

Entrepreneurship Theory and Ideation Techniques

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Abstract

This chapter considers the role of entrepreneurship theory in the development of ideation techniques for entrepreneurship education. It begins by considering how metatheories impact theory construction in entrepreneurship research and discusses the role of ontology, epistemology, axiology, as well as the role of assumptions about human nature and social change. The chapter presents four different paradigms of thought that apply different philosophies and illustrates how these different paradigms conceptualization entrepreneurship and entrepreneurial opportunity differently. The four paradigms include the equilibrium paradigm; the disequilibrium paradigm; the disruptive innovation paradigm and the social constructionism paradigm. Within each paradigm the nature of entrepreneurial opportunity is discussed, and the chapter shows how different ideation techniques can be generated from these different conceptualizations. Forms of ideation technique are presented and explained, as they relate to each paradigm, and the chapter concludes by explaining the value of these techniques for ideation, opportunity discovery and creation, in the entrepreneurial process.

Introduction

Entrepreneurship education and learning research have been a focus of academic inquiry for over thirty years (Pittaway et al., 2018). During this timeframe studies have explored teaching methods, student intentionality, entrepreneurial learning, assessment practices, forms of learning, educational contexts, and application in, and out of, the classroom (Mwasalwiba, 2010; Naia et al., 2014). Knowledge and practice have expanded substantially. Despite these advances research has been criticized for being atheoretical (Fayolle, 2008), not sufficiently drawing on educational theory, and has been shown to lack connectivity between the study of entrepreneurship education and the study of entrepreneurial learning (Naia et al., 2014; Pittaway et al., 2018). Recent calls, therefore, have focused on creating greater links to educational theory. While it is true that research and practice could be better informed by educational theory, it is also important that researchers do not overlook the role of theory in entrepreneurship and how it can inform educational practice (Fiet, 1996; 2001; Neck and Corbett, 2018). This chapter aims to highlight these links. It will do so by explaining four paradigms of entrepreneurship thought, showing how these paradigms inform different theories of entrepreneurial opportunity and subsequently lead to different educational techniques in venture ideation. The purpose of the chapter is to demonstrate that different entrepreneurship theories can lead to different forms of educational practice. It also seeks to highlight that theories and the techniques they produce are not mutually exclusive despite being generated by different underlying philosophies and thus originating from different paradigms of thought. The chapter will begin by discussing the role of philosophy in theory formation. It will then introduce the four paradigms of thought to be discussed. Within each paradigm the underlying philosophies will be explored, and the chapter will show how these guide different theories of opportunity. Within each paradigm relevant ideation techniques will be explained as

they relate to the theory of opportunity presented. Finally, the chapter will conclude by reminding researchers and educators about the role of entrepreneurship theory in educational practice.

Philosophy and Theory Construction

Claims that entrepreneurship education research is atheoretical and should be better linked to educational theories and philosophies (Fayolle, 2008) are calls for deeper insights into why certain educational practices are relevant. Practices are often mimicked from program to program or from professional practice, without much thought given to why certain educational practices are valid. Educators have preferred approaches, significant diversity of approach is endemic across academia, fads and fashions clearly occur. Often, one could argue, this is entrepreneurship education's greatest asset, the excitement of different approaches, as well as ongoing innovation and openness to experimentation in educational design. Theories and philosophies of education can certainly play a role in addressing this perceived deficit, but they are not the whole picture. While educational philosophies can guide educational practice, it is also important to recognize that philosophies and theories derived from entrepreneurship research, and observations of actual entrepreneurship practice, should claim an important role in the process. These theories, however, must also contend with many implicit philosophies derived from a range of disciplines and approaches, that are applied in entrepreneurship research. Such underlying philosophies guide all thought (Burrell and Morgan, 1979). Often described as meta-theories, or simply put 'before theory', these taken-for-granted assumptions guide thinking in implicit and sometimes unintended ways (Pittaway, 2005). There are different forms of philosophy that have been highlighted as important (Grant and Perren, 2002; Pittaway and Tunstall, 2016) and it remains true that while

other disciplines openly discuss these taken for granted assumptions, entrepreneurship research tends to ignore them (Ogbor 2000).

Ontology

Ontology is the first branch of philosophy that has relevance when considering underlying assumptions implied by a theory. Ontology is a branch of meta-physics that considers the nature of being. Assumptions tend to focus on reality, how reality is constructed, and understood within a theory. Ontological questions ask, “what is real”. The movie the Matrix provides an effective illustration to students of ontological questions, as Morpheus tells Neo that his reality is an illusion and is in fact very different from what he perceives it to be (i.e., he is being ‘farmed’ as a source of energy by machines who have created a virtual reality within which he lives). Questions of an ontological nature include, to what extent reality exists and how human consciousness can understand it. In the case of the Matrix, having opened the question of what is real, the movie franchise continuously presents Neo with alternatives, some less and some more ‘real’ than others, leading to questions about whether one can really ‘know’ what is real. The movie Inception, poses, similar ontological questions, by conceptualizing different layers of dreams that have different ‘time horizons’ progressing at different speeds and by placing Saito (who was shot) in limbo, lost in an unconstructed dream space in somebody else’s subconscious (Dom’s enormous and elaborate city). Ontology in entrepreneurship research provides for understanding researcher’s taken for granted assumptions about reality that underpin their theory construction. Another branch of philosophy that plays a similar and important role is epistemology.

Epistemology

Epistemology is a branch of philosophy that asks deep questions about the nature of knowledge itself. Questions are asked about how knowledge is conceptualized, formed, and shared by people. What can we know (i.e., what is the difference between knowledge and opinion)? Can we have knowledge (i.e., are we capable of knowing anything)? How do we come to know it (i.e., what is the process through which knowledge is obtained)? These assumptions are fundamental, the dichotomy of ‘true’ (knowledge) and ‘false’ (opinion) must start from an epistemological stance on the nature of knowledge itself. Is knowledge a concrete reality which can be communicated in a tangible format or is knowledge subjective, abstract or a priori, based on unique personal circumstances? In relation to entrepreneurship can the knowledge of entrepreneurial behavior be taught, or learnt through simulations, or indeed vicariously from others, or can it only be gained through personal experience? These questions about knowledge can lead to different research foci when studying entrepreneurship and lead to different educational practices. Does one seek to explain *what* occurs, or *how* it occurs, or *who* makes it occur (for example)? Does one seek to teach *about* entrepreneurship, *for* entrepreneurship or *through* entrepreneurship (for example)? When is this knowledge ‘true’ or ‘false’? Many different assumptions about how knowledge can be constructed exist, some seek scientific levels of ‘concrete evidence’ and treat social science like a science, while others delve into subjective meaning inherent in language construction and discourse (Morgan and Smircich, 1980)¹. They are, however, alternative positions about the nature of knowledge itself and thus paradigmatically opposed in many respects.

¹Including Positivism, (knowledge by testing empirically laws and relationships), Systems Thinking (knowledge obtained by holistic study of systems and processes), Symbolic Discourse (knowledge is obtained by understanding discourse), Anti-Positivism (knowledge is obtained by phenomenological insight and revelation)

Axiology

Axiological questions also exist in the study of entrepreneurship that influence how we might teach/learn entrepreneurship. Axiology is the branch of philosophy that considers ‘values’ as they relate to ethics, aesthetics and/or religion. Questions of an axiological nature focus on the nature of value. Ethics asks questions about underlying values, and what is considered ‘good’ or ‘correct’ for individual and social conduct. Aesthetics in contrast, is focused on how to consider notions, such as ‘beauty’ ‘funny’, and explores emotions associated with such concepts. Axiological questions exist in the study of entrepreneurship that also impact on how one might educate students. For example, a common axiom in entrepreneurship is to assume ‘individualism’ in the entrepreneurial process (Ogbor, 2000). That entrepreneurial endeavor is started and led by individuals, rather than teams or social groups. Another axiom, one can argue exists, is a common assumption that entrepreneurship is a positive force in society, that it is inherently ‘good’ and should be promoted amongst our young people (Pittaway and Tunstall, 2016). There is also an assumption of ‘exceptionalism’, that entrepreneurs are somehow exceptional from the general population in some specific way, for example, their personality or their mindset (Baron 1998; Lynch and Corbett, 2021). None of these axioms can be accepted uncritically, and yet are often embedded as assumptions in our educational practices. What a society values and why it values it can also impact entrepreneurial activity and educational practice. If, for example, attitudes towards failure are negative, gender roles are strictly defined, or the seeking of profit is frowned upon, then these values can impact whether entrepreneurship education will be encouraged at all, or influence its nature, or who engages in it. One should, therefore, not assume that entrepreneurship education conducted in a certain way in one location (e.g., the US) can be uncritically transferred to another

location (e.g., China or Russia) without appropriate adaptation to the culture and values of that society.

Human Nature

As entrepreneurship is inherently a human act, the study of entrepreneurship and its educational practices, cannot escape philosophical questions about human nature. Assumptions about human nature relate to beliefs about humankind, about how humans interact with their environment and what underlying factors guide human behavior (Pittaway and Tunstall, 2016). For example, Trigg (1988; p. 13) highlights a question raised by Plato, “...*whether humans are autonomous creators of value or whether we live in a world so imbued with value that we choose to achieve happiness by living in accord with it*”. This dichotomy is often considered a debate between ‘freewill’ and ‘determinism’. Do researchers believe much of our behavior is a result of personal choice or largely determined by internal and external influences (e.g., such as our personality). As entrepreneurship is predominately a human endeavor, assumptions of this nature must invariably enter researcher’s theories (Pittaway, 2005). In particular, questions about human agency are important in entrepreneurship because entrepreneurs act to create possible imagined futures (Mises, 1949; Shackle, 1979), suggesting some level of ‘freewill’. Within ‘determinism’ there are also different positions that guide assumptions, such as, the debate between ‘nature’ and ‘nurture’, which impact theory construction. Here assumptions about the extent to which behavior is guided by inherited aspects (e.g., personality) or acquired aspects (e.g., learning) influence thinking (Pittaway and Tunstall, 2016; Lynch and Corbett, 2021). Entrepreneurship education, in general, itself takes a position that entrepreneurial behavior can be learnt, while different forms of assumption (e.g., about how learning is acquired) can guide individual educational practices. Inevitably, underlying assumptions about human nature guide the construction of theory and,

therefore, how these theories impact educational practice (Pittaway, 2005; Pittaway and Tunstall, 2016).

Social Change

Related to assumptions about human nature are philosophical assumptions about social change. Burrell and Morgan (1979) propose that such ‘meta-sociological’ assumptions exist in all social scientific research. Underlying assumptions exist, about the nature of society and how social change occurs. One debate focuses on ‘order’ versus ‘conflict’ (Dawe, 1970) or the extent to which society is assumed to be relatively stable rather than undergoing constant pressures derived from ‘conflict’, ‘power-relations’ and ‘change’ (Dahrendorf, 1959). Philosophies of social order tend to assume that societies have relatively stable structures, that elements of a society have functions, and that each function contributes to the maintenance of the whole. Philosophies of social conflict, however, assume that deep-seated structural conflict exists within societies that lead to domination of one group over another and that structural contradiction exists within societies. Assumptions also exist about the nature of societal change, how it occurs, what drives it, and the extent to which it is incremental or radical and sudden (Burrell and Morgan, 1979). Such assumptions clearly impact entrepreneurship theory (Pittaway, 2005). It is, for example, evident that Kirzner’s approach to opportunity recognition (1973; 1980; 1982; 1990) depends on conceptions of structural flux that cause disequilibrium, while Shackle’s thinking (1955; 1972; 1979) is guided by an assumption that new societal forms can be socially constructed (imagined, acted-upon and created through collective efforts). Schumpeter’s theory of creative destruction is possibly the clearest example of entrepreneurship thinking that depends on a theory of societal change (periods of stability followed by sudden periods of creative destruction), which may have its origins in Marxist thought (MacDonald, 1971). Metaphors about change from biology are also

used to assist thinking about how social change can occur and researchers can be seen to apply these in entrepreneurship (e.g., the use of population ecology, ecosystems, and theories of organizational growth to explain change). Such assumptions about the nature of society, how humans interact with it and how change occurs over time, clearly impact entrepreneurship theory. They also guide underlying assumptions about the nature of entrepreneurship itself that influence educational practices (e.g., by encouraging social entrepreneurship to stimulate social/environmental change or by focusing on high growth firms more than small businesses).

These different forms of ‘meta-theory’ have been shown to guide different paradigms of thought in entrepreneurship (Grant and Perren, 2002; Pittaway, 2005; Pittaway and Tunstall, 2016). Within each there are many arguments and differences of position and as philosophical assumptions when adopting one, even implicitly, researchers tend to exclude others. Paradigm shifts can also occur as empirical observations lead to a change in taken-for-granted tenets (Kuhn, 1962). This has been observed in entrepreneurship in the 1980s when researchers moved away from trying to understand the entrepreneurial personality to focus more on what entrepreneurs ‘do’ (Bygrave, 1989) and in the 1990s when researchers shifted away somewhat from a focus on new venture creation to focus on opportunity recognition (Pittaway and Tunstall, 2016). Faced with the diversity in the underlying disciplinary basis of entrepreneurship research, and consequently its implicit metatheories, there have been calls to consider the theoretical foundations of the subject (Brazeal and Herbert, 1999; Chandler and Lyon, 2001; Gartner, 2001). Argued for solutions have included a ‘normal science’ perspective, which seeks general theories that can incorporate the body of thinking into a whole (Shane and Venkataraman, 2000). Others have aimed to draw the boundaries of the discipline more tightly, to create disciplinary coherence in underlying

assumptions (Low, 2001). While others have argued for a more ‘pragmatic science’ perspective, whereby communities of researchers are encouraged to build research agendas around discrete themes (Gartner, 2001), allowing for different underlying assumption sets. These discussions are best viewed as a debate about how to manage diverse sets of metatheoretical assumptions drawn from different disciplines. A better approach is to acknowledge that different paradigms of thought exist, applying different underlying metatheories, and that these different paradigms lead to different types of theory and ultimately different educational practices (Grant and Perren, 2002). For the purposes of this chapter four paradigms are identified and described as the ‘*equilibrium paradigm*’ the ‘*disequilibrium paradigm*’, the ‘*the creative-destruction paradigm*’ and the ‘*social constructionist paradigm*’ (Pittaway, 2005; Pittaway, Aïssaoui and Fox, 2018).

Equilibrium Paradigm

The equilibrium paradigm is influenced by classical, neo-classical and microeconomic thought (Barreto, 1989; Pittaway, 2005). These approaches typically seek out ‘laws’ that explain economic systems. Economic models tend to be mainly systemic and prescriptive, putting forward assumptions that are based on general principles that govern society (in this case the economic aspects of society). Ontologically, social reality is presented as something ‘concrete’ that ‘exists’, and epistemologically, knowledge is derived from empirical observation. Axiological assumptions include the production function, as well as assumptions about rationale choice and perfect information (Barreto, 1989). These assumptions suggest that human behavior is determined by the systemic parameters within which it occurs (i.e., it is largely controlled by economic and social systems), and there is limited space for human action to change the parameters of these systems influencing human behavior. Equilibrium theorizing also applies a very stable ‘order’ assumption

about society and economic systems, that they change rarely and that when they do, change is slow and incremental. The reduction of human action and social change in this form of theory construction has led to arguments that entrepreneurship is generally neglected in this paradigm (Kirzner, 1980; Barreto, 1989; Harper, 1996). Indeed, such deterministic views about behavior and social/economic order tend to eradicate the potential for entrepreneurial acts that create new things, challenging the current economic and social order (Pittaway, 2005). ‘Entrepreneurial opportunity’ in the equilibrium paradigm most fits the concept of ‘sagacity’ as presented by Venkataraman (1997). Sagacity describes the domain of prior knowledge that entrepreneurs have access to, their prior knowledge, their stock of information, and their prior experiences and how this prior knowledge allows for opportunity recognition (Ardichvili et al., 2003; Dew, 2009). As social order is the dominate assumption, and human action can have little sway on societal change, entrepreneurs are restricted to understanding what ‘exists’, and their accumulation of knowledge about what exists can be influential in their discovery of entrepreneurial opportunities (Shane, 2000). Their ability to work within existing systems to acquire and deploy resources also becomes essential in their ability to exploit an opportunity identified (Alvarez and Busenitz, 2001). Simply put, *entrepreneurial opportunity in this paradigm depends on observations of existing ventures, followed by mimicry, adaption and incremental innovation.* For the purposes of entrepreneurship education this paradigm of thought brings forward a number of ideation techniques that are designed to: i) draw upon an individual’s existing knowledge and experience to identify entrepreneurial opportunity and, ii) use techniques to expand knowledge of existing economic and social systems as a means to systematically search for entrepreneurial opportunities that already ‘exist’ that can be modified. A number of illustrative techniques follow.

Stock of experience

The concept of sagacity suggests the need for ideation techniques in entrepreneurship that are designed to uncover an individual's taken-for-granted experiences and knowledge that might form the source of an entrepreneurial opportunity (that already exists for them). Each individual's personal knowledge and experience is unique and, therefore, forms a unique opportunity set for that individual. Two example ideation techniques designed to uncover personal opportunity sets are *passions* and *bug-me lists*. The passions ideation technique can come in a number of forms but is designed to bring forth aspects of an individual's life that they are enthusiastic about. One example method requires initial individual reflection on personal experiences, asking what parts of your life are you most enthusiastic about? Aspects might include hobbies, sports, music, career paths, work experience, voluntary experiences and beliefs (etc.). Individuals are asked to list out these passions over an extended period of reflection. They are then invited to give a weighting to the list (i.e., identify what somebody is most passionate about). After identifying their top five passions they try to observe links between their passions, brainstorm venture concepts linked to their passions and conduct industry research to further understand what entrepreneurial opportunities might currently exist within their areas of passionate interest. The ideation technique brings together the concept of sagacity with an entrepreneurial search method designed to understand deeply the existing marketplace, to match an individual's genuine interest in something to the opportunities that might exist in that domain.

Another ideation technique used extensively by entrepreneurship programs that applies the sagacity concept is the bug-me-list. Here the reverse of passions is applied, individuals are invited to draw on their prior experience by thinking about things/experiences that have particularly annoyed them. Bug-me-lists are usually individual exercises that require an extended period of

reflection initially. Individuals think through all of the experiences they have had and note things that have been particularly annoying (i.e., bug them). Methods can vary, as an illustration one method requires consideration of failed processes, poor products, services that could be improved, as well as anything that causes personal anxiety and distress when experienced. Lists are shared in groups to explore commonalities and to validate entrepreneurial opportunity and then used as a basis to generate venture concepts. Such lists can be used to both bring forward taken-for-granted experiences and can be used to consider whether such experiences are commonly experienced by others. In this sense they seek out the entrepreneurial opportunities derived from incremental change to social/economic systems. Minor improvements to processes, products, services and experiences, if experienced by others, can be the opportunity to make improvements that would be attractive to those consuming the current ventures within the *status quo*. In this sense, such techniques seek minor improvements to the existing social reality and offer venture opportunities to exploit these areas for improvement.

Empirical observation

Since the equilibrium paradigm looks for knowledge that is empirically observable any ideation technique that engages in scientific methods to observe current reality can be used as ideation techniques. These include all forms of market research, including surveys, focus groups, interviews, observation (etc.,) as well as other relevant social scientific techniques to observe existing practices. These forms seek to understand what ‘exists’ and seek to expand an individual’s knowledge about what exists. Consequently, they aim to uncover unobserved entrepreneurial opportunities that an individual is unaware of, however, these opportunities ‘exist’, and are waiting to be discovered. An entrepreneur’s capacity to engage in systematic search, and their search capabilities in doing so, has been considered to be a specific entrepreneurial resource that varies

between individuals (Alvarez and Busenitz, 2001). In this form of ideation technique there are many possibilities that can be deployed that use the entire spectrum of market research techniques. Within an ideation class one illustration is to use the passions technique as starting point for ‘naturalistic observation’, which is a technique that involves observation in the natural settings within which a practice occurs without intervention. Participants are required to choose one of their passions and join a setting where they can thoroughly observe that passion (this is sometimes more easily done for some passions than others, such as, sports). The technique requires a minimum of 2hrs of observation and participants are trained on how to observe. They can engage in participant or structured observation and are requested to observe closely issues, changes, ideas that could be a source of venture concepts and are required to take detailed notes. While few venture concepts can be sourced in a 2hr observation, the concept of deliberately observing something as a source of venture ideation has value in educational settings, as a way to encourage the practice on a more regular basis. Another common ideation technique is to ask students to interview a participant of their passion-practice, seeking to understand more deeply any insights that might be gained about venture concepts in that domain. All of these forms of empirical observation, however, consider entrepreneurial opportunities to exist, to be found, by expanding personal knowledge through valid methods of investigation.

Mimicry

Mimicry is the fourth form of ideation relevant to the equilibrium paradigm. To mimic something is to imitate it, perhaps with some careful adaptation. Within the context of entrepreneurial opportunity this can be a viable route to a venture concept when careful consideration is given to the avoidance of conflict with established intellectual property rights. This form of ideation also applies the ‘social order’ assumption used in equilibrium thinking, that

if established concepts are successful then newer and updated versions of the same concept will also be successful. Consequently, it assumes that if a venture concept is doing well, it has validated the market and customer demand, and demonstrated a need for the product or serviced offered. Ideation techniques that use mimicry must, however, be careful to consider, intellectual property constraints, market saturation issues, competitor size/monopoly power, and possible customer switching costs, which might be involved when competing directly with established firms. There are a number of relevant ideation techniques that can be used.

The first example is *crowdfunding imitation*. In this technique participants in teams are asked to choose a crowdfunding platform (e.g., Kickstarter; Indiegogo etc.,) and search the platform for 20 ideas (typically five each) that stand out, perhaps applying prior personal bug-me-lists and/or passions. Once a list is identified the teams spend significant time considering how each concept could be improved and identify two that present significant venture opportunities attractive to the team. Another ideation technique deploying mimicry is *international copy and adapt*. Here student teams choose a broad area of interest and one or more countries, outside of their country of origin. They conduct venture research on the location and the specified area of interest, the aim is to identify venture concepts that exist in one context that could be imported to the country of origin. Another variation to this ideation technique requires students to *interview international students* at their host university. This one explores what businesses, products and/or services international students wish they had access to in their new country and/or what ideas they like that they consider might work in their home country. Each of these concepts is designed to consider what entrepreneurial opportunities might exist when copying concepts from one country to another, with some relevant adaptations. Mimicry as an ideation technique is, therefore, a

careful form of copying and adapting the *status quo*, to deliberately find things that work, to adapt them and to transport them to new locations if localized opportunities exist.

Disequilibrium Paradigm

The next relevant paradigm reacts against underlying axioms and metatheoretical assumptions made in the equilibrium paradigm (Alvarez and Barney, 2007; 2010; 2013; Dimov, 2011). The cognitive limitations of human actors are explicitly acknowledged, and this is set against assumptions of rational choice and perfect information in the prior paradigm (Coase, 1937). Disequilibrium models, rather than create hypothetical empirical models, seek to understand economic systems as they operate through observation (Mises, 1949; Kirzner, 1982). Models are, therefore, descriptive rather prescriptive and seek to understand how human actors operate in observed economic systems. Consequently, the underlying assumptions differ (Pittaway, 2005). Ontologically, these approaches continue to assume that social reality ‘exists’ objectively and can be observed empirically (Caplan, 1999). They diverge from equilibrium theory in two important respects. First, they accept that social systems are in a state of flux over time, though do move towards equilibrium rather than away from it. Secondly, they allow for entrepreneurial action to exploit opportunities that might exist in the gaps created because of disequilibrium in the market. Disequilibrium occurs in economic and social systems because of human cognitive limits. Not all actors in a system have the same information and information asymmetry occurs between actors (Casson, 1990; 1998), allowing for opportunities for ‘pure profit’ to exist in the mismatch between supply and demand (Kirzner, 1982). Here uncertainty, ambiguity and risk, become essential components because of individual knowledge limitations (Knight, 1921) and entrepreneurial capability arises from the ability to make correct judgments

about the direction of markets within these limits (Jones, 1998). As such, entrepreneurial opportunities 'exist' but entrepreneurs must be 'alert' to them and subsequently attract resources to exploit them (Kirzner, 1982; Baker and Nelson, 2005).

Entrepreneurial opportunity in this paradigm is, therefore, conceptualized as drawing on the domains of prior knowledge, deliberate search and contingency (Ucbasaran et al., 2008; Dew, 2009). Prior knowledge remains important but is applied more to the development of cognitive skills to 'spot' new opportunities than to uncovering ones that might already exist (Shane, 2000). Deliberate search, using empirical observation, also remains an important ideation tactic but is more focused on trying to understand what gaps might exist in the marketplace rather than on copying and improving existing concepts. The contingency domain (chance, luck, serendipity, unexpected change) enters into thinking more consciously and requires more consideration in thinking about entrepreneurial opportunity. Due to uncertainty, ambiguity and risk the potential for changes in the exogenous environment and the chance that they can impact, discovery approaches to opportunity exploitation are more relevant (Sarasvathy, 2001; Yu, 2001). Simply put, *entrepreneurial opportunity in this paradigm is the confluence of capability to be alert to opportunity, deliberate search efforts and chance events, that might lead to spontaneous recognition of a gap in the market/social system* (Dew, 2009). For the purposes of entrepreneurship education this implies a number of categories of ideation method: i) pattern recognition techniques that might allow for enhanced alertness to opportunity; ii) empirical efforts designed to uncover gaps in the marketplace and, iii) observations of systemic changes that create disequilibriums that might be the source of new opportunities. Next, are some ideation techniques that illustrate these forms.

Pattern recognition

Ideation techniques that use pattern recognition have two objectives, first they help train students' cognitive skills for opportunity alertness (Gaglio and Katz, 2001), which is valuable when considering the contingency (luck/serendipity) aspects of entrepreneurial opportunity (Baron and Ensley, 2006). Secondly, they provide specific techniques to ideated for disequilibriums/gaps in the market. There are many ideation techniques that can be deployed in this form and many established creativity techniques can be adapted to encourage pattern recognition in venture ideation processes. Three common methods that are used in entrepreneurship are *brainstorming*, *word association* and *mind mapping*. In brainstorming groups of four to six participants are formed and given an extended period (usually at least an hour) to generate a large volume of venture ideas. Formal brainstorming requires participants to avoid judging ideas generated initially and it is not unusual to elect a chair, to keep the team on track, and appoint a scribe (or two), to ensure quick recording of ideas. Teams are encouraged to generate ideas in a rapid-fire, free-flowing manner and are expected to freewheel, to go for quantity, and piggyback off each other, as they generate ideas. As a pattern recognition technique brainstorming uses both the team dynamic and cognitive intuition to tap into previously unrecognized ideas, that maybe embedded in the individual or team subconscious. Word association is another example of a pattern recognition ideation technique. In this method teams start with a set of root words which are usually ascribed to each group randomly, for example, waste; energy; water; CO₂; analytics; reality (etc.). Groups then 'play' word association whereby one word leads to another, keeping a record of all words cited over an extended period (e.g., 30 minutes). Teams then select ten words from the words generated and consider up to ten venture ideas that could be associated with each word. The word association technique, like brainstorming, allows for cognitive intuition and plays on the team dynamic but also allows for more randomness and serendipity during its

implementation. Mind mapping is another pattern recognition method that can be used in venture ideation. It can be used in variety of different ways. One method uses it to further investigate a particular market of interest, to map out the various segments and sub-segments, exploring possible market gaps and future market disequilibriums. This pattern recognition technique is designed to train the student to be 'alert' to market gaps and provide a tool to systematically assess where those gaps may occur.

Customer discovery

In disequilibrium thinking empirical observation remains a valid method, however, epistemologically observations must contend with greater ambiguity and uncertainty, as well as acknowledge that they are a snapshot of markets that are undergoing change over time. In this sense, empirical observation is less likely to be positivist in orientation (looking for concrete empirical answers via, for example, statistics) and much more likely to have interpretive aspects (looking for nuanced and contextual answers via, for example, conversations). The use of more qualitative methods as aids to venture ideation are thus more aligned with this paradigm. Customer discovery as a form of ideation is a prime example. In this method the student seeks out customers and other stakeholders in the market for which they have an interest and engage in wide ranging conversations about the topic, in ideation, without preconceived venture ideas in mind (customer conversations can also be used later to validate an opportunity). The focus is to uncover challenges, opportunities and experiences in the 'lifeworld' of the market participants in order to uncover gaps/opportunities that might exist. The student acts as an investigator seeking new information, as a means to spot an appropriate opportunity that has some level of validation with the stakeholders concerned. Customer discovery techniques (and other interpretative methods of

empirical observation) can be used to explore the lived experience of market participants in order to expand the entrepreneur's stock of knowledge, and thus be alert to potential opportunity.

Market change

The third form of ideation in this paradigm is alertness to market change. This can come in multiple forms. It might be caused by regulatory changes, it may be social, technological or consumer trends, that are incremental and predictable in nature. Ideation techniques in this form engage the student with market changes that are known and encourages venture ideation associated with the trend identified. One example is the ideation method *regulatory change*. This requires student teams to identify a major and recent regulatory change (e.g., change to regulation, taxation, funding incentives, policies interpretations, court rulings etc.) across multiple jurisdictions. Once it is identified, teams must consider how the change will impact on established markets and businesses associated, undertake some basic research and generate new venture ideas associated with the regulatory change. Another example applies a similar concept to *consumer trends*. Teams identify and validate a current consumer trend, undertake basic research, and then consider how this trend might impact a specified industry or market segment and ideate venture concepts that assess the potential disequilibrium opportunity gaps created by the change. Other forms of identifiable change can also be applied in similar fashion (e.g., technological or social trends). This form of ideation technique seeks to widen the entrepreneur's or student's observations of changes that might open up disequilibrium opportunities that may not have been present previously.

Disruptive Innovation Paradigm

The third paradigm of thought that is relevant to this chapter is the disruptive innovation paradigm. Schumpeter's work is archetypical of this group of metatheories (Kilby, 1971; Pittaway, 2005). Here the concept of human freewill and action is taken a step further, when compared to prior paradigms. Assumptions about social change are also more radical, illustrating periods of social stability followed by periods of radical change (disruptions). In this paradigm human action becomes a key driver in social change, the entrepreneur becomes the 'innovator' building 'new combinations' that cause market and social disruptions (Shionoya, 1997). Individuals carry out a new plan rather than act according to an established one (Schumpeter, 1971). In this sense, individuals 'create' new entrepreneurial opportunities rather than respond to 'existing' opportunities (Sarasvathy et al., 2003). Perceptions of social change within this paradigm are also quite different. Here social and economic systems go through radical discontinuous changes. This 'creative destruction' leads to periods of economic stability followed by periods of upheaval and/or transformation (MacDonald, 1971). Such transformations can be caused by exogenous shocks or can derive from entrepreneurial behavior within the system (Dimov, 2007) causing endogenous change derived from new combinations of resources (e.g., new products, services, forms of organizing, markets etc.).

In this paradigm theorists tend towards considering that entrepreneurial opportunities are being 'created' through entrepreneurial efforts rather than 'discovered' through entrepreneurial alertness. Entrepreneurial opportunities are also narrower in conception and only apply to 'newness', 'innovations' and 'new combinations', that have the potential to disrupt existing markets in innovative ways. Entrepreneurial opportunity in this paradigm is, therefore, conceived to be *created by exogenous and endogenous change in economic and social systems, which are in*

some cases driven by human actors who innovate through establishing new combinations of resources. In entrepreneurship education all of the prior techniques can be used to established entirely unique concepts that will disrupt established markets and companies. The paradigm does, however, imply two specific domains for ideation, i) innovations (technological; process and organizational) that can lead to the disruption of established companies/markets and, ii) significant exogenous changes (e.g., the COVID pandemic; climate change) that present opportunities for, or require, entrepreneurial solutions.

Technology search

Technology search includes a range of ideation techniques that are designed to seek out innovations that are yet to impact markets, as a basis for future entrepreneurial endeavor. These technologies are usually at a nascent stage and how they may offer entrepreneurial opportunities is as yet unclear. Two examples are presented here *licensing search* and *patent search*. In the first method student groups undertake research of university inventions that are available for license via technology transfer offices (TTO). First, the step chooses a target institution to focus on, in this approach a list of Carnegie research intensive (Tier 1) institutions is provided as the basis for the choice (to guide students towards institutions that are undertaking significant externally funded research). Next, the team locates the TTO website at the relevant institution and explores the listed technologies that could be licensed. The team picks five technologies of interest (often based on areas of interest identified previously), undertakes a detailed assessment by reviewing publicly available documents, and focuses on two that seem to have the most potential. Teams are then expected to ideate around the two technologies identified to explore how they might be applied to an entrepreneurial opportunity (i.e., review the various market applications for the most potential). Patent searching is another form of technology search that can be applied in ideation. In this

method teams first choose a patent database (e.g., Google Patents; USPTO; WIPO), they pick an area of interest, identify up to ten key words and use different combinations of key words to search for patents of interest. There are other patent search parameters that can be used and explained in the process of the ideation technique (e.g., time parameters; use of the patent classification system; use of Boolean operators and search strings). Teams are encouraged to find up to five patents of interest and then undertake ideation exercises to consider potential market applications of the technology. Each method assumes that technologies might be licensed and so in the second technique students are encouraged to look closely at the patent owner, to choose options that are more likely licensable (i.e., not owned by a major corporation in the relevant industry). Teams can also be encouraged to look for technologies that might be disruptive in nature, though clearly that can be hard to anticipate. These methods present two options of the many available to engage in technology search. Other disruptive innovations can come from innovations in services, processes, platforms and organizational models, and these can be the focus of specific ideation efforts using different approaches.

Exogenous shocks

The disruptive innovation paradigm illustrates that entrepreneurial opportunity can come from innovations internally that bring forward new combinations but also shows that exogenous shocks, external to the economic system, can play a part in suddenly opening up opportunities due to disruptive change. These shocks can be unknown or largely unexpected (such as, the COVID-19 pandemic) or they can be anticipated but so large and system-wide that they lead to revolutionary forms of social and economic change. Those forms of exogenous shock that are known or predictable, though uncertain, can form the focus of ideation techniques. Exogenous shocks that are unknown, however, will remain so until they emerge as disruptive agents (Shackle,

1979). For example, although the potential for a pandemic had been widely predicted, its real impact on market and social systems was largely unknown until after it started. Hence the entrepreneurial opportunities (and the negative market effects) of the pandemic were not fully clear and could not have been prepared for beforehand. Two example ideation techniques that can be applied here are *big problems* and *critical trends*. The big problems ideation method starts by listing the big problems that humanity faces (e.g., climate change; water shortages; food waste; plastic waste etc.). Having considered the big problems, teams select one that they wish to focus on. Big problems are usually so large they are intractable and so teams must first break the problem down into component parts (e.g., for climate change these might be, coastal erosion; inland flooding; fire recovery; fire prevention; carbon capture; energy efficiency etc.). Groups then select a component, which may also have component parts to consider (e.g., for coastal erosion these might be, coastal barriers; flood insurance; coastal residential construction; drainage etc.). Once the problem is sufficiently broken-down a detailed part is selected, and other ideation techniques can be employed, to generate venture ideas within the component (e.g., by focusing ideation on new forms of residential construction that help manage coastal flooding).

The critical trends ideation technique uses a similar method to that discussed in the disequilibrium paradigm but here the aim is to examine ‘tipping points’ in trends that might lead to market disruptions. Examples might include a trend in birth rates that leads to a ‘tipping point’, which disrupts purchasing behaviors (e.g., relatively sudden changes in housing preferences) or consumer trends that lead to a sudden switch in technology preferences (e.g., sudden switches between social media platforms). Any trend that can reach a tipping point and create sudden change, would be the focus of the ideation effort. Again, teams first identify the potential tipping point, then break it down into its component parts and finally, use other ideation practices to

consider the potential entrepreneurial opportunities. These forms of ideation technique are thus designed to breakdown, consider and ideate around significant market and social disruptions that might present future opportunity (and simultaneously allow students to identify solutions to significant social/economic challenges).

Social Constructionist Paradigm

The social constructionist paradigm presents an entirely different way to think about entrepreneurship, entrepreneurial opportunity and ideation (Lindgren and Packendorff, 2009; Pittaway et al., 2018). The ontological assumptions in this paradigm are complex, allowing for multiple realities (e.g., dreams; the imagined future; sensations; observed materiality; unobserved materiality; heuristics and language). While social constructionism allows for both objective and subjective forms of reality, it sees reality as being a more subjective phenomenon, that is experienced uniquely and subjectively by individuals (Berger and Luckmann, 1967). Language and constructions in language (objectifications, typifications and significations) help humans share subjective knowledge in seemingly objective ways (Garfinkel, 1967; Hampson, 1982; Chell, 2008). This ‘common-sense’ knowledge can be shared between groups but is limited by ‘time and space’, changes constantly, is acquired habitually, and allows new knowledge to occur via new combinations of concepts (Pittaway et al., 2018). Despite the subjective nature of reality and knowledge for individuals, language enables knowledge to have objective aspects, which can be shared between individuals via communication. The metatheoretical assumptions in this paradigm influence how human behavior is considered. Human behavior has significant ‘freewill’ aspects but is bounded by constraints. Individual past experiences, and personal knowledge acquired previously, influence the strategies of behavior that are open. Consequently, individuals have

many (but not an unlimited) set of behavioral choices in any given situation. Each situation will be unique in the sense of drawing on a unique social context with unique individual capacity to act. Individual choice may, however, be influenced by a range of factors (e.g., motivation; cultural attitudes; reward expectations; and perceptions regarding potential outcomes – Bird, 1988). In this paradigm then, three important metatheories come together that are relevant to this chapter and to ideation techniques. First, the combination of individual and social context uniqueness means that all venture decision choices are undertaken in a unique set of circumstances that can never be replicated. Secondly, the future is indeterminate, venture choices made by individuals and groups, can and do influence the shape of the ‘future to come’ (McMullen and Shepherd, 2006). Thirdly, the effective use of language (e.g., storytelling, metaphors etc.) to mobilize interest in a vision of the ‘future yet to be’, to acquire resources, is an essential quality required in the venturing process (Witt, 2007; Bird, 1992; Bird and West, 1997).

A social constructionist conception of entrepreneurial opportunity is thus somewhat different from the previous paradigms (Aldrich and Martinez, 2010; Pittaway et al., 2018). It implies that entrepreneurial opportunity is a form of ‘*becoming*’ and that opportunities *per se* do not in fact exist (other than as initial ideas). Opportunities emerge from a confluence of imagination of the future yet to be, entrepreneurial action to create that future, along with entrepreneurial persuasion/imaginary creation that is designed to ‘sensecreate’ that the envisioned future is possible and thereby attract resources (Wood and McKinley, 2010; Pittaway et al., 2018). *Opportunities thus occur along the entrepreneurial path itself, occur in the action, and draw copiously on the contingency domain of entrepreneurial opportunity, e.g., right person, right place, right time, and consequent serendipity of events* (Fletcher, 2006; Dew, 2009). This presents an interesting dilemma for ideation efforts as entrepreneurial opportunity in this paradigm occurs

in the ‘doing’, not necessarily in the ‘thinking about’, aspects of the ideation process. It implies, i) that imagined futures can be a source of venture ideas; ii) that entrepreneurial opportunities might be found by trying things out (as a form of ideation) and, iii) the entrepreneurial opportunity involves efforts to ‘sensecreate’ an imagined future.

Imagined futures

As the social constructionism paradigm allows for any imagined future to be acted on (though not necessarily achieved), all of the previous forms of ideation technique can be used to apply an individual’s imaginative leaps and intuitions (Shackle 1979; White, 1990). Surprising options for ideation also exist in this domain. For example, it would be a valid ideation technique, as many entrepreneurs do, to keep an *ideation journal* that captures concepts that occur subconsciously (e.g., during dreams or moments of relaxation). Other techniques designed to tap into an individual’s imagination include non-obvious items that do not specifically focus on ideation (e.g., hiking; reading; daydreaming; socializing; playing etc.). These are designed to promote the individual’s ability to imagine and, therefore, create more opportunity for serendipitous ideas to occur. Two possible examples of ideation technique in this form are *science fiction futurizing* and *futurist analysis*. It is perhaps no accident that many entrepreneurs are science fiction fans (e.g., Reid Hoffman, Peter Thiel, Elon Musk) and concepts that initially appear in science fiction become entrepreneurial ventures. An associated ideation technique is to require students to first select one science fiction book, either from a preferred list or randomly. Students are required to read the book, taking notes and listing a series of imaginary concepts that appear. Each concept is then reviewed and ranked (e.g., for interest; current viability etc.). Taking the top five concepts venture ideas can be ideated associated with each concept and then researched for their potential current viability in the marketplace. Another ideation technique in the same form

would be futurist analysis. There are many professional ‘futurists’, who make a living analyzing trends and making professional predications about how trends might impact the future of industries. Many of these futurists earn significant income from consulting, speaking and executive education (it is an entrepreneurial industry in its own right). This ideation technique requires students to access content from several futurists, typically via podcasts, TED talks, YouTube videos and/or through MOOC classes. Similarly, to the prior technique, concepts are listed out, analyzed and used as a source for venture ideation, perhaps applying other techniques presented in this chapter. Methods of this nature seek to systematically considered ‘the imagined future’ and to think through what ventures might be created to help that future come into being.

Ideation in doing

There are many techniques in entrepreneurship that are not usually considered ideation, which would be relevant in this form. Any concept involving entrepreneurial action, including actually starting a venture, qualifies as a form of ideation in this paradigm if the entrepreneur carefully listens, observes and adapts (pivots) during the process of opportunity creation. Three forms are most evident, *experimentation*, *minimum viable products* (MVPs) and *lean launch*. Each form has its own methodology, which will not be explained in detail here. In ideation, experimentation might be used to test out an initial concept on customers, or it might be used to undertake initial assessments of the efficacy of a product or technology or used to experiment with smaller ventures to get a feel for the venturing process (with the hope that serendipity might occur, that resources might be accrued, or credibility acquired). MVPs in ideation might be used to build initial prototypes and test whether they will work and as a means to validate a concept with stakeholders. Lean launch might be used as a means to actually start a venture in a known area of interest, with deliberate intention to adapt and change as knowledge is acquired about the particular

marketplace. Each of these techniques involves the entrepreneurial process starting, and thus seeing ideation as a continuous part of the process, so that the opportunity can emerge from the action.

Sense creation

In the social constructionist paradigm, the future is indeterminate (Fischer et al., 1997), it cannot be fully known in advance and action in the present can be used to build the future that is imagined. Of course, many contingencies come into play, rival visions conflict and competitive efforts must be contended with. One can imagine something, seek to create it, and still fail to succeed. The art of 'sense creation' in this paradigm cannot be overlooked as an important ideation technique (Downing, 2005). Sense creation is simply the deliberate effort on behalf of the entrepreneur to create a vision of the future that others can believe in and to sell this vision, in such a way that it attracts resources. Like the doing aspects discussed, ideation can occur in the practice of sense creation itself. Example techniques include, *venture pitching, venture presentations, story creation, and the development of analogies and metaphors*. Though these techniques would normally be associated with business planning or fund raising, they also play an important role in the ideation process, within the social constructionist paradigm. For example, the construction and constant reiteration of a venture pitch or presentation, and the feedback it may get from stakeholders can allow the venture idea to 'become' something new as it undergoes constant iteration. Stories, analogies and metaphors can be created to help sell the concept and inspire interest in a vision. Again though, the effort involved to develop these and the constant testing with market participants can lead to '*generative ideation*', a constant adaptation and iteration, which allows the opportunity to emerge from the practice.

Conclusion

[Insert Table 1]

Though entrepreneurship education research has been criticized as atheoretical and researchers have been encouraged to draw on educational theory more rigorously (Fayolle, 2008) this chapter demonstrates that entrepreneurship theory has an important role to play in defining in entrepreneurship educational practices (Fiet, 2001). The chapter illustrates that entrepreneurship research is, however, complicated by the fact that it draws on many disciplinary backgrounds as summarized in Table 1 (Grant and Perren, 2002). The chapter presents four paradigms of entrepreneurship thought and demonstrates that each paradigm has different underlying metatheoretical assumptions (Pittaway, 2005). These assumptions influence how entrepreneurship is conceptualized and how entrepreneurial opportunities are considered (Pittaway and Tunstall, 2016; Pittaway et al., 2018). Each paradigm offers different views about the nature of entrepreneurial opportunity, that lead to different forms of entrepreneurial practice, and thus offer different forms of ideation technique. Figure 1 summarizes the discussion of each paradigm and the ideation techniques that it presents.

[Insert Figure 1]

The equilibrium paradigm offers a view of entrepreneurship that exists within an economic and social system that is rather static, where the entrepreneur adapts, and changes existing business concepts in an incremental fashion. Consequently, entrepreneurial opportunity comes from understanding how things currently work and improving upon them. Ideation, as such, is conceptualized as deriving from observation, mimicry and adaptation. In contrast, the disequilibrium paradigm presents a view of entrepreneurship in an uncertain and ambiguous

context bounded by the limits of human cognition. Here, entrepreneurial opportunity derives from being alert to these market gaps and changes and involves training students to discover opportunities. Relevant ideation techniques use approaches to enhance pattern recognition, as well as engage in customer discovery and market change analysis, to expand alertness to opportunities. In the disruptive innovation paradigm entrepreneurship comes from innovative new combinations that disrupt existing markets and companies and/or from endogenous shocks that create disruptions. Entrepreneurial opportunity is conceived to be the ability to create new combinations that drive endogenous disruptions and include fast reaction to radical disruptive changes caused by factors external to existing markets. Relevant ideation methods, therefore, include a search for innovations that can disrupt (e.g., technology search; process and organizational innovations) and/or techniques designed to anticipate the impact of exogenous market disruptions. In the social constructionist paradigm entrepreneurship is about imagination and acting in the present to create an imagined future. It involves deliberate attempts to socially construct the future. Entrepreneurial opportunity derives from action itself, from the creation of compelling visions of the future, and from the ability to convince others to embrace these visions. Relevant ideation techniques here come from efforts to consider possible imagined futures, from the venture creation process itself and from techniques used to sensecreate the future.

While these different paradigms are based on varying metatheoretical assumptions and genuinely present different perspectives about entrepreneurship and entrepreneurial opportunity the ideation techniques they produce are not mutually exclusive. It is, for example, evident that one can use mimicry alongside pattern recognition or imagined futures alongside technology search. What is also evident, however, is that different forms of entrepreneurship may derive from techniques within each paradigm. Those in the equilibrium paradigm are more likely to lead to

small businesses that are variations of existing businesses, those in the disequilibrium paradigm may lead to businesses that enter new niche markets or establish new products or services. Ventures in the creative destruction paradigm are likely to be more revolutionary in nature, disrupting entire markets, companies and industries. While businesses in the social constructionist paradigm could be any of these but are more likely to emerge serendipitously from the venture creation process itself. As such, the ideation techniques presented in Figure 1, when taken as a whole, provide a robust basis for a methodology of ideation in entrepreneurship education that has a sound theoretical basis. The chapter thus ultimately demonstrates the importance of entrepreneurship theory in the development of entrepreneurship education practices (Fiet, 2001).

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Figure 1: Ideation Techniques in Different Paradigms of Entrepreneurship Theory

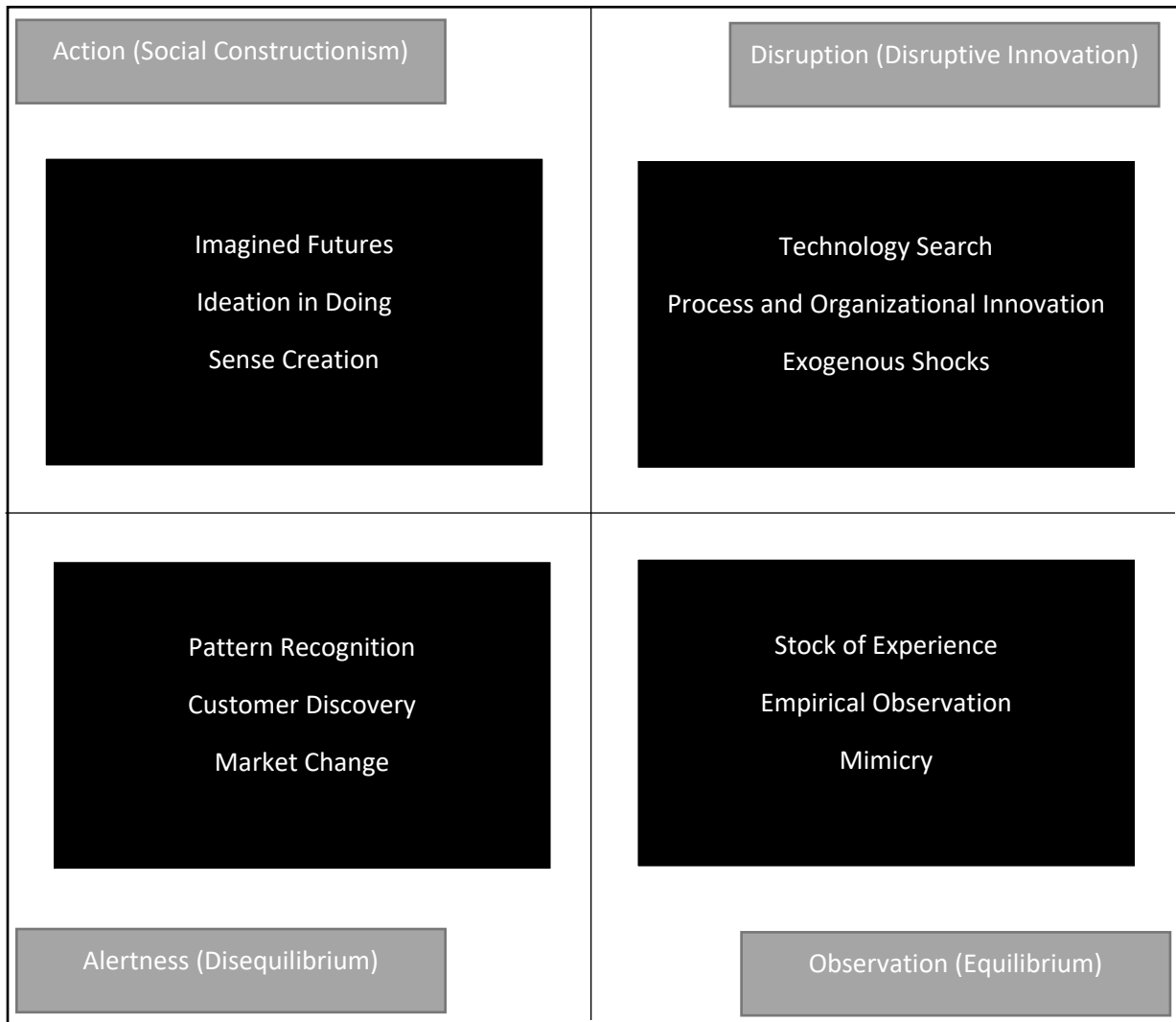


Table 1: Summary of Different Paradigms of Entrepreneurship Theory

META-THEORIES THEORIES & PRACTICES PARADIGMS	META-THEORIES				THEORY OF ENTREPRENEURSHIP ENTREPRENEURIAL OPPORTUNITY (EO)	EDUCATIONAL PRACTICES, IDEATION METHODS & TECHNIQUES
	ONTOLOGY <i>What's real?</i>	EPISTEMO- LOGY <i>What can we know?</i>	AXIOLOGY <i>What are the values?</i>	HUMAN NATURE SOCIAL CHANGE		
EQUILIBRIUM PARADIGM (neo/classical microeconomic thought, prescriptive models)	Social reality is concrete and exist.	Knowledge derives from empirical observation.	Production function, rationale choice, etc.	Stable order. Limited space for human action. Change is slow and incremental.	EO depends on observations of existing ventures, followed by mimicry, adaption and incremental innovation.	Methods: 1) based on existing knowledge and experience, 2) search for EO that already 'exist' Techniques: <ul style="list-style-type: none"> • Stock of experience • Empirical observation • Mimicry
DISEQUILIBRIUM PARADIGM (Observation, descriptive models)	Social reality 'exists' and can be observed empirically.	Prior knowledge, deliberate search, and contingency.	Cognitive limitation, imperfect information.	Social systems are in a state of flux, toward equilibrium. Disequilibrium occurs because of human cognitive limits.	EO is the confluence of capability to be <i>alert</i> to opportunity, deliberate search efforts and chance events, that might lead to spontaneous recognition of a gap in the market/system.	Methods: 1) alertness to opportunity; 2) empirical efforts, 3) observations of systemic changes Techniques: <ul style="list-style-type: none"> • Pattern recognition techniques • Customer discovery • Market change
DISRUPTING INNOVATION PARADIGM (Schumpeter's work)	Individuals 'create' new entrepreneurial opportunities rather than respond to 'existing' opportunities.	The future is uncertain and in some cases unknowable. We can assess probable futures but not predict the unknown.	Freewill, Innovation, 'new combinations' that cause market and social disruptions.	Human action is a key driver in social change. Social system goes through radical discontinuous changes: 'creative destruction' → economic stability → upheaval / transformation.	EO is created by exogenous and endogenous change in economic and social systems, which are in some cases driven by human actors who innovate through establishing new combinations of resources.	Methods: 1) based on innovations, 2) focused on significant exogenous changes Techniques: <ul style="list-style-type: none"> • Exogenous shocks • Technology search
SOCIAL CONSTRUCTIONIST PARADIGM	Multiple realities in objective and subjective forms. Reality is a subjective phenomenon	The 'common- sense' knowledge changes constantly, is acquired habitually, is contextual.	Language and construction in language enables share subjective knowledge in objective ways.	Human behavior has significant 'freewill' aspects but is bounded by constraints. Individual past experiences and knowledge, influence the strategies of behavior that are open.	EO opportunity derives from action itself, draw copiously on the contingency domain of EO, from the creation of compelling visions of the future, and from the ability to convince others to embrace these visions.	Methods: 1) imagine futures and venture ideas; 2) ideation, 3) 'sensecreate' an imagined future Techniques: <ul style="list-style-type: none"> • Imagined futures • Ideation in doing • Sense creation

