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From Entrepreneurial Intentions to Behaviors: Wandering In-Between and Wondering about Challenges and Avenues

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Abstract

In order to wander and understand the chasm between intentions and actions/behaviors, this chapter presents and discusses the leading theories (such as theory of reasoned action and theory of planned behavior), alternative ones (such as implementation intention theory and theory of goal-directed behavior), potential concepts bridging the intention-behavior gap (entrepreneurial motivation and commitment) and empirical intention-based models and their applicability and predictive validity in entrepreneurship field. For that purpose, it is argued that a socio- and cognitive psychological approach is the most suitable to understand entrepreneurship and in particular the intention-behavior link. This chapter invites entrepreneurship scholars to wonder about challenges in entrepreneurship research and education field and about potential research avenues. At the end, the chapter re-launches the debate by pointing out certain questionings for future research on entrepreneurial intentions and behaviors to produce novel knowledge.

Keywords: intentions, actions, behaviors, entrepreneurship, goal intentions, implementation intentions, motivation, volition, commitment

1. Introduction

Entrepreneurship is a young academic field [1] and the research on it remains without any substantial progress [1–3]. Being an emergent field of scholarly inquiry in the social sciences, entrepreneurship is considered as a complex and dynamic phenomenon [2, 4, 5]. And due to its dynamic and complex nature, this challenging research field has to be understood by solid foundations from the social sciences as suggested by Bygrave and Hofer [2]. And what made social sciences distinct from other sciences was related to its basic unit of explanation. In fact,

its basic building block was (and is) that individual action is guided by intentions. As mental states, human intentions matter (Ghoshal, 2005, cited in [6]).

Researches like [7, 8] stated that understanding the link between ideas/intentions and actions was critical for understanding the entrepreneurial behavior, process and phenomenon. Notwithstanding, understanding this behavior is difficult enough and predicting it presents so many challenges. Considerable progress has even been made toward understanding critical antecedents of entrepreneurial intentions, and, toward considering entrepreneurial behavior as intentional and planned behavior predicted by intentions [9] and goal-directed leading to an outcome [10, 11]. In the line with several researchers [12–15], we adopt a theoretical approach based on social and cognitive psychology to understand the complexity of entrepreneurial behavior, to study the link between intentions and behaviors, and to bridge the gap between the two. In this chapter, we present several concepts that are seemingly proposed from such literature in order to bridge this gap: goal intentions, implementation intention, desire and emotions, motivation, volition, and commitment [16–20] and with some empirical studies from entrepreneurship literature [14, 15, 21–27].

The chapter shows that several researchers asked if the antecedents of entrepreneurial intentions were known according to the different conceived and tested intentions-based models, the factors that facilitate the translation of intention into actions and behaviors are still unknown [28, 29]. Intentions may be still the best predictor of human behavior, including entrepreneurial behavior, but scholars have understudied how intention is translated into action and become reality, and this can become a promising issue challenging the entrepreneurship research and education field [28]. Thus, the chapter proceeds on a critical review of the literature (leading and alternative theories, conceptual and empirical models) to define the different challenging concepts between intentions and behaviors. The central question is why do some people act on their entrepreneurial intentions, whereas others do not in spite of favorable perceptions of desirability and feasibility of the entrepreneurial actions? After emphasizing the importance of advancing main concepts and reviewing literature from social and cognitive psychology perspective, the chapter challenges future research about adding new conceptual and empirical work in order to enhance our understanding of the whole process. The chapter discusses, at the end, some avenues for future research related to entrepreneurship research and education.

2. Entrepreneurship, entrepreneur, intention and behavior

Since more than two decades, there is a growing body of literature related to the field of entrepreneurship arguing that this field acquires some solid foundation and certain paradigms are emerging as the dominant theoretical constructions in this research field [5, 14, 30–34]. Fortunately, research in entrepreneurship has notably evolved and several approaches were adopted in the attempt to understand and explain entrepreneurial human behavior. Particularly, the cognitive approach gained much importance in adding insights into the complexity of process of entrepreneurship [8, 35, 36]. Thus, after defining entrepreneurship and

entrepreneur, we introduce the concepts of intentions and behaviors as main concepts in the entrepreneurship literature.

2.1. Defining entrepreneurship and entrepreneur

Several scholars attempted to define entrepreneurship and the entrepreneur. In fact, [34] emphasized the importance of innovation and novelty and considered the entrepreneur as performing the function of innovation throughout the power of creation-destruction. Indeed, [31] defined entrepreneurship as the emergence of a new organization by the action of entrepreneur. Entrepreneurship is about individuals who perceive/create opportunities where other do not, and who attempt to exploit those opportunities through various modes of organizing, without regard to resources currently controlled [32]. It's also about the study of opportunities to create future goods and services that are discovered, evaluated, and exploited by these individuals [33]. In addition, it was argued that the scientific object studied in entrepreneurship field is the dialogic between individual and new value creation, within an ongoing process and within an environment that has specific characteristics [2].

Dealing with its essential features, entrepreneurship is seen as essentially variable, heterogeneous, discontinuous, complex and dynamic phenomenon that is likely to be unpredictable and sensitive to initial conditions [2, 4, 5]. It is also characterized by uncertainty, risk and novelty, resource constraints, and financial as well as psychological ownership [35]. Consequently, being as a potential alternative to the trait approach, the processual approach of entrepreneurship makes possible to understand better intentions, actions, activities and behaviors of entrepreneurs. It considers entrepreneurship as a process of change, emergence and creation [2]. Accordingly, [15] consider this approach shifting when some researchers turned to entrepreneurial intentions recognizing that understanding the link between ideas and actions of entrepreneurs was critical for understanding the entrepreneurial process [7, 8]. Others turned to the study of entrepreneurial decision making and behavior and viewed entrepreneurship as process of causation [33], effectuation [37], and bricolage [38]. Moreover, the decision to become an entrepreneur may be considered as conscious and his behavior as an intentional, planned and goal-directed behavior [36]. In this chapter, we will refer to entrepreneurship in the sense of starting a new business and the entrepreneur as the main actor in the entrepreneurial process.

2.2. Entrepreneurial intentions and behaviors and the mysterious link

According to [7], intention(ality) is a state of mind directing person's attention (and therefore experience and action) toward specific object (goal) or a path in order to achieve something (means). Entrepreneurial intentions are defined as entrepreneurs' states of mind that direct attention, experience, and action to toward starting a business. They guide their goal setting, communications, commitment, organization, and other kinds of work [7]. In the same way, [39, 40] defined classically entrepreneurial intentions as the cognitive state temporally and causally prior to the decision and action of starting a business. Thus, in an intentional action the intention functions as a mediator. For several scholars, intentionality seems to be central

to behaviors and for an emerging new venture [30]. In general, behavior is shaped and motivated by cognitions and affects and it's an outcome of traits, knowledge, skills, abilities and perceived attitudes and intentions. Nevertheless, it's important to consider that the cognitive theory has demonstrated that intentions have an impact on behavioral outcomes [41].

The one of the first authors in the field of entrepreneurship studying intentions was Barbara Bird [7] who considered the concept of intention as playing an important role in the entrepreneurial process. For her, the formulation of entrepreneurial intention is dependent on the interaction of personal and social contexts with rational and intuitive thinking [7]. Entrepreneurial intentions determine the form and direction of an organization at its inception. From that date, the study of entrepreneurial intentions and behaviors began to appear with other pioneering studies based on intentions and provided a practical insight to entrepreneurial behavior [8, 36, 42]. Empirically, intentions are consistently the single best predictor of subsequent behavior. In these dominant intentions-based studies or models, intentions require the belief that the behavior is feasible and desirable [36]. Understanding and studying important categories of entrepreneurship research as behavioral intentions, decisive actions (behaviors), perceptions, and implementation of opportunities require, in fact, a grounded theory developed in social/cognitive psychology literature (e.g., [13, 21]).

3. Wandering in between intentions and behaviors: leading, alternative and potential theories and concepts

Wandering in between intentions and behaviors is considered a challenging topic in entrepreneurship; several scholars started focusing on it. In 2009, [43] attempted to understand entrepreneurial mindset, then, to revisit it in 2017 [44]. In their recent book, they introduced a first cluster dedicated to "*From entrepreneurial intentions to actions*". In this cluster, they offered challenges to the current view of how entrepreneurs perceive their world. In these aforementioned two books, [39, 40, 45] introduced the concept of entrepreneurial intentions as a growing field promising to it a "*long live*" for the fascinating questions attending the entrepreneurship scholars and for who are interested in identifying even newer ground for intention and action research.

In calling scholars to rethink the future of research in entrepreneurial intentions, [28, 29] identified certain number of research gaps and induced new ways and perspectives to fill in them in this research field. In fact, after performing a systematic search of the literature, they considered the "*entrepreneurial process and intention – behavior link*" stream as a new research approach and potential perspective in entrepreneurship research. They urged a need to theoretically and empirically investigate the intention – behavior link. Knowledge for this approach and category of research is still poor except certain empirical works tracking nascent entrepreneurs (e.g., [46]). Accordingly, for [15], a critique toward entrepreneurial intentions studies argues that whereas intentions are the best predictors of future action, there is still insufficiently understanding of the intention-action link. In this chapter, the intention-action link deserves special consideration.

While acknowledging the importance of intentions in predicting behaviors, the literature in many academic fields (e.g., psychology) showed that there is no direct link established between intention and action, the main meta-analytic reviews concluded that the intention-behavior is not systematic. It is revealed that there is a gap in sense that not every intention is eventually transformed into actual behavior. Thus, a range of 27–30% of behaviors was found to be explained by intentions [10, 11, 19, 47, 48]. Same conclusion was reached in the entrepreneurial context with the meta-analytical work of [49]. This link intention-behavior began relatively to be explored in entrepreneurship literature [21, 46, 50–57].

In this section, extant literature review based on several meta-analyses, conceptual and experimental studies was proposed to study the link between intentions and actions/behaviors. Which link (s) can bridge between intention and behaviors? In order to attempt to answer this question, we suggest, first, to examine the main leading theories supposed to understand and predict intentions and behaviors, then, the empirical studies conducted to test these theories in the entrepreneurship field, and, the alternative theories and models which are likely suggested as cutting edges for the future of entrepreneurial intentions-behavior link research.

3.1. Leading theories for the prediction of intentions and behaviors

3.1.1. Theory of reasoned action

The theory of reasoned action (TRA) [41, 58] aimed to explain the relationship between beliefs, attitudes and human behaviors. According to this theory, behavioral intentions have been conceptualized as being a function of beliefs that provides a link between beliefs and subsequent behavior. They are determined by attitudes toward behaviors (ATB) and subjective norms (SN). Behavioral intention results from attitudes and becomes the immediate determinant of behavior. In sum, the TRA is applicable when the behavior in question is under volitional control. In other words, individual always has the control of whether or not to perform the target behavior.

3.1.2. Theory of planned behavior (TPB)

The TPB of [9] extended the TRA by adding Perceived Behavioral Control (PBC) as a third antecedent to behavioral intentions. The TPB considers human behavior as planned and therefore being preceded by intention toward that behavior. The TPB postulates three conceptually independent determinants of intention: ATB, SN and PBC. These antecedents should be sufficient to predict intentions. ATB refers to the degree to which a person has a (un)favorable evaluation or appraisal of the desired behavior in question. SN refers to what the social group that is important to that person (as social pressure) thinks about performing the intended behavior. PBC refers to people's perception of the ease of difficulty of performing the behavior of interest. Thus, the TPB predicts that the more favorable the ATB and SN are with respect to the behavior, and the greater the PBC is, the stronger an individual's intention to perform the behavior in question will be [9]. Intention and PBC must be assessed in relation to the behavior of interest. Both, they can make significant contribution to its prediction. Their relative importance in that is expected to vary across situations and across different behaviors. Behaviors can be predicted from intentions with considerable accuracy when there is no problem of serious problems of control.

3.1.3. *Applicability of TRA and TPB in entrepreneurship field*

The TPB has become one of the most influential theories of human behavior [9, 47] that is applied to understand entrepreneurial behaviors [8, 36, 46, 59]. In their meta-analysis of a database of 185 independent studies published up to the end of 1997, [47] found empirical support for the robustness of the theory as a widely accepted tool for predicting intentions and behavior across a wide variety of human behaviors [11, 47]. In fact, the TPB offers a coherent, parsimonious, highly generalizable theoretical framework for predicting intentions [36, 46, 60]. That's why the TPB has involved several entrepreneurship researchers with different areas of specialization and theoretical backgrounds [28, 29, 49]. The theory is also used to predict behavior as the final criterion [9]. From TPB literature, it has been noted that intentions, in turn, along with PBC determines behavior [10, 19, 59, 61]. The link between intentions and behavior depends on the extent to which behavior is under volitional control [9]. It is also revealed that intentions serve as a mediator between attitudinal antecedents and the actual behavior, which is assumed to be central to this theoretical framework [8, 61]. As suggested by [62], the antecedents of intentions may influence actual behaviors. For example, PBC influences indirectly actual behavior via intention, it may have a direct effect on behavior which has been found to be significant in several studies [50, 63, 64], but non-significant in others [65]. Thus, the direct effect of ATB and SN on actual behavior has not been found in previous research [9, 19, 50, 52, 59, 61, 64].

3.1.4. *Main empirical intention-based models in entrepreneurship literature*

Different models were developed for predicting and understanding entrepreneurial behaviors. The common idea shared by the models is that intentions are the single best predictor of entrepreneurial behavior [36, 64, 66, 67]. Two entrepreneurial intentions models have received more attention: the Shapero's Entrepreneurial Event [68] and the TPB [9]. They have received strong support [36, 49]. A variety of models ranging from [7, 69]; then [8] based on TPB; [36, 70, 71]:

- Shapero's Entrepreneurial Event Model [68] considers the business creation as an event that can be explained with the interaction between initiatives, abilities, management, relative autonomy and risk. According to this study, the personal choice to start a new venture depends on three elements: the perception of the desirability (both personal and social), the propensity to act and the perception of feasibility.
- Bird's Model of Entrepreneurial Intentionality (MEI) [7] was grounded in theory in cognitive psychology that attempted to explain or predict human behavior. According to his framework, individuals were considered as being predisposed to entrepreneurial intentions based upon both personal and contextual factors. Intentions are structured by two different types of thinking (rational vs. intuitive) and directed through three intention processes: (1) temporal tension, (2) strategic focus, and (3) intentional posture.
- A conceptual variation of Bird's MEI: in this variation [25, 69], the need was to integrate the self-efficacy concept taken from the social learning theory of Bandura (1977) into Bird's model, knowing that self-efficacy is defines as a belief in one's ability to do a specific task

(see, [69]). Then, the need was also to integrate the goal commitment concept of the goal setting theory to the Bird' and Boyd & Vozikis' models. Goal commitment can operate both, as a direct casual factor and as a moderator of performance behavior (see, [25]).

- Intention Basic Model [8] which examines, through the use of a theory-driven model (TPB) the relationship between attitudes and intentions using a scale to permit greater flexibility in the analysis of exogenous influences, attitudes and intentions.
- Entrepreneurial Potential Model [70]: based on the previous models of Shapero and Ajzen, this model uses a socio-psychological perspective and considers that environmental factors affect the decision to create a new firm. The potential to start a business is defined on three critical constructs: perceived desirability, perceived feasibility and propensity to act.
- Davidsson Intention Model [71]: According to this model, intention can be influenced by two elements: the conviction defined by general attitudes (change, compete, money, achievement and autonomy) and domain attitudes (payoff, societal contribution and know-how), and the current situation.
- The Shapero-Krueger Model: [36] performed a competing hypotheses test that compared Shapero's model and TPB, and they found the models were supported. In their model, insights from Ajzen's theory were added to the Shapero's conception. For example, when adding social norms to the Shapero model, there was an increased explanatory power.
- Bird Intention Model Updated: [72] updated his initial model [7] by positing relationship between the two styles of thinking and more recent logics (strategic decision and effectuation models). His original model was found to be linked with the TPB and Shapero's Entrepreneurial Event (SEE) models. [72] proposed also to conceive an Expanded Model for the purpose of the meta-analysis conducted by [49], which integrates the TPB variables and the SEE, includes precursors of intentions, and behavior as important outcome of intention. Between them, two major predictors of intention in SEE (perceived desirability and perceived feasibility) are themselves the outcome of other cognitions in the TPB model (ATB, SN, entrepreneurial self-efficacy, and PBC), and since self-efficacy is different from PBC [73].

The proposed models have more similarities than differences. The important and influential intention-based models were those developed by [9] and tested empirically by different researchers, and the one developed and tested by [36]. The two major theories of intention formation are still related to Ajzen's TPB and to Shapero's Entrepreneurial Event model. For the former, the assumption is that behavior is fully volitional, but for the latter, the assumption is that Shapero recognized that there were precipitating/displacing factors (facilitator or barrier) that moderated the intention-behavior link.

3.2. Alternative theories for linking intentions to behaviors

While the TRA and TPB gave assumption that action is preceded by a conscious decision and behavior is under the individual's volitional control, the alternative theories suggested that where control is problematic and the behaviors subject to impediments (e.g., ability limitation, lack of money) may be considered goals [74]. Not surprisingly, [75] argued that models

predicting volitional behavior have to be adjusted to apply to goal-directed behavior. Different scholars argued that entrepreneurial behavior can be a goal-directed behavior. Though the idea of being or becoming an entrepreneur is a goal, the absence of an implementation intention will not result in entrepreneurial behavior [7, 16, 26, 36, 53, 69].

3.2.1. Theory of trying and hierarchy of goals

In their theory of trying (TT), [74] reconceptualized attitude theory to focus upon the pursuit of goals. They considered their TT as extension of the theory of goal pursuit and planned behavior. They stated that TRA should be revised and behavior should be views as a process of trying to achieve a goal. TT conceives of action as a process or a striving. It construes it as one attempt or more, or as a sequence of attempts, to achieve a final performance, in which attempts involve physical as well as mental efforts following the formation of an intention to try [76]. Besides, TT offers an immediate advantage related to the flexibility of the goal. In the TT, past behavior is included as an additional determinant including the frequency and recency of past trying. But, in TPB, intentions and behaviors are influenced by past behavior through background factors [75]. In this theory, the translation of intentions into behaviors is mediated by trying and moderated by control [77]. Accordingly, models predicting volitional action must be adjusted to apply to goal-directed behavior [6]. Despite the predominance of TPB for examining the factors determining entrepreneurial intentions, the related TT [76, 78, 79] has been the basis of some entrepreneurial intentions research [27, 80]. Since that the TT has been used to predict low level goals such as losing weight or mastering a new piece of software for example, the challenge is to apply it to predict higher level goals such as starting a business. However, though [8] have invited scholars to test alternatives versions of the theory of goal pursuit and TT, little work has been carried out to predict entrepreneurial behaviors [15, 39, 81].

3.2.2. Implementation intention theory

The intention-to-behavior is analyzed with respect to implementation intentions (ImIn). These intentions link an intended goal-directed behavior to an anticipated situation context ("I intend to initiate goal-directed behavior when situation y is encountered") [82]. And, intentions are seen at the service of goal intention. ImIn are related because they are though to provide commitment which ultimately serves the same purpose – promotion of the goal achievement. They need to be based on strong goal intention, and people need to be committed to them [17]. As [16] stated that ImIn may be effective because of creating that commitment to the targeted behavior. They are interpreted to be powerful self-regulatory tools in form of "if-then-plan" for overcoming the typical obstacles associated with the initiation of goal-directed actions [18]. The course of goal striving is construed as consisting of four action phases: a predecisional phase as an awakening of desires and wishes; a preactional phase in which goal-directed behavior is initiated; an actional phase in which goal-directed actions are brought to a successful ending; and the postactional phase in which the outcome is evaluated by comparing what has been achieved with what was originally desired [18].

However, holding a strong goal intention does not guarantee goal achievement, because individuals may fail to deal effectively with self-regulatory problems during goal striving [83]. Indeed, being similar to planning [84], formulating ImIn by indicating when, where and how it will carry out the intended action can increase the probability to perform the behavior. Moreover, individuals who form an ImIn are more inclined to act on their intentions and in good position to recognize opportunities to act and respond to these opportunities swiftly [17, 83]. In others words, ImIn helps to reduce the gap between intention and behavior, which has being a main criticism of the intention studies. Accordingly, behaviors intentions are more likely to be enacted if they are supplemented by ImIn [85]. The findings provide strong support for the view that ImIn improves the predictive validity of the behavioral intention construct within the framework of the TPB. Furthermore, the usefulness and effectiveness of ImIn theory have been well established in many empirical studies [16] and may provide a valuable strategy for designing interventions to improve the speed of initiation of range of social behaviors [20].

In entrepreneurship literature, [13] conceived, in this monography, an action theory of entrepreneurship based on the ImIn theory. In fact, his action theory approach has shown that people need a certain understanding of what they are doing which is related to planning in order to be able to learn and to succeed actively. Moreover, in their experimentation, [22] attempted to operationalize ImIn on a complex behavior such as entrepreneurial behavior. They observed that forming implementation could impact the entrepreneurial intention–behavior link. ImIn could be a factor that helps to enact entrepreneurial intention. Individuals who completed the whole process until the creation of their companies (perform better in the entrepreneurial process than others) did it faster when they planned their actions and anticipated difficulties.

3.2.3. Goal-directed behavior models

While maintaining the basic constructs of the TPB, the model of goal-directed behavior (MGB) focuses additionally on three key areas, affect, motivation, and habit, which have been relatively overlooked by the TPB. The model tries to expand the understanding of behavioral volitions and behaviors by linking them directly with the goals for which they are directed [86]. The concept of ‘goals’ were purposefully excluded from the TRA and TPB. In this model, intentions were captured as part of a boarder concept of volition and operationalized to encompass three aspects of the concept that represent the directive (a direct assertion of one’s intention), planning (a statement of engagement in plans to perform instrumental acts in the service of goal pursuit), and motivational aspects of volitions (an expression of commitment and of effort needed to enact the behavior). The model takes explicitly in consideration the interplay between goal and behavioral levels [87]. The MGB specifies antecedents of positive and negative anticipated emotions to explain the construct of desire. Thus, in the model too, past behavior is utilized to aid the explanation of behavioral desire and of volition.

One year before, [87] have conceived an extended model of goal-directed behavior (EMGB) to include two further variables: goal desirability (desires) and goal feasibility (beliefs), which

have been identified as central to explain goal-directed behaviors. Desires were hypothesized to provide the motivational drive to directing the effects of the predictors on intentions and to play a mediating role between TPB' antecedents (ATB, SN, and PBC) and behavioral intentions. All elements of the model are linking toward not just the behavior, but the behavior in pursuit of the goal. In entrepreneurship literature, [49] considered, from their meta-analytic evidence, that a combination of the TPB with perceived desirability was most powerful in explaining and understanding EI. Perceived desirability would be represented by the desire to perform behavior to achieve a goal of becoming an entrepreneur within the extended MGB. Desires are also comparable with the perceived desirability construct in the SEE. Therefore, [49] considered also, that the EMGB provides a suitable conceptual framework to integrate the TPB and the SEE.

3.3. Other potential concepts bridging entrepreneurial intention: behavior link

3.3.1. Entrepreneurial motivation

Considering that there is still insufficiently understanding of the intention–action link, [15, 27, 81, 88] invited scholars to rediscover the concept of motivation and its complexity in order to fill in the gap between intentions and behavior. They showed that entrepreneurial motivations can be important explanatory mechanisms for a variety of entrepreneurial behaviors, and, can determine why some individuals create their own firms while others not. In their work, [15] suggested that a linkage between intentions, motivation and action is possible by presenting the concepts of ImIn and goal pursuit.

Main existing theories of entrepreneurial motivation can be divided roughly into drive theories (internal need having the power of motivating the individual to start a new business) and incentive theories (existence of external rewards) [15]. In the same line, [89] pointed to the possibility that motivations may play a role in activating the intention–action link. They added that drive motivational elements could lead to a higher entrepreneurial intention by affecting it antecedents (ATB, SN and PBC). And on the other hand, they pursued in saying that incentive motivational elements could be important in influencing the transformation of intentions into and the engagement to entrepreneurial behaviors. In contrast, [27] remarked that research on entrepreneurial motivation should adapt a process approach and a more dynamic, evolutionary perspective on motivations.

3.3.2. Entrepreneurial commitment

The concept of commitment could also be the missing link between intention and behavior in the field of entrepreneurship [28, 29, 90, 91]. Likewise, it is different concept from entrepreneurial intention [92] or entrepreneurial motivation [21].

Little knowledge has been coming about the concept. But, there is a heterogeneity in perceiving it. Three fields of research were concerned: theories on commitment elaborated in the field of social and cognitive psychology (see [90, 91]); approaches of commitment in the workplace and organization literature (see [21, 93] for a review of literature); and metaphorical approach

relied on the theory of catastrophes applied in the field of entrepreneurship (See [14, 23]). In social psychology, commitment can be a decision that directly influences future behavior. In the organizational literature, the concept of commitment corresponds to a multidimensional concept based on both attitudinal and behavioral approaches (affective, normative, and continuance commitment) that may influence positively/negatively the behavior. Their consequence on the entrepreneurial behavior was questioned in [21] to identify which is the best association of commitment dimensions that would increase the probability to become an entrepreneur.

Likewise, in entrepreneurship literature, [14] proposed a dynamic model of new venture creation relied on the theory of catastrophes and structured around the concept of individual commitment. He suggested to look at the individual/creation of new value couple, in time and space, and to study the dynamics of this entrepreneurial couple in its environment. He identified three critical phases in the entrepreneurial process: trigger phase in which the process can be triggered by intentions or displacement; commitment phase in which entrepreneur is taking action; and survival-growth phase of the new firm. In his doctoral research, [14] defined entrepreneurial commitment as a set of joined decisions/actions sequences that are spread over time during the entrepreneurial process. The individual commitment to this process goes increasingly until a total commitment. Most of his or her time, energy, and financial, intellectual, relational and emotional resources are devoted to his or her project and his commitment becomes more complex and multidimensional. Then, two required conditions for entrepreneurial commitment were proposed: (1) the entrepreneurial behavior is perceived as preferable over all other alternatives of potential change and over the current situation (in term of career); and (2) the need to overcome resistance to change (due to uncertainty avoidance, habits and inertia in reasoning, perceived irreversibility, opportunity costs, etc.) [14]. These conditions are the two necessary conditions for the formation of entrepreneurial commitment. Thus, the progression of commitment may be evolutionary or revolutionary, and, the process leads to the irreversibility or the point of no return. This conceptualization of entrepreneurial commitment as suggested by several authors [7, 23, 90] needs a more dynamic vision of the reality and a valid operationalization of the concept in future empirical studies.

In sum, the theory of catastrophes used as metaphor in the work of [7] can be taken successfully in combination with psycho- sociological approaches in analyzing the complex process that leads an individual to create a new business [90].

4. Wondering about challenges and avenues

At this stage, it is important to point out certain questions/suggestions helping entrepreneurship scholars and educators to wonder about the challenges of how to bridge intentions to behaviors. However, if we are ever to truly understand the intention-behavior link, it is imperative that we understand how intentions evolve and which concept(s) responsible for the transformation of intentions into actions and behaviors. In order to contribute and add new knowledge, scholars should explore the following challenges and avenues for entrepreneurship research and education.

The main critique toward entrepreneurial intentions studies argues that whereas intentions are the best predictors of future individual behavior particularly when behavior is rare, hard to observe or involves unpredictable time lags [7, 71], there is still insufficient understanding of the intention–action/behavior link. Entrepreneurship scholars have to define clearly their concepts and antecedents, and choose the adequate models and measurements. In addition, they have to precise carefully the relationships between antecedents, the types of intentions, the desired behaviors, and the direction of causality of the relationships between variables in intention-based models. In providing helpful critiques to most of these models, [94] questioned the direction of causality in intentions models (notably significant correlation between perceived desirability, intention and perceived feasibility). An evidence was seen a causation in the TPB model, confirming previous findings. The exploration of the aforementioned theoretical and empirical models based on leading theories (TRA and TPB) and alternative ones, has led to the identification of keys roles played by certain variables such as distal or proximal predictors, mediators or moderators, or as facilitator or accelerator of the action initiation [21, 49, 77].

There is an urgent need for integrating, improving and modifying entrepreneurial intention models to better represent the complexity of the entrepreneurial process and reduce the number of alternative entrepreneurial intentions models [21, 49, 89]. For example, the application of MGB and EMGB or of ImIn improves the predictive validity of the behavioral intention within the framework of the TPB [28, 49].

There is also a call for scholars to take the temporal dimensions into account for the intention formation/enactment process when choosing or conceiving their models. These models have to be considered as models of changing intentions. Scholars must move from static models toward theories and formal models that address the implications of that change [6, 7, 72]. Furthermore, researchers need to embrace theories reflecting the inherent dynamics of human decision making in order to understand how entrepreneurial intentions evolve: *“Capturing the dynamics is necessary to advance our understanding of how intent becomes action”* [6]. They have to monitor intentions and their antecedents longitudinally through experimentations by mobilizing the alternative theories [22]. For example, when studying the link between intention and behavior with longitudinal data, researchers can consider the TT, ImIn and commitment to fill the knowledge gap. A dynamic model such as TT and its variants should prove rich, fertile territory for entrepreneurship scholars [6, 40].

In a recent work, [40] questioned about the few studies, which were conducted to make the leap from intent to action except the study of [59]. He urged scholars to deploy dynamic and specified models more often [45]. Very recent studies have found to respond to this call including the studies of [95] and of [54]. For example, [95] used the temporal construal theory to propose longitudinal study that tracks individuals' intentions over time and the occurrence of the entrepreneurial action. In fact, researchers suggested that the inclusion of temporal construal theory in intent models *“would suggest path dependent influence on intent, and more specifically, that intent may be subdivided into temporally based categories, broadly codified as short-term and long-term intent”*. This research intended to specify two kinds of intentions (short- and long-term) in the intentional process. Indeed, [54] proposed that intentions predict start-up

behaviors by applying social role theory and proposing that the intention–behavior link is moderated by sex from a sample of US students and different points in time.

Growing efforts have been made to analyze the temporal progression of intention (i.e. whether intention is stable over time) or the intention-behavior link, using longitudinal analysis. Studies were followed and concerned to study the intention-behavior link with different populations: Business distance learners [64]; business students [62, 96]; student entrepreneurship [59, 97]; higher education graduates [57]; adult respondents [98]; scientists transiting to academic entrepreneurship [51]; nascent entrepreneurs [99, 100]. Other growing research stream developed in relationship with the intention-behavior link, and concerned the effectiveness and impacts of entrepreneurship education programs. Several studies addressed the interrelationship between entrepreneurship education and the entrepreneurial intentions of its participants and supported their link [28, 29]. Participations in entrepreneurship education programs can positively influence students' cognitive factors (perceived desirability and feasibility, and entrepreneurial self-efficacy). Other studies go further to address their impacts on intentions and behaviors ([53, 100–103]; see [96], for a review of literature). For example, [102] found that entrepreneurship programs significantly raised students' subjective norms and intentions toward entrepreneurship by inspiring them to choose entrepreneurial careers. Entrepreneurship education and training matter for enhancement and enactment of individuals' entrepreneurial intentions and behaviors. Follow-ups of students, learners, or trainees, within longitudinal and (quasi-) experimental research would be required for future analysis of the intention–behavior relationship. Scholars intending to study the impact of entrepreneurship education programs of the intention-behavior link will be encouraged by applying combining leading theories showing their predictive ability such as TPB and Shapero's entrepreneurial event [36], the integrating model validated by [49] or by experimenting and applying the ImIn theory [28].

5. Concluding remarks

This chapter discussed the theories, concepts and empirical models mobilized to wander and understand the gap between intentions and actions and behaviors. A social and cognitive psychological approach was adopted to understand entrepreneurship and in particular the intention-behavior link. This chapter provided certain challenges and avenues for entrepreneurship research field. This overview of study of intention-behavior link and the critiques directed to most of intentions-based models together lead to a series of critical issues that are not yet adequately taken into account within entrepreneurship research. These issues concern the following questionings:

- What types or kind of intentions do we focus on? The literature review shows that there is a diversity of intentions: competing/conflicting intentions; initial intention vs. formed/enacted intention; strong vs. weak intentions, well-informed vs. ill-informed intentions [39, 40, 66]. There is a need for entrepreneurship scholars to specify them when conducting a research on intention-behavior link.

- How to study the lack of transition from intentions to actions? And by which variables this transition is likely to be affected? Is it a lack of motivation, ImIn, commitment or volition? [7, 15, 27, 81].
- Is the context indifferent when studying the intention-behavior link? [26, 80, 104].
- How does entrepreneurial intention emerge, be formed and enacted to cause and understand entrepreneurial behavior? [26, 80, 104].

We know little about how intentions evolve and even less about the timing of acting and behaving. Entrepreneurship scholars may find a suitable theoretical framework to explore and solve these questionings, and fill in the knowledge gap on the intention-behavior link.

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