede entrepreneurs from achieving their desired ends. First, entrepreneurs must overcome metacognitive rigidity, that is, the impediment to toggling between world-to-mind and mind-to-world mental stances. Second, after the switch is made to a mind-to-world stance, entrepreneurs must overcome their proclivity to employ habitual mental schemas and frameworks to interpret feedback from the world (Bhardwaj and Ketokivi, 2021; Weick, 2005). Both these cognitive barriers can be seen as tendencies to economize on bounded rationality. We now consider them *seriatim*.

First, metacognitive rigidity is usefully regarded as the impediment associated with toggling between reflection *on* action and reflection *in* action (Schön, 1983). Reflection on action cannot take place in the moment and is an activity that involves a mind-to-world direction of fit. In contrast, reflection in action (Schön, 1983: 49–59) is real time and continuous, contains elements of tacit knowledge that are not easily justified. Reflection in action is directed towards achieving fulfillment – making it work – as events unfold, and involves a world-to-mind direction of fit. Traversing the boundary across world-to-mind and mind-to-world, given the paradigmatic differences in these stances, can be arduous and requires a spark that ignites the will to do so. Such sparks are provided by the *irritation of doubt* that accompanies anomalies, that is, outcomes that are unexpected and surprise entrepreneurs (CP 5.375; Peirce, 1923: ch. 2).

The irritation of doubt is overcome by fixing beliefs *via* analogical abduction. Fixing of beliefs galvanizes action as a practical conclusion of reasoning (McMullen and Shepherd, 2006), thus enabling the switch from mind-to-world to world-to-mind. But what about the switch in the other direction? Here, the irritation of doubt *erodes* fixed beliefs, and a new belief cannot be “fixed” until entrepreneurs engage in reflection, which requires them to switch from world-to-mind to mind-to-world. Such erosion can take time, especially if it involves gradual accumulation of anomalies (Kuhn, 2012 [1962]). Alternately, erosion can also occur instantaneously if a particular outcome departs sharply from expectation. Regardless of the amount of time it takes for erosion of beliefs to occur, anomalies indicate a possible flaw in analogically abducted conjectures. Based on our reasoning, we propose:

Action principle 3a. *To mitigate metacognitive rigidity, entrepreneurs ought to accord attention to anomalies, that is, outcomes that depart (sharply) from their expectations.*

Once the switch is made from the world-to-mind direction of fit to the mind-to-world direction of fit, there remains the tendency, especially among experts, to “force-fit” anomalies into existing mental schemas,³ which impedes warranted adaptation (Tetlock, 2005; Weick, 2005). Such attempts at force-fitting will have a differential impact depending on whether the entrepreneur has more expertise on the source domain or target domain. Overcoming this tendency to force-fit or tack on *ad hoc* hypotheses requires targeted conscious effort (Bhardwaj and Ketokivi, 2021).

In cases where expertise of the entrepreneur lies *more* on the side of the source domain as compared to the target domain, it can impede entrepreneurs from revising the operationalization and shifting the level of abstraction of the employed analogy. This resistance is expected to occur as it is cognitively more comfortable and cheaper to rely on a known source domain rather than to make sense of (a relatively) unknown target domain. Gathering and incorporating additional feedback from target domains may help mitigate this problem.

Action principle 3b. *To reduce the potentially harmful effects of force-fitting anomalies into existing mental schemas, entrepreneurs with higher expertise in the source domain as compared to the target domain ought to carefully seek feedback with regards to the analogy and its operationalization.*

In contrast, when expertise of the entrepreneur lies *more* on the side of the target domain as compared to the source domain, it can reduce the commitment of entrepreneurs to a particular analogy and its operationalization. When entrepreneurs are experts on the target domain, their search landscape for source domain is not strictly bounded by the confines of their own expertise. While this lack of strict bounds leads to increased flexibility in altering both the operationalization of the analogy as well as the analogy itself, it also places additional risks of hasty modification and abandonment. Here, entrepreneurs may be better served by investing in more rounds of recalibration prior to taking radical decisions.

³ Popper (1974: 35) describes this tendency as follows: “Once your eyes were thus opened you saw confirming instances everywhere: the world was full of verifications of the theory. Whatever happened always confirmed it”.

Action principle 3c. *To reduce the potentially harmful effects of force-fitting anomalies into existing mental schemas, entrepreneurs with higher expertise in the target domain as compared to the source domain ought to carefully explore the possibility of recalibration before altering or abandoning the analogy.*

6. Reflections

6.1. Contributions

This paper contributes to the literature on entrepreneurship in three ways. First, using Searle's (1979, 1983) distinction between the mind-to-world and world-to-mind directions of fit in speech acts and intentional states, we provide a novel way of understanding and developing the current discourse on entrepreneurial opportunities. Specifically, our approach makes salient the distinction between propositional content ("opportunity") and external conditions of satisfaction (opportunity), yielding a simple model of mind, world, and directional stance between the two. This approach allows us to distinguish between the analyst and player stances as different ways of relating to the world: one taking it in, the other acting upon it. The two stances work in tandem to move the entrepreneurial journey along, one looking back at the road travelled to take stock and refresh one's premises, and the other looking ahead to reason about the next steps along an unexplored path. Highlighting the prevalence of the analyst perspective in theories of entrepreneurship, we develop the player perspective as a research direction essential for a holistic understanding of entrepreneurial reasoning and action.

Our work connects three intuitions that have remained largely disjointed in prior research: (1) entrepreneurs act upon the world; (2) entrepreneurial action entails a reasoning process; (3) the world adjudicates whether entrepreneurial efforts succeed or fail. The first is reflected in studies on entrepreneurial bricolage (e.g., Baker and Nelson, 2005), effectuation (e.g., Sarasvathy, 2001), and action blueprints (e.g., Dimov, 2011); the second in studies on the premises of entrepreneurial action such as affect (e.g., Goss and Sadler-Smith, 2018) and cognition (e.g., Grégoire et al., 2010); the third in the distinction between the actualized and the possible (e.g., Ramoglou, 2021). These intuitions are incompatible under the mind-to-world stance of the analyst but become essential pillars of the world-to-mind stance of the player. Our work helps re-cast theory from being not only of the world as it is but also for the world as it could be. To revisit the analogy of an upcoming football tournament, we know that one team will win it, and, when they do, we will be able to explain why they won it. Yet, this totalizing stance of an analyst is moot while the tournament is unfinished. It can help a team reflect on and learn from how things have worked so far in the tournament, but as long as there is a next game, the player needs to step in to face the world. By the same token, when we encounter someone in the midst of her entrepreneurial journey, we know that this journey will reach some conclusion in the future, and we will be able to explain what will have happened. But the theory of that future outcome is not of use as a guide for the successive actions that will eventually lead up to that outcome. The analyst needs the player to instigate the facts to be analyzed; the player needs the analyst to evolve her response to the world. This echoes Kant's famous maxim, "thoughts without content are empty, intuitions without concepts blind."

Second, we propose that American pragmatism constitutes a promising philosophical foundation for developing the player perspective on entrepreneurial opportunities and, more broadly, entrepreneurial process. The pragmatist approach we advance in the current paper situates the concept of entrepreneurial opportunities within a framework of change-oriented inquiry (Dewey, 1991 [1938]) – a novel framework for understanding entrepreneurial practice. In this framework, the entrepreneur seeks to make an "opportunity" work, that is, to bring about the desired difference to the world. Due to the complexity of the world and inevitable fallibility of knowledge, this process entails trial-and-error and learning until desired outcomes are achieved or reconsidered. Not only does our framework provide a general foundation for research advancing the player perspective on entrepreneurship, but it also supplies entrepreneurship scholars with conceptual tools for unpacking specific mechanisms underpinning entrepreneurial reasoning and action. In adopting a pragmatist stance towards understanding entrepreneurship, a scholar signals that she is looking not *at* entrepreneurs but *with* them.

Finally, we provide a conceptual tool inspired by the pragmatist conception of imagination and introduce *analogical abduction* as a – but not the only – mechanism through which entrepreneurs arrive at their conjectures about "opportunities". The role of analogies (e.g., Cornelissen and Clarke, 2010; Grégoire and Shepherd, 2012) and imagination (e.g., Kier and McMullen, 2018; Packard, 2017) has already been examined in entrepreneurship research. We complement these studies by shedding light on the generative mechanism behind analogical or imaginative leaps conducted by entrepreneurs conjecturing about "opportunities". We view analogical abduction as an engine driving entrepreneurial reasoning and action and develop a corresponding process model as a dynamic guide for action. By doing so, we advance research on cognitive aspects of entrepreneurship and arrive at specific action principles that can guide entrepreneurs in their journeys. In light of the complementary, mutually reinforcing relationship between the player and analyst stances, we pay particular attention to the metacognitive rigidity that might prevent the smooth toggling between the two.

6.2. Future research directions

In advancing a pragmatist perspective on entrepreneurship, our work helps open up new research avenues, thereby enriching the current literature in the field. Entrepreneurial scholars are in a unique position to create a productive interface between analyst and player perspectives, and thus enhance entrepreneurial learning and discourse. In the spirit of self-fulfilling prophecies (e.g., Merton, 1948; Biggs, 2009), and March's (2006) "foolishness," we need to focus not on whether models for action are right or wrong, but on how they can be enacted as probes into the world, promoting exploration and systematic experimentation. As Kurt Lewin admonished us, "if you want truly to understand something, try to change it!" Scholars of entrepreneurship can help develop the reasoning and reflective capacities to complement the entrepreneurs' energy and hope.

Analogical abduction is but one mechanism allowing entrepreneurs to fix their beliefs and proceed to action. Future research in pragmatist tradition can explore other mechanisms leading to the fixation of belief. For example, one mechanism to fix beliefs may be the use of counterfactual reasoning (Baron, 2000; Byrne, 2007; Gaglio, 2004). Other mechanisms can center on concepts such as empathy (e.g., McMullen, 2015; Packard and Burnham, 2021) and time (e.g., Augustine et al., 2019; Wood et al., 2021). Exploring how empathy can trigger creative leaps and facilitate achievement of consensus can enable scholars to better understand the interplay between cognitive and affective aspects of entrepreneurial journeys. Incorporating perceptions of time and temporal dispositions in explanations would allow scholars to obtain deeper insights into entrepreneurial experiences. Furthermore, future research can investigate in more detail the interrelation between unknowability and entrepreneurial problem-solving as a decomposition of “opportunity” along actionable dimensions. Examining various uses and types of analogies employed at different stages of an entrepreneurial journey can also generate important insights about entrepreneurial practice from the player perspective. Similarly, examining factors impeding learning from anomalies other than expertise, as well as different types of anomalies and ways to develop sensitivity to them, can also serve to develop player perspective. Finally, the player perspective can be advanced if more entrepreneurship research focuses on how internal conversation (Archer, 2003) and narratives (Gartner, 2007) enable reflexivity that triggers entrepreneurial action.

7. Conclusion

We dream, hope, and aspire about the future, not about the past. Entrepreneurs are dreamers in that they aspire for things that do not yet exist. They dare to defy the world and try. It is while trying that their dreams are kept alive and that they find themselves in the heat of the game; they face the unknowability of the future onto which one is free to project her own aspirations. Our challenge as scholars is to recognize that *entrepreneurship* – just like dreaming – is best captured in present continuous tense, as something currently in motion yet unfinished. It is to recognize the player stance and accept that no one knows the future. We can only analyze what we know to be the case. In this sense, entrepreneurship – in its forward-looking, future-oriented sense – is not something to be analyzed, but something to be recognized, enabled, and supported. This invokes the practical utility of action principles, in addition to the epistemic utility of theoretical propositions.

Crucially, neither the ultimate goal of scholars (veracity) nor the ultimate goal of entrepreneurs (fulfillment) can be achieved without both being able to take the opposing stance – entrepreneurs need to adopt analyst stance to learn from their experience, while scholars need to adopt player stance to better understand entrepreneurial action. To overcome metacognitive rigidity that impedes toggling between the stances, both scholars of entrepreneurship and entrepreneurs can learn from each other. A key implication of this dynamic is the vital importance of open dialogue between the two camps. This open dialogue occurs when entrepreneurs and scholars try to be sensitive to each other's stances. To develop this sensitivity, we, as scholars, must recognize that entrepreneurs act in the heat of the game, pursuing “opportunities” that are no longer visible in the fading afterglow of the embers.

CRedit authorship contribution statement

Anastasia Sergeeva: conceptualization, writing (original draft, revisions, editing), visualization, responses to review team.

Akhil Bhardwaj: conceptualization, writing (original draft, revisions, editing), visualization, responses to review team.

Dimo Dimov: conceptualization, writing (original draft, revisions, editing), responses to review team.

Declaration of competing interest

The authors declare no conflict of interest.

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