ACADEMY OF Management Review

BACK TO THE FUTURE: A TIME-CALIBRATED THEORY OF ENTREPRENEURIAL ACTION

Journal:	*Academy of Management Review*
Manuscript ID	AMR-2018-0060-Original.R4
Manuscript Type:	Original Manuscript
Topic Areas:	Entrepreneurial Action < Entrepreneurship Process < Entrepreneurship, Entrepreneurship process (General) < Entrepreneurship Process < Entrepreneurship, Entrepreneurial cognition (General) < Entrepreneurial Cognition < Entrepreneurship
Theoretical Perspectives:	Sensemaking and Cognition, Behavioral theory and Decision Making, Learning, Adaptation, Routines, and Knowledge Management

Abstract:	Time is a defining feature of human activity but is under-examined in theories of entrepreneurial action. This is perplexing given that entrepreneurial action is oriented toward novel creations that unfold under conditions of uncertainty, where temporal concerns may be especially impactful. This paper addresses this lacuna by introducing a framework that articulates the key dimensions of time entrepreneurs consider. We advance that entrepreneurs organize and shape their visions of entrepreneurial endeavors by constructing time-calibrated internal narratives. These narratives address the dimensions of initialization (i.e., timing of action), pace (i.e., time from action to outcome) and chronology (i.e., sequencing of action). Our theoretical model identifies how variations in these dimensions affect the likelihood of entrepreneurial action. We further specify that narrative vigilance and externalization moderate these effects with hyper levels of each reversing the relationships. Together, our conceptualizations reveal how entrepreneurial time-calibrations are themselves an essential lever for action. We discuss the implications of these insights for a range of perspectives on the ways entrepreneurs engage their craft, with special attention toward dynamic process-centered frameworks.

BACK TO THE FUTURE:

A TIME-CALIBRATED THEORY OF ENTREPRENEURIAL ACTION

Matthew S. Wood
Baylor University
ms_wood@baylor.edu

Rene M. Bakker
Erasmus University Rotterdam
bakker@rsm.nl

Greg Fisher
Indiana University
fisherg@indiana.edu

Acknowledgements: We would like to thank the *AMR* Associate Editor Sharon Alvarez and the three anonymous reviewers for insightful and development feedback. We also note a prior version of the manuscript received the Best Conceptual Paper Award from the Academy of Management Entrepreneurship Division at the 2018 Academy Conference in Chicago, Illinois. We are grateful for this recognition and for the valuable feedback provided by conference participants. We also thank Russ Browder, Eric Mota and Anna Long for excellent feedback on earlier drafts of our manuscript.

BACK TO THE FUTURE: A TIME-CALIBRATED THEORY OF ENTREPRENEURIAL ACTION

ABSTRACT

Time is a defining feature of human activity but is under-examined in theories of entrepreneurial action. This is perplexing given that entrepreneurial action is oriented toward novel creations that unfold under conditions of uncertainty, where temporal concerns may be especially impactful. This paper addresses this lacuna by introducing a framework that articulates the key dimensions of time entrepreneurs consider. We advance that entrepreneurs organize and shape their visions of entrepreneurial endeavors by constructing time-calibrated internal narratives. These narratives address the dimensions of *initialization* (i.e., timing of action), *pace* (i.e., time from action to outcome) and *chronology* (i.e., sequencing of action). Our theoretical model identifies how variations in these dimensions affect the likelihood of entrepreneurial action. We further specify that narrative vigilance and externalization moderate these effects with hyper levels of each reversing the relationships. Together, our conceptualizations reveal how entrepreneurial time-calibrations are themselves an essential lever for action. We discuss the implications of these insights for a range of perspectives on the ways entrepreneurs engage their craft, with special attention toward dynamic process-centered frameworks.

Keywords: Entrepreneurship; entrepreneurial action; time; temporality; narratives

Scholars in the field of entrepreneurship and beyond have developed a deep interest in decoding the multifaceted nature of entrepreneurial action. This has resulted in a rich stream of perspectives like effectuation (Sarasvathy, 2001), bricolage (Baker & Nelson, 2005) and creation (Alvarez & Barney, 2007) that provide crucial insights on the ways entrepreneurs navigate the complexities of doing something new. Whether pioneering a new technology (Gans & Stern, 2003), innovative product (Baron, 2006), emergent venture (Gartner, 1985), or some other entrepreneurial endeavor (Shepherd, Wennberg, Suddaby & Wiklund, 2018), entrepreneurs bring forth novelty. In so doing, they face an unknowable future that necessities taking action under conditions of uncertainty (Alvarez & Barney, 2007; Alvarez & Parker, 2009; McMullen & Shepherd, 2006; McKelvie, Haynie & Gustavsson, 2011; Sarasvathy, 2001; Packard, Clark & Klein, 2017). This uncertainty creates hesitancy towards action (Herbert & Link, 1988; Shepherd, McMullen & Jennings, 2007). Although existing entrepreneurial action theories center on addressing equivocation associated with ideas, resources, and outputs, there is significant additional uncertainty because all of these factors are time-bound. That is, entrepreneurs must locate their efforts within a temporal landscape, and hence time is an essential part of the uncertainty entrepreneurs experience as they contemplate action.

However, entrepreneurial action theories have thus far largely failed to integrate and clarify time, and entrepreneurs' considerations of time, as essential for navigating an uncertain future. We know that time is central to designing future activities (Emirbayer & Mische, 1998) and while extant theory accounts for entrepreneurship as a chain of intertwined events that unfold over time (e.g., McMullen & Dimov, 2013), it has generally overlooked temporal considerations as a key determinate of action. It may well be obvious that temporal elements matter for entrepreneurship, but the literature has not yet specified the characteristics of time that

are influential, why they matter, and how they relate to action. This leaves an important gap in understanding because entrepreneurs' conceptions of timing have a major impact on their activities. Entrepreneurs across a wide range of industries have emphasized that the timing (when, how long, etc.) of their actions was central to the efficacy of their endeavors. Yet entrepreneurial action theory has thus far said little about the indelible need to time-calibrate the path to entrepreneurship under conditions of uncertainty. Hence, there is enigma around the dimensions of time entrepreneurs consider, the ways they come to believe the time may be right (including suspicions they can "create" the right time) and how doing so might ultimately affect their affinity for action.

The purpose of this paper is to address these issues by offering a time-calibrated theory of entrepreneurial action, which centers on a unique framework that characterizes the temporal dimensions entrepreneurs confront, identifies the cognitive mechanism by which they integrate them, and specifies their effects on entrepreneurial action. The framework we develop specifies that entrepreneurs contextualize entrepreneurial endeavors around three temporal dimensions: *initialization* (i.e., the point in time for incipient action), *pace* (i.e., the time lapse between action and outcome) and *chronology* (i.e., the sequencing of action over time) and they do so through cognitive narrative construction (Garud & Giuliani, 2013; Ricoeur, 1984). We model the key factors on which different time-calibrated narratives vary (for example, in terms of whether the imagined date of initiation is proximal or distal) and theorize that these variations have differential effects on the likelihood of action. Our model reveals variations in time calibrations entrepreneurs place on their endeavors serve as an essential lever for action.

These advances make important contributions to entrepreneurial action theory (Alvarez & Barney, 2007; Klein, 2008; McMullen & Shepherd, 2006; Sarasvathy, 2001) by encapsulating

the temporal positioning of action under uncertainty (Alvarez & Barney, 2019), extending insights on the role of narratives in entrepreneurship (Garud, & Giuliani, 2013; Venkataraman et al., 2013), and deepening the conversation on the role of time in entrepreneurship theory (Lévesque & Ute, 2019: in-press; McMullen & Dimov, 2013). In cultivating these theoretical features, we offer predictions that cannot be derived from current entrepreneurial action models and therein illuminate the temporal positioning of entrepreneurial endeavors as essential to whether entrepreneurs act or remain idle. Doing so, our theorizing demarcates entrepreneurship as a particularly promising setting to study the role of time because it is an essential part of the variability entrepreneurs' face as they contemplate action.

ENTREPRENEURIAL ACTION THEORY

We view entrepreneurial action as purposeful and consequential human activity entrepreneurs engage to introduce something new to the world (Schumpeter, 1934; Herbert & Link, 1988). Entrepreneurial action, as a topic of scholarly inquiry, centers on operating under uncertainty as entrepreneurs formulate visions of "what could be" and engage with other actors and social structures in the hopes of creating new patterns of interaction (Alvarez & Barney, 2007; McMullen & Shepherd, 2006; Sarasvathy, 2001). Action is central to the entrepreneurial journey (McMullen & Dimov, 2013) and thus the causes and consequences of entrepreneurial action impact a range of phenomena within management and organization studies (Shepherd et al., 2018 provide a review). We place this body of research under the umbrella of entrepreneurial action theory, which is broadly concerned with the decision to take action toward entrepreneurial endeavors under conditions of uncertainty.

Entrepreneurial endeavors are efforts to create and introduce something new with an eye on the allocation of resources toward these ends (Shepherd et al., 2018). Mirroring the large

diversity of entrepreneurial endeavors, entrepreneurial action theorists have drawn on a range of intellectual traditions (cf., Alvarez & Barney, 2007; 2013; Eckhardt & Shane 2003; Chiles et al., 2010; Wood & McKinley, 2010). What has emerged from the integration of these ideas is a line of theory specifying that regardless of circumstances, experience, resources, and motives, entrepreneurs must, each in their own way, create something novel and therein operate toward an unknown future (Alvarez & Parker, 2009; Davidsson, 2015; Dimov, 2011; Foss & Klein, 2012). To be an entrepreneur, then, is to act under conditions of uncertainty (McMullen & Shepherd, 2006; Packard et al., 2017) where odds around the plurality of possible outcomes are incalculable[1]. This is fundamental to the very notion of entrepreneurial action.

Action under Uncertainty

Individuals seeking to be entrepreneurial do so by taking action that affects "the location, the form, and the use of goods, resources or institutions" (Herbert & Link, 1988: 155). However, entrepreneurs must act without assurance of the outcome and therefore draw largely on what they imagine to be possible (Haynie, Shepherd, Mosakowski & Earley, 2010). Because pathways for transforming the imagined into the realized are ambiguous, there can be significant agonizing over possible action trajectories[2]. We advance that a key variable in these deliberations is the *time calibrations* entrepreneurs place on their visions of the future as they ruminate the creation of new exchanges (Atuahene-Gima & Ko, 2001; Bird & West, 1998). This is challenging because there is no "God's eye" that provides clairvoyance to entrepreneurs about when to act and entrepreneurs are susceptible to "jumping the gun" (Clydesdale, 2009) or "missing the boat"

[1] We use the term "uncertainty" to reflect Knighting uncertainty where a context is uncertain when one does not know the "range of possible outcomes of a decision (i.e., taking action), nor their probability" (Alvarez & Barney, 2019: 12 drawing on and citing Knight, 1921).

[2] Entrepreneurship requires the introduction of something new and it is the new / novel elements (i.e., the unprecedented, the freshly created, the first of its kind, etc.) of the endeavor that are uncertain (Alvarez and Barney, 2019).

(Mullins & Forlani, 2005)[3]. Hence, for an entrepreneur to have the conviction to act, they must position their visons of doing something new in a temporal landscape (Lanz, Reichert & Weber, 2016). Yet the notion of action as time-contingent remains a largely uncharted area of entrepreneurial action theory.

To address this, we develop a conceptual framework that specifies the dimensions of time entrepreneurs contemplate and the impact that such contemplations have on the likelihood of entrepreneurial action. To do so, we first explicate the boundaries of our theory—aspects of the real world embedded in our theorizing that delineate arenas where the theory is likely to apply (Dubin, 1978; Tarraco, 1997)—as a set of baseline assumptions.

First, we reaffirm that entrepreneurial action occurs under conditions of uncertainty—meaning that as entrepreneurs contemplate action, the efforts envisioned can result in plurality of outcomes and thus the results of action are unknown at time of contemplation. This assumption mirrors influential streams of prior entrepreneurial action research that conceptualize uncertainty as the informational context under which entrepreneurial action decisions are contemplated and rendered (cf., Alvarez & Parker, 2009; McMullen & Shepherd, 2006). The implication for our theorizing is that entrepreneurs lack pieces of information required to develop high resolution images of the future and thus contemplations of action rest on visions that are "clear enough" in the minds of entrepreneurs to achieve action lucidity.

Second, conditions of uncertainty do not mean that an entrepreneur has no agency, control or ability to envision, pursue or even construct, a desirable future. Entrepreneurs play a role in creating what unfolds, hence their actions can enact results that are favorable. That said, like previous entrepreneurial action research (cf., Alvarez & Parker, 2009), we recognize that because entrepreneurs lack complete information they may incorrectly forecast the future, even

[3] We thank the Associate Editor for bringing the lack of clairvoyance issue to our attention.

as they contemplate action that can influence what happens. We make no assumptions about the accuracy of what an entrepreneur envisions or even the believability of that by others. We only assume entrepreneurs develop future-focused visions based on the information at hand.

Third, we take the position that entrepreneurs attend thoughtfully to key aspects of pursuing new introductions as opposed to taking random or impulsive action with little forethought. This assumption recognizes that enterprising is a decision with deep personal consequences. It involves a commitment of time, talent, money and other resources that once expelled are difficult to recoup (Bhave, Rawhouser & Pollack, 2016). Hence, while not always the case (Lerner, Hunt & Dimov, 2018; Wiklund, Yu & Patzelt, 2018), forethought prior to entrepreneurial action is more likely than not, and we follow an extensive body of research to this effect (e.g., McMullen & Shepherd, 2006; Wood, Williams & Drover, 2017).

Together, these three assumptions serve as bedrock for our theorizing on which we build a time-calibrated theory of entrepreneurial action. Our approach affirms that "being attentive to time and its impact on individual entrepreneurs and their contexts can enable scholars to build a better understanding of the entrepreneurial phenomenon" (Lévesque & Ute, 2019: in-press), but importantly moves beyond these broad generalizations to identify the specific temporal dimensions entrepreneurs confront and the cognitive mechanism they use to account for them and explicate their effects on action.

TEMPORAL DIMENSIONS OF ENTREPRENEURIAL ENDEVORS

Time is a central aspect of the human experience and thus operates as a "frame surrounding all thought" (Durkheim, 1961: 9). Time is intertwined with circumstances, events, and processes and it accounts for the ways people interact with the past, present and future (Chia, 2002; Ancona et al., 2001). Time, according to many, is a category of the mind that holds a

certain individual subjectivity to it, which orients thinking about past realized and future possible events (Gell, 1992: 5). This insight has prompted research on individuals' notions and considerations of time (McGrath & Kelly, 1986) and the ways people confront their temporal environment (e.g., Gersick, 1988; Orlikowski, 2002)[4].

The challenge is to move from thinking about time generally to doing so concretely in relation to entrepreneurial action. We address this by theorizing that temporal considerations are an essential lens entrepreneurs' use to construct the future. Although some published work in the management and entrepreneurship literatures has made passing references to temporal considerations related to entrepreneurial endeavors (cf., Alvarez et al., 2015; Bakker & Shepherd, 2017), this work spans theoretical traditions and temporal considerations are often secondary to other foci. To address this, we organized and synthesized disparate insights from prior literature to identify and describe the specific dimensions of time confronting entrepreneurs. In so doing, we draw on and synthesize insights from the prior literature related to time to develop a conceptual classification framework highlighting three main temporal dimensions: *initialization*, *pace* and *chronology.* We contend that these are the key aspects of time that entrepreneurs are likely to encounter as they contemplate entrepreneurial action for an entrepreneurial endeavor (Shepherd et al., 2018). The specification of these temporal dimensions lays a foundation for our later efforts to theorize how entrepreneurs wrestle with issues of action as time bound, and to what effect. Table 1 summarizes the key insights and prior literature sources, foreshadowing the discussion of each critical temporal dimension that follows.

Insert Table 1 about here

---

[4] Following Bluedorn (2002) and others we treat time and temporality as being intertwined, but not identical. Time quantifies progression from past to future, while temporality is subjective experience of this progression.

Initialization

The first temporal domain that we conceptualize as relevant to entrepreneurial action relates to an entrepreneur's concern for discerning *when* to *initially* act; what we term initialization. We define initialization as the point in time that an entrepreneur envisages is appropriate for incipient entrepreneurial action. The action contemplated varies across entrepreneurs and circumstances (Bakker & Shepherd, 2017; Wood et al., 2017), but initialization reflects the first consequential concrete activity entrepreneurs take in pursuit of their entrepreneurial endeavor. This dimension flows from individuals' appreciation that there are better and worse times to act, while at the same time respecting that operating under conditions of uncertainty means the entrepreneur can only speculate when their entrepreneurial efforts are likely to be effective (Alvarez & Parker, 2009; McKelvie et al., 2011).

In that way, initialization considerations are subjectively derived in the mind of the entrepreneur and emerge as one seeks receptiveness to the entrepreneurial endeavor among needed supporters (Burns et al., 2016; Wood & McKinley, 2010). Khavul, Perez-Nordtvedt and Wood (2009) alongside Lilien and Yoo (1990) noted that synchronizing to create receptiveness with customers and other stakeholders is a challenge that has important implications for success. Whether entrepreneurs are evaluating information on environmental change (Shane, 2000), designing consensus shifting enactment of customer interaction (Alvarez & Barney, 2007), or contemplating the advantages and disadvantages of being an early innovator or a later stage imitator (Lieberman & Montgomery, 1988), the question "when would be the right time to act?" is paramount. Initialization is centrally concerned with this question.

It represents entrepreneurs attempts to time calibrate entrepreneurial action in relation to creating an envisioned future, by synchronizing with others at a time of favorable receptiveness,

even if one cannot objectively know when that will be.[5] Initialization, then, reflects the essence of concepts like "strategic window" that under conditions of risk encapsulate the finite nature of some competitive market imperfections (Dixit et al., 1994; Harvey & Evans, 1995), as well as the concept of "co-construction" where under conditions of uncertainty periods arise where stakeholders may be more or less amenable to entrepreneurs efforts (Alvarez et al., 2015). The latter perspective takes seriously the notion that entrepreneurs in some instances can through their own actions "create the right time" through tools like innovation in response to environmental decline (Zammuto & Cameron, 1985). For our purposes here, the important point is that as entrepreneurs' construct internal visions of what they might do. Then there is interplay between these visions and the realm where action unfolds, and this imposes time constraints on action frontiers. Consequently, we theorize that the internal image that entrepreneurs construct about what they might do must include initialization as a temporal dimension that represents a hypothetical future moment of action. Hence, a central concern for entrepreneurial action theory is an entrepreneur's sense of clarity about when initial action is to take place.

Pace

A second temporal domain that we conceptualize as relevant to entrepreneurial action is *pace*. Pace represents what an entrepreneur envisages as the time lapse between initial action and a desired outcome. It reflects the length of time from initial action to outcomes that are typically quantified as "milestones" that vary in focus (Fang, 2008). Concerns over pace can take many forms. Some entrepreneurs may be centrally concerned with the length of time it will take to make a first sale (Delmar & Davidsson, 2000), while others may focus on the time it will

[5] This parallels other non-observable objects such as recessions that do not lend themselves well to prediction, but nonetheless impact peoples thinking and actions.

likely take to break even (Bhide, 1992), or to go IPO (Bakker & Josefy, 2018), or to reach a combination of different milestones as an entrepreneurial endeavor progresses (Bird, 1992; Dimov, 2011). In that way, entrepreneurs may focus on the pace required to achieve a single milestone or they may focus on the length of time to reach the culminating point of a series of milestones. Regardless of the way a given entrepreneur conceives a milestone that he or she is most concerned about, we assert that the question "how long it will take" is highly influential for entrepreneurial action.

Pace reflects the importance of this question, and touches upon many important issues related to time lapse previously alluded to in the entrepreneurship literature. Morris, Kuratko and Schindehutte (2001: 41), for example, contended that entrepreneurs contemplating action consider "harvest issues" that include the anticipated life of the new introduction relative to the time needed to recover investment. Schoonhoven, Eisenhardt and Lyman (1990) noted that the "waiting time" to first product shipment is a critical concern for budding entrepreneurs. Liao, Welsch and Tan, (2005: 13) drawing on Bird (1992), provided evidence that entrepreneurs bound action in terms of the period where one must wait for results.

We synthesize such considerations into pace as an overarching temporal dimension. In doing so, we note an important, but often overlooked, aspect of pace-related concerns, namely that time considerations such as waiting time until first product shipment or length of time to break even rest on the speed of development, diffusion of a new offering and building of stakeholder support. This is impacted not only by the actions of entrepreneurs, but also by the actions and responses of others. Hence predictions around pace are ambiguous. They are essentially hypothetical "hopes for the future" and given that the entrepreneur is operating under conditions of uncertainty, anticipations of how long it will take can be off (Cassar, 2010). A

common miscalculation is underestimating the amount of time it takes. Indeed, entrepreneurs are often overheard commenting the time to milestone achievement took much longer than originally anticipated (Eisenhardt, 1989; DeMers, 2015). So, while there is considerable noise around questions of how long it will take to reach a desired outcome, it does not diminish the criticality of entrepreneurs' considerations of pace as an influential factor in deliberations leading up to entrepreneurial action. We therefore theorize that obtaining a measure of internal clarity around pace is a key element of entrepreneurial action.

Chronology

A third temporal domain that we conceptualize as relevant to entrepreneurial action is *chronology*. Chronology accounts for what an entrepreneur envisages as the appropriate sequencing of actions and events to realize an important milestone. Entrepreneurs often struggle with discerning what actions must take precedence in their entrepreneurial endeavors (cf., Benner & Tushman, 2003), rending the question "in what order should I do X, Y, and Z?" salient for entrepreneurial action. The dimension of chronology encapsulates this question.

However, like considerations of initialization and pace, favorable sequencing of actions can be rather opaque (Campbell, 1988) especially when assembled under conditions of uncertainty. Because of this, prior research has documented that entrepreneurs can take different approaches to organizing activities. In some instances, entrepreneurs may consider temporal sequencing of actions in a rather linear directional progression where A goes to B and then on to C (McMullen & Dimov, 2013). By contrast, other entrepreneurs may envision a less structured iterative progression where A goes to Z and then back to B or to some other intermediary or even unanticipated activity (Chiles et al., 2010). Add to this the realization that actions envisioned may be unfamiliar to the entrepreneur (Brown & Miller, 2000) and the complexities

of entrepreneurs sequencing become evident. Entrepreneurship is, one might say, an inherently messy business. But this does not render the entrepreneur powerless over and ignorant of a favorable, prevalent or experimental order of activities; it is inescapable that entrepreneurs do at least attempt to discern the course of organizing key activities and events (Bird, 1992).

Whether it is sequencing action with emergent contingencies (Berends et al., 2014) or navigating the realization that action sequences stimulate "path dependencies" that lock in certain possibilities and lock out others (Sydow, Schreyogg & Koch, 2009), decision makers must confront the ways sequencing impact the course of entrepreneurial endeavors. This is especially evident in research indicating that entrepreneurship can become increasingly path-dependent over time where self-reinforcing dynamics entrap entrepreneurs into a certain course of action (Sydow et al., 2009). The important point is that the sequencing envisioned can make a fundamental difference to entrepreneurs deliberations around entrepreneurial action in relation to reaching desired milestones (Buttriss & Wilkinson, 2006). This is the essence of chronology and we conceptualize it as the third pillar of our framework.

TIME-CALIBRATED NARRATIVES: A PATH TO ACTION

One of our objectives is to connect the temporal dimensions that we contend entrepreneurs grapple with as they engage their craft (initialization, pace, and chronology) to a concrete event (entrepreneurial action). We develop an explicative and predictive model that is graphically displayed in Figure 1, which introduces internal time-calibrated narrative construction as the mechanism by which entrepreneurs cognitively integrate these temporal dimensions into the imagination of action toward entrepreneurial endeavors. While this on its own represents an important step forward, our model fuels an additional contribution to the

literature by paving a path toward specifying the ways in which time calibrations that flow from initialization, pace, and chronology constrain and enable action.

Insert Figure 1 about here

At the heart of our model is the notion of *time-calibrated narrative construction,* which we conceptualize as a dedicated cognitive activity that involves individuals devising internal stories that temporally position action associated with an entrepreneurial endeavor. Tying back to the framework presented in Table 1 and described above, "time-calibrated" refers to the narrative addressing the temporal dimensions of initialization, pace, and/or chronology of action. Because time is a property of the universe, it is unavoidable that one must bracket visions of things that one could do or that might happen within a temporal landscape for them to have meaning (Suddendorf & Corballis, 2007). Therefore, time-calibration is as critical as it is natural. Indeed, both extant research and entrepreneurs' own accounts suggest that enterprising individuals tend to time-calibrate their endeavors to various degrees, even though scholarly research has lacked the language, tools or the theory to recognize the phenomena as such. As will become clear, the concept of "time-calibrated narratives" provides the representational capacity to close this gap.

The important elements of time-calibrated narratives are depicted in Figure 2. These include the temporal dimensions of initialization, pace, and/or chronology of action, variations in which are conceptualized to influence entrepreneurial action. Figure 2 also depicts that entrepreneurs may vary in the level of vigilance they exercise in constructing time-calibrated narratives and in the extent to which they externalize their time-calibrated narrative by verbalizing it to others. Vigilance and externalization moderate the relationships between the temporal dimensions and action, as we will elaborate below.

Insert Figure 2 about here

The development of our model surrounding time-calibrated narrative construction builds on several strands of literature. Therefore, it is important to demarcate both overlaps and distinctions with prior work.

The first line of research that is essential to our work is the research on narrative construction and verbalization (e.g., Aldrich & Fiol, 1994; Garud et al., 2014; Lounsbury & Glynn, 2001). This literature proposes that one of the principal mechanisms by which the human experience of time becomes concrete is individuals' engagement in constructing narratives that embed time and temporality. Narratives are the building blocks of stories and Ricoeur (1984) called this making cosmic time into human time; this notion reflects the interpretive nature of time as experienced and projected in the human mind. Ricoeur went on to assert that human time "is organized after the manner of a narrative; narrative, in turn, is meaningful to the extent that it portrays the features of temporal experience" (Ricouer, 1984: 3). Narrative construction, then, facilitates judgments around action because self-generated narratives allow one to place time stamps on events in both the past and (importantly for our purposes) in the imagined future (Garud et al., 2014). As Kwan et al. (2012: 1215) wrote, "imagining future episodes requires one to orient oneself to a future time by constructing a narrative of an event at that time". In that way, narratives are the mechanism by which individuals imprint time onto a flow of events, and devise a coherent story of action.

One prominent line of research on narratives in management has studied narrative construction in the form of a tool that managers and entrepreneurs can use to mobilize resources (e.g., Aldrich & Fiol, 1994; Garud et al., 2014; Lounsbury & Glynn, 2001). These studies take

heed of elements of time and temporality (cf., Garud & Giuilani, 2013). However, the focus of narrative research in management studies broadly, and in entrepreneurship research specifically, has been on verbalized narratives, often with concern for how espoused narratives galvanize stakeholder support in the later stages of entrepreneurial process (Navis & Glynn, 2011; Martens, Jennings & Jennings, 2007). We contend that the cerebral act of narrative construction begins long before a narrative is espoused. In fact, we propose the cerebral act of narrative construction harkens back to the earliest stages of the entrepreneurial journey where nothing more than an idea (Davidsson, 2015) for bringing something new to the world is present (i.e., what Shackle [1979] called an "imagined possibility"). As such, an important aspect of our theorizing regarding time-calibrated narratives is that we broaden the extant research focus on narratives from merely external espoused entities to the internal realm (the mind), where narrative construction resides in the form of non- or not-yet verbalized stories. Time-calibrated narratives, then, start out as internal mental accounts that individuals construct for themselves. Sometimes these are externally verbalized to others (Pennebaker & Seagal, 1999). The important point is that the construction and use of internal narratives is a principle mechanism by which entrepreneurs' time-calibrate future entrepreneurial action.

Another important parallel to our work lies in research on what Kaplan and Orlikowski (2013) referred to as "temporal work". Temporal work involves striving for mental coherence by intertwining a continual progression of the past and present to construe visions and anticipations of the future. As such, time-calibrated narrative construction can be seen as a form of temporal work. The concept also touches upon the notions of "mental model construction" and "mental time travel", where people cognitively build mental images that project themselves "forward to prelive events" (Suddendorf & Corballis, 2007: 2). In our case, the mental time travel required is

centered on pre-living an entrepreneurial endeavor. What differentiates time-calibrated narratives from traditional conceptions of a mental model is that time, and by extension timing and temporality, are a central concern as opposed to a background assumption.[6] Hence, we advance that time-calibrated narrative construction is a distinct form of cognitive work that requires mental time travel via imagining a possible action path, and trying to discern its possible outcomes with effortful thought toward time contingencies.

Our theorizing follows the progression of narratives as initially internally generated and later (potentially) verbalized. We theorize that variations in the dimensions of initialization, pace and chronology within time-calibrated narratives have differential effects on entrepreneurial action. We also articulate the ways in which narrative vigilance and narrative externalization, as well as hyper-vigilance and hyper-externalization, moderate the relationships. Finally, we theorize that initialization, pace and chronology narratives may be synthesized to form a time-calibrated story of the entrepreneurial endeavor.

Initialization Narratives and Entrepreneurial Action

Entrepreneurial endeavors require attracting and entraining stakeholders (Burns, Barney, Angus, & Herrick, 2016; Wood & McKinley, 2017), thus coordination is a consideration (Bakker & Shepherd, 2017; Bingham, Eisenhardt & Furr, 2011) that requires "astute use of timing" (Stewart, 1990: 152). That is, as entrepreneurs strive toward incipient action that offers new patterns of interactions and shared meaning, they must confront receptiveness to new introductions that fluctuate over time, even in cases where one's actions are intended to create the right time. This renders the timing of action an important consideration. Initialization narratives, by which we mean internal time-calibrated narratives about entrepreneurial endeavors

[6] In literature on mental models (Johnson-Laird, 1988) the issue of time calibration has hardly been addressed. While elements such as time pressure have been studied in decision making (Kelly & Karau, 1999), there is little discussion of mental models around the three temporal dimensions we discuss here.

that address when to take incipient entrepreneurial action, are the mechanism by which entrepreneurs confront this aspect of an uncertain future (Allen, 1984). The construction of an initialization narrative requires an entrepreneur to calibrate an entrepreneurial endeavor by considering the temporal distance between the present and an envisioned moment of action.

An important distinction between different kinds of initialization narratives is that temporal distance considerations embed initialization dates that may be more proximal or distal. That is, entrepreneurs may envision an initialization narrative that lays out a very quick timeline for action around their entrepreneurial endeavor (e.g., "next week"), or they may conceptualize a much longer time frame (e.g., "next year"). We theorize that this variance has important implications for the cognitive dynamics that lead to entrepreneurial action. Prior research has documented that distant future events stimulate abstract mental images, whereas near-future events provide more concrete and detailed pictures. Vallacher and Wegner (1985), for example, found that when people are asked to represent their wedding in the distant future, they use abstract terms such as "expressing love", whereas when the wedding is to take place in the near future, they verbalize specific and more concrete activities such as "taking pictures".

These abstract versus concrete conceptualizations of distal versus proximal events carry over to the domain of action. Studies suggest that individuals have higher performance expectancies for distant (as compared to proximal) actions. This can create "cold feet" (Gilovich, Kerr, & Medvec, 1993)—the avoidance of action—because one places a high bar on envisioned outcomes for distal actions (Liberman & Trope, 1998). These findings align with entrepreneurship research that shows that the degree to which individuals conceptualize entrepreneurial action in abstract terms is a function of the perceived distance from the action. Chen et al. (2018), for example, document that entrepreneurs perceptions of "near or far" shapes

the concreteness of action with near events more likely to spur action. Likewise, Tumasjan, Welpe & Spörrle (2013) reveal entrepreneurs focus intently on the feasibility of entrepreneurial action when potential endeavors are considered in proximal rather than distant future.

These insights are important to our model because they imply that as entrepreneurs develop narratives of their endeavors that focus on more temporally distant initialization dates, the harder it is for an entrepreneur to envision what will unfold between now and then. The abstract and fuzzy conceptualizations of distal events make action-outcome pathways vague, whereas proximal initialization dates hold a concreteness that increases the likelihood of action. This leads to the following proposition:

> *Proposition 1a: Initialization narratives that set forth a more proximal date for initiating an entrepreneurial endeavor increase the likelihood of entrepreneurial action, compared to initialization narratives that set forth a more distal date.*

A second dimension on which initialization narratives may vary is the confidence interval, or the breadth of the range, around the envisaged initialization date. One might, for example, develop an initialization narrative that specifies creation of a new introduction sometime during the first quarter, versus one that envisions the launch of that same introduction on Valentine's Day. This reflects time bracketing expectations of the date range within which initial action will take place, and different entrepreneurial endeavors vary to the degree they have narrow or broad limits (Bird, 1992).

One might intuitively argue that placing a broader date range on the envisioned moment of initialization is advantageous because, under conditions of uncertainty, anticipating the most appropriate time for incipient action is opaque and a wide date range allows for flexibility. Because there are windows where action is perceived as more or less viable (Mitchell & Shepherd, 2010), it makes sense that one would give a wide berth to initialization by placing an expansive date range on initialization in one's narrative of an imagined new endeavor. However,

cognitive science research suggests that placing a wide date range on initialization could well impede action. Expansive date ranges leave room for unexpected events and adjacent possibilities (Kauffman, 2008), which enhance flexibility but also create noise that renders one's mental picture of the future more abstract. Moreover, initialization narratives that envision a wide date range can give rise to the cognitive dynamic of "delayed intentions" (Smith, 2003: 347) where one loses conviction in plans for action. Indeed, research indicates that individuals tend to experience greater uncertainty in such situations (Perrings, 1991). By contrast, a narrow date range provides specificity to one's thinking that is key to taking action. Hence, in addition to how proximal the envisioned date of initial action, the width of the date range around this point in time should impact the likelihood of entrepreneurial action. More formally, we propose the following:

> *Proposition 1b: Initialization narratives that set forth a narrower date range for initiating an entrepreneurial endeavor increase the likelihood of entrepreneurial action, compared to initialization narratives that set forth a wider range.*

Pace Narratives and Entrepreneurial Action

As highlighted earlier, entrepreneurs often consider questions about "how long it will take" from initial action to an envisioned milestone within the context of a future entrepreneurial endeavor. We contend that entrepreneurs confront this dilemma through the development of pace narratives, by which we mean time-calibrated narratives about entrepreneurial endeavors that address the anticipated time lapse between initial entrepreneurial action and the achievement of salient or desired milestones. As we mentioned, these milestones can take many forms, with some entrepreneurs focusing on the length of time needed for a new introduction (e.g., product) to achieve first sales (Schoonhoven et al., 1990) or to build continuous stakeholder support (Wood & McKinley, 2017), while others consider the time lapse to reach break-even (Bhide,

1992) or to secure angel or venture capital investment (Mitteness, Baucus & Sudek, 2012). In our model, the central concern is not the nature of the milestone an entrepreneur formulates, but the *time* entrepreneurs believe they need to reach them.

Pace narratives, then, facilitate entrepreneurs taking stock of their mental elaborations of envisioned action in terms of the temporal delay between action and outcome. The narratives that entrepreneurs construct when conceptualizing entrepreneurial endeavors will vary considerably in the ways they time-calibrate the action-milestone relationship (Jansen & Kristof-Brown, 2005). Entrepreneurs may, for instance, conceptualize a very short time to create new patterns of interaction leading to first sale or they may conceptualize a much longer time frame to reach customer entrainment. Indeed, the reality of how long it takes may differ from what is conceptualized and one may underestimate the time required (Eisenhardt, 1989; DeMers, 2015), but this does not diminish the importance of pre-action cognitive deliberations around how long the entrepreneur thinks it will take. Hence, we contend differences in envisioned pace will have important implications for entrepreneurial action.

When the entrepreneurship journey is quite protracted and entrepreneurs have to wait for customers, resource providers and others to embrace what they are doing (Liao, Welsch & Tan, 2005), such waiting can create a cognitive tension. When expected outcomes are delayed, individuals typically focus more intently on things with near term consequences (Kahneman & Tversky, 1979). A considerable amount of research has shown that people tend to prefer an immediate over a delayed reward, thus biding time to realize an action milestone is less favored (e.g., Ainslie & Haslam, 1992). This may be even more pronounced among entrepreneurs who are notorious for their impatience and tendency to be in a "constant hurry" (Begley & Boyd,

1987; DuBrin, 2004: 116). Hence, envisioning a long wait for milestone realization is likely to be stress-inducing for entrepreneurs (Cardon & Patel, 2015).

The prospect of a drawn-out period between action and milestone is likely to be avoided because it creates space for contingencies that are associated with higher levels of perceived uncertainty (McKelvie et al., 2011). This is due to longer periods between action and milestones increasing the odds that circumstances, customer preferences, stakeholder support or access to resources will change in unfavorable ways during the interim. Hence, entrepreneurs may well seek to avoid these possibilities associated with far out milestones and thus respond more fervently when they are temporally closer (Bakker & Shepherd, 2017; Choi, Lévesque & Shepherd, 2008). Therefore, if entrepreneurs' pace narratives reflect a rapid pace between actions and milestones, then the internal narrative of the entrepreneur is more likely to provide the clarity needed for them to act. By contrast, entrepreneurs who develop a pace narrative around their endeavor that specifies a long time span between action and milestone, may be less inclined to act, so as to potentially reduce the uncertainties associated with such long wait times. We capture this reasoning in the following proposition:

> *Proposition 2: Pace narratives that set forth a shorter time span between initiating an entrepreneurial endeavor and the achievement of salient milestones increase the likelihood of entrepreneurial action, compared to pace narratives that set forth a longer time span.*

Chronology Narratives and Entrepreneurial Action

Chronology encapsulates the cognitive temporal ordering of entrepreneurial endeavors by specifying which of the various elements of the endeavor should occur early (versus late) to increase the likelihood of realizing a salient milestone. The sequencing of tasks can sway stakeholder receptiveness to the entrepreneurs' efforts (cf., Alvarez et al., 2015; Navis & Glynn, 2010), but discerning what tasks must take precedence is challenging. As such, we follow a long

line of research that contends that forecasting a task sequence is anticipatory rather than predictive, due in part to the role of actor agency in driving outcomes (Bingham & Khal, 2014; Emirbayer & Mische, 1998; Sharpe & Hodgson, 2017). That is, as entrepreneurs' narratives layout the sequence of tasks they anticipate will get them to a salient milestone, each task or event will influence subsequent tasks and events (Kauffman, 2008), so entrepreneurs must consider the interdependent aspects of chronology. On this basis, entrepreneurs must develop a chronology narrative that endogenizes the sequencing of events they anticipate will allow them to construct a path to milestone realization. Consequently, we propose that at the outset of an entrepreneurial journey, considerations of chronology loom large in whether an entrepreneur will engage in entrepreneurial action at all.

Specifically, the temporal ordering of action could serve as either a barrier or a bridge to entrepreneurial action. We propose that a critical factor that distinguishes different chronology narratives is the degree of task difficulty embedded in the front end of the action sequence, and this factor influences whether entrepreneurial action in fact occurs. While the difficulty of tasks can take different forms, the essence is that tasks that are [a] non-routine and unfamiliar to the actor, [b] causally ambiguous (i.e., many outcomes are possible), and/or [c] require specialized information or knowledge, are often viewed as being difficult (Brown & Miller, 2000; Campbell, 1988). Prior research indicates that when actors view tasks as being too difficult (e.g., complex or challenging), they may procrastinate or avoid the task altogether (Van Eerde, 2000). Applied to our model, this suggests that when entrepreneurs develop chronology narratives that construct sequences with more difficult tasks as coming first, they may be less likely to take action so as to avoid imminent difficulty.

Entrepreneurs frequently do consider projects where tasks are required in domains in which they have limited knowledge, or where the link between action and the reactions of others needed to support the endeavor are opaque (cf., Shepherd, Douglas & Shanley, 2000). More complex and difficult actions are more challenging to carry out and may therefore be seen as being less tenable in the entrepreneur's vision of the future. In contrast, if the chronology narrative for an entrepreneurial endeavor sets forth less difficult tasks as the jumping off point, the entrepreneur may be more likely to believe that he or she can carry out that action effectively (Boyd & Vozikis, 1994). Hence, we propose that entrepreneurial action is more likely when chronology narratives lay out a temporal sequence where less difficult tasks come early. We state this more formally as follows:

> *Proposition 3a: Chronology narratives that set forth less difficult tasks at the outset of an entrepreneurial endeavor increase the likelihood of entrepreneurial action, compared to chronology narratives that set forth more difficult tasks at the outset.*

As we mentioned, chronology narratives can also vary according to whether the sequence of tasks envisioned for the entrepreneurial endeavor is directional or iterative. McMullen and Dimov (2013: 1458) proposed that entrepreneurial efforts, from onset to ultimate outcome, can be approached as series of discrete events linked together in a causal chain. And while McMullen and Dimov were mainly referring to ways in which researchers confront entrepreneurship as an unfolding process, we contend that entrepreneurs face similar challenges when considering potential entrepreneurial action pathways. Entrepreneurs' chronology narratives may set forth a directional and continuous sequencing of action from inception to milestone to ultimate outcome, or they may layout a more turbulent array of discontinuous tasks where the flow of events is more indeterminate.

In literature explaining the emergence of path dependencies, these two types of action flows have been called self-reinforcing sequences versus reactive sequences (Araujo & Harrison, 2002). Self-reinforcing sequences represent clear lines of sight; paths where A leads to B and B leads to C, such that more of A leads to more of C (David, 1994). By contrast, reactive sequences are winding paths where A affects B, but also triggers an intermediary state D and this middle-state state "shapes future action" (Sydow et al., 2009). A key difference between these sequences is that self-reinforcing sequences are predicated on a logic of ordered succession of action-outcome events, whereas in reactive sequences one does not assume such ordered progression and leaves room for unexpected intermediary states in the form of emergent contingencies that impact actions that follow (Berends et al., 2014; Sydow et al., 2009).[7]

We contend that variation in the extent to which entrepreneurs construct chronology narratives that order action tasks in a continuous self-reinforcing or discontinuous reactive sequence will differentially impact entrepreneurs' engagement in entrepreneurial action. On the one hand, one might claim that people like to keep their options open (Ariely, 2009), hence it seems intuitive to assume that entrepreneurs are more likely to embrace the reactive sequences of action, given the flexibility of future action they provide. However, people are cognitive misers (Kahneman, 2011) and reactive sequences require significant energy and effort to conceptualize a meaningful sequence. By contrast, mentally envisioning a task sequence as a predictably ordered progression requires less agency, and entrepreneurs likely feel more empowered in an ordered continuous sequence that makes the world *seem* less abstract and more controllable—even when it isn't. Hence, we propose that the more a chronology narrative lays out a

[7] Self-reinforcing and reactive resemble the idea that some entrepreneurs approach entrepreneurial endeavors using planned strategy around predictable patterns while others use experimentation around less-predictable and more emergent pathways (Sarasvathy, 2001; Chandler et al., 2011).

continuous self-reinforcing sequence of tasks and events for an entrepreneurial endeavor, the more likely an entrepreneur is to act. This relationship is formalized in proposition 3b:

> *Proposition 3b: Chronology narratives that set forth a continuous self-reinforcing sequence of tasks at the outset of an entrepreneurial endeavor increase the likelihood of entrepreneurial action, compared to chronology narratives that set forth a discontinuous reactive sequence at the outset.*

The Moderating Role of Vigilance

Like other forms of mental animation, the amount of cognitive energy spent on the construction of time-calibrated narratives is likely to vary across individuals (Greenwald, McGhee & Schwartz, 1998). Therefore, we contend that entrepreneurs vary in their vigilance toward time-calibrated narrative construction. Vigilance represents systematic mental engagement to obtain a thorough consideration of possible alternative courses of action with careful consideration of the potential receptiveness of consumers and other stakeholders to the various action paths (Ajzen, 1996: 310). The vigilance of an entrepreneur in constructing time-calibrated narratives may vary from low, to high, to hyper (see Figure 2). At low vigilance an entrepreneur spends very little time or cognitive energy considering possible alternative courses of action, at high vigilance an entrepreneur is thorough and diligent in the extent to which they consider and evaluate possible alternative courses of action, and when hypervigilant an entrepreneur utilizes excessive cognitive energy, obsessing about alternative courses of action and the potential implications of each.

Vigilance as energizer. Moderate to high levels of vigilance allow decision makers to think intently about an array of alternative task sequences that may be differentially time-calibrated with those differences holding possible implications for reactions of other actors (Janis & Mann, 1977; Mann et al., 1997). We view vigilance toward time-calibrated narrative construction, then, as individuals engaging in a heightened mindfulness (Langer, 1997) toward

time and temporality, during which they become intently concerned with issues of timing, time lapses and time sequencing relative to potential action trajectories (Reinecke & Ansari, 2015).

Vigilance matters because at moderate to high levels of vigilance, entrepreneurs are likely to believe they have greater clarity of what is at stake in the present, and what might unfold in the future in relation to an envisioned action path (Garud & Giuliani, 2013). In that way, a vigilant approach toward time-calibrated narrative construction provides richness to envisioned new endeavors as being time calibrated with dates, time frames (e.g., within the next three years), and temporal descriptors (e.g., soon, immediately, long-term) (Grant & Tybout, 2008; Sanna, Chang, Parks & Carter, 2005). Because time calibrations are central to navigating an uncertain future, we propose that the crisp animations provided by vigilant engagement in time-calibrated narrative construction serves as additional fuel for the main effects of the differences between initialization, pace, and chronology narratives that we laid out above. In contrast, a low or less-vigilant approach toward time-calibrated narrative construction is likely to lead to vague or ill-developed time calibrated narratives. Ill-developed narratives provide less richness with respect to tasks required, therefore entrepreneurs have only a vague conception of how to navigate uncertainty via what they might do and how they will do it, meaning they may feel less compelled to do anything. Therefore, we expect vigilance toward time-calibrated narrative construction to positively moderate their effects on entrepreneurial action. On this basis, we offer Proposition 4a as follows:

> *Proposition 4a: Vigilance in the construction of time-calibrated narratives increases the positive contribution to entrepreneurial action from initialization narratives with more proximal dates (P1a) and narrower date ranges (P1b); pace narratives with a short time span to achievement of milestones (P2); and chronology narratives with less difficult tasks early (P3a) and a sequence flow of self-reinforcing tasks (P3b).*

Hypervigilance as de-energizer. The dynamics of vigilance often change when one moves to its upper reaches, a state commonly referred to as hypervigilance. Hypervigilance is an overly heightened state of awareness toward certain aspects of the situation, leading to obsessive deliberation (Janis & Mann, 1977). Cognitive science research indicates that hypervigilance reflects a confluence of excitement, emotional stress and fear that manifest in an all-consuming need to consider a full range of possibilities (Mann et al., 1997). Hence, hypervigilance can trigger a panic-stricken state (Janis & Mann, 1977) in which individuals fail to adequately engage key cognitive tasks, such as internal narrative construction, that underpin action and thus vacillate between action path alternatives (Johnston, Driskell & Salas, 1997). In some cases, this can be an effective adaptive response to high-engagement demands, but it comes at a cost as hypervigilance increases a compulsion toward optimality that it interferes with one's ability to discern the dynamics of a potential action (Baradell & Klein, 1993). While there are different ways this can unfold, we propose that hypervigilance manifests as an exaggeration of the considerations of action alternatives, such that time-calibrations are obsessively overanalyzed, resulting in a paralyzing effect on action.

The implication of this understanding for our model is that there is a "marked lowering of cognitive functioning" associated with hypervigilance (Janis & Mann, 1977: 51), so much so that some consider hypervigilance a "trap" (Murray, 1994). This is problematic for entrepreneurs who may become hypervigilant toward time-calibrating. When hypervigilance occurs, instead of gaining clarity around time-calibrations on imagined possible futures, individuals will likely experience a fog of ambiguity as a result of obsessing about the range of alternatives for action within their entrepreneurial endeavors. Entrepreneurs who become hypervigilant are likely to experience mental disorganization (Keinan, 1987) as they compulsively seek to create perfect

timing. Because the operating condition of uncertainty renders the future is unknowable (Alvarez & Barney, 2007; McMullen & Shepherd, 2006), such thinking can overwhelm them and result in procrastination toward action. Indeed, hypervigilant individuals can be "beset by conflicts, doubts and worries" that serve to hollow out one's propensity to act (Janis & Mann, 1997; 15). So, while the high levels of vigilance in the construction of time-calibrated narratives are likely to contribute positively to the effects of narrative construction on entrepreneurial action, hypervigilance represents "too much of a good thing" (Pierce & Aguinis, 2013). Hypervigilance on the part of an entrepreneur in constructing time-calibrated narratives will likely feed obsession over time calibrations in ways that truncate action. Stated formally, we propose:

> *Proposition 4b: Hypervigilance in the construction of time-calibrated narratives decreases the positive contribution to entrepreneurial action from initialization narratives with more proximal dates (P1a) and narrower date ranges (P1b); pace narratives with a short time span to achievement of milestones (P2); and chronology narratives with less difficult tasks early (P3a) and a sequence flow of self-reinforcing tasks (P3b).*

The Moderating Role of Externalization

Our focus thus far has been on the cerebral act of narrative construction; a cognitive activity that largely resides inside an entrepreneur's head. Along the pathway of exploring an entrepreneurial endeavor, many entrepreneurs feel compelled, or are prompted at some stage, to share these internal stories with others (e.g., Garud et al., 2014; Lounsbury & Glynn, 2001; Navis & Glynn, 2011). We consider this to be "externalization" and see it as the verbalization of what were previously internal stories. In that way, externalization comes about when an internal narrative is verbalized and made public. The extent to which an entrepreneur externalizes their time-calibrated narrative through verbalization of that narrative to others can vary from low, to high, to hyper-externalization (see Figure 2). Low externalization is equivalent to keeping one's time-calibrated narrative largely to oneself, sharing it only with family and friends (Wood &

McKinley, 2010). High externalization entails an entrepreneur sharing their time-calibrated narrative with a wider circle of knowledgeable peers, telling them what they plan to do and how they plan to do it, and hyper-externalization entails talking excessively about one's plans to whoever will listen regardless of their familiarity with entrepreneurship or the endeavor.[8]

Externalization as added fire. The verbalization of cognitions plays an important role in behavior. Research on goal formation and commitment, for instance, highlights how making a goal intention public (i.e., verbalizing the goal to others), increases the likelihood of action toward that goal (e.g. Dweck & Gilliard, 1975). Hollenbeck and Klein (1987: 214) wrote, "It is easy to abandon a goal known only to oneself." If, however, "others are aware of the goal, then abandoning this goal in midstream is somewhat unattractive because it makes one appear inconsistent."

We similarly argue that in the context of entrepreneurship, verbalizing a time-calibrated narrative regarding an entrepreneurial endeavor to others is akin to making an entrepreneurial goal public and as prior research has shown, when goals are public there is a desire to engage tasks that cohere with such goals (McCaul, Hinsz & McCaul, 1987). This suggests that the externalization of narratives is likely to initiate a drive for consistency between what is said (externalized) and the entrepreneurial action that follows. Indeed, prior research has shown that the externalization of entrepreneurial project ideas to peers and other interested parties—through informal conversation or more formal exchange—is a way to solidify plans for action (Wood &

[8] Wood and McKinley (2010: 70) outline the sharing of entrepreneurial ideas progresses from initially sharing with family and friends. If feedback is positive, entrepreneurs share with "knowledgeable" peers and then potential stakeholders, noting "not all peers provide the same value because some are more knowledgeable about entrepreneurship than others". Hyper-externalization reflects the limited value of sharing with anyone who will listen, regardless of his or her knowledge.

McKinley, 2010). Further, narratives have been discussed as an "artifactual conception of entrepreneurship" that embodies products, ventures, markets and the like, and in so doing, shape the "times and spaces in which they occur" (Venkataraman et al., 2013: 164-165). Hence, the externalization of narratives makes one's ideas, concepts, and goals public in ways that the subsequent abandonment of the imagined future will be uncomfortable to some degree (Shackle, 1979). Externalization, then, reflects a way to deal with the uncertainty inherent in entrepreneurship and instills a heightened level of commitment to action, in part because it embodies the entrepreneurial endeavor in a manner that brings it into public view.

We propose that because one's story of an entrepreneurial endeavor makes much less sense if it does not include aspects of time (like when the venture is to be launched, for example), time calibrations around initialization as well as other temporal dimensions play a critical role. So much so, that the temporal positioning (initialization), temporal length (pace) and temporal ordering (chronology) of action are essential elements of the externalized and hence public narrative to be debated, confirmed or debunked by others (cf., Alvarez et al., 2015). Given that entrepreneurial endeavors involve at least some level of enactment (Alvarez & Barney, 2007) where "consensus among stakeholders about their viability" is essential to their realization (Wood & McKinley, 2017: 18), the externalization of time-calibrated narratives injects concreteness to the endeavor for the entrepreneur and those who hear and debate the narrative, such as potential stakeholders. In this way, we propose that the verbalization of internal narratives serves as additional fuel for the main effects of the time-calibrated narrative dimensions we laid out earlier, and thus positively moderates their effects on entrepreneurial action. This logic manifest formally in proposition 5a:

> *Proposition 5a: Externalization of time-calibrated narratives increases the positive contribution to entrepreneurial action from initialization narratives with more proximal*

dates (P1a) and narrower date ranges (P1b); pace narratives with a short time span to achievement of milestones (P2); and chronology narratives with less difficult tasks early (P3a) and a sequence flow of self-reinforcing tasks (P3b).

Hyper-externalization as extinguisher. Like vigilance, the extent to which time-calibrated narratives are externalized may vary, and in some cases, will likely reach extreme levels. We call these extreme levels engaging in "hyper-externalization"; a situation in which talk substitutes for action (Pfeffer & Sutton, 1999). Hyper-externalization represents an overly enthusiastic form of "dialogic deliberation" (Kim & Kim, 2008) in which public talk is used to solidify preferences (Gergen, Gergen & Barrett, 2004). At issue, however, is that dialogic deliberation can be slow and can serve to confuse rather than illuminate issues (Schudson, 1997), in part because such deliberations tend to revolve around an ''elite framing'' where the perceived perfect solution is the standard (Druckman & Nelson, 2003). Hence, as one moves to the realm of hyper-externalization of narratives, the narratives mutate from focusing on action to a focus on dialogue where the excessive externalization supplants talk for action.

These insights allow us to see hyper-externalization in the context of entrepreneurship under uncertainty as an entrepreneur moving from verbalizing once internal narratives in informal conversation or formal correspondence with peers and other interested parties, to talking excessively in dialogic deliberation about an entrepreneurial endeavor with anyone who will listen. Dynamics along these lines have been observed elsewhere. Pfeffer and Sutton (1999), for instance, revealed that when confronted with an issue, some people tend to act as though discussing it and hashing out plans for action are the same as actually fixing the issue. Pfeffer and Sutton (1999) go on to argue that in certain settings "people are rewarded for talking—and the longer, louder, and more confusingly, the better"; and use this strategy as a replacement for action (p. 135). We contend that the same is true for entrepreneurs who will talk excessively

about a prospective entrepreneurial endeavor as an unconscious substitute for taking action; talking about an entrepreneurial endeavor may make an entrepreneur feel like he or she is making progress, even though their excessive dialogue is actually used to substitute for entrepreneurial action.

At the nucleus of this dynamic are the "elite frames" that are part and parcel of hyper-externalization (Druckman & Nelson, 2003). Initialization, pace and chronology can be conceptualized in nearly endless combinations and thus are open for wide interpretation. By excessively engaging in verbalizations around such issues, entrepreneurs are more likely to try and aim for perfection, where the goal is to discern perfecting timing and these constructions create an untenable expectation for action. Thus, we advance that hyper-externalization negatively moderates the main effects of variations between time-calibrated narratives on entrepreneurial action. In other words, we propose that the positive moderating influence of externalization of narratives becomes negative when those same narratives are hyper-externalized. Stated formally, we offer our final proposition as follows:

> *Proposition 5b: Hyper-externalization of time-calibrated narratives decreases the positive contribution to entrepreneurial action from initialization narratives with more proximal dates (P1a) and narrower date ranges (P1b); pace narratives with a short time span to achievement of milestones (P2); and chronology narratives with less difficult tasks early (P3a) and a sequence flow of self-reinforcing tasks (P3b).*

Synthesizing Time-Calibrated Narratives

The arguments we have advanced thus far specify that variation in initialization, pace and chronology each have an impact on the likelihood of entrepreneurial action. However, entrepreneurs are likely to construct narratives in which these various elements fit together into a coherent story (Boje, 1991; Lounsbury & Glynn, 2001). In future focused thinking, various narratives are arranged into stylized accounts of anticipated events. At their core, narratives, such

as those we outlined above, "fashion the semblance of meaning and order for experience" and therefore as narratives are woven together they center on interconnections between the "how and what of narration" (Gubrium & Holstein, 1998 :166, 164). This interplay between narratives generates a meaningful story that becomes clear enough in one's mind that even when things are expected to change as the result of action, there is an infusion of perceived comprehension that enables action (Browning & Morris, 2012; Bruner, 1991). By combining various narratives into coherent future focused stories, one is able to highlight dissatisfaction with the status quo and concretize disruption to the current state through the introduction of something new, even if doing so involves experiments and contingencies (Baker & Nelson, 2005; Sarasvathy, 2001).

What these insights suggest for our theorizing is that time-calibrated narratives of initialization, pace and chronology are likely to be woven into a story of an envisioned entrepreneurial endeavor. As initialization, pace and chronology are synthesized into an overarching story that accounts for the temporal facets of an envisioned endeavor, that vision is time-calibrated in terms of one's thinking about when action will take place, how long it will take and in what sequence. In other words, as temporal dimensions become part of a unifying story, temporal "individuation" (Wood et al., 2014) unfolds where one's imagined future is uniquely positioned within a temporal landscape. Absent this, the entrepreneur's vision for an envisioned entrepreneurial endeavor is meaningless—the "when" of action is something that must materialize. Narratives, however, likely vary across individuals (Bruner, 1991) and between endeavors (Downing, 2005) and thus entrepreneurs may variably engage the three temporal factors we model. Some may focus on a subset while others will see the full spectrum as essential. Just as entrepreneurs can process multiple attributes of entrepreneurial endeavors in

different combinations (Mitchell & Shepherd, 2010; Wood, McKelvie & Haynie, 2014), the same would be true of temporal dimensions.

The combination and configuration of time-calibrated narratives, then, is a salient consideration. Viewed in the light provided by propositions 1-3, initialization, pace and chronology are temporal dimensions that exhibit significant variation. Therefore, combining them in a single story can result in a range of potential configurations. This is impactful for the likelihood of entrepreneurial action because the story that ensues will by extension exhibit temporal variation as well. Hence, the act of synthesizing different temporal dimensions results in a more or less likely configuration for fueling action. Stories that combine proximal initialization and narrower date ranges; quick pace with a short time span to achievement of milestones; and chronology narratives with less difficult tasks early and a sequence flow of self-reinforcing tasks will result in a much higher likelihood of entrepreneurial action than stories that envision a distant date of initialization and wider date ranges for initialization; slow pace with a long time span to achievement of milestones; and chronology narratives with more difficult tasks early and a chronology of discontinuous reactive sequencing. Therefore, when synthesized, we expect time-calibrations embedded in initialization, pace and chronology narratives to aggregate into a time-calibrated story that differentially influences entrepreneurial action. On this basis, we offer Proposition 6 as follows:

> *Proposition 6: Initialization, Pace and Chronology narratives may be synthesized to form a time-calibrated story of the entrepreneurial endeavor. Stories formed with proximal initialization and narrower date ranges; quick pace with a short time span to achievement of milestones; and chronology narratives with less difficult tasks early and a sequence flow of self-reinforcing tasks will increase the likelihood of entrepreneurial action compared to stories formed with other configurations.*

DISCUSSION AND CONCLUSION

The idea that time and temporal aspects are impactful for entrepreneurship is an intuitive observation, yet time remains a poorly understood aspect of the phenomena. Indeed, calls to advance our theorizing on time and temporality vis-à-vis entrepreneurship research have been plentiful. The theory advanced in this paper takes an important step in this direction by untangling the dimensions of time that entrepreneurs consider, theorizing how they cognitively account for such dimensions in their visions of new endeavors, and how doing so enables or constrains entrepreneurial action. We identified and conceptualized initialization, pace and chronology as the main temporal dimensions entrepreneurs confront, and developed new theory describing how entrepreneurs build narratives around these dimensions to time-calibrate their entrepreneurial endeavors. The resultant models (Figures 1 and 2) contribute significantly to entrepreneurial action theory by moving beyond the notion that time matters for entrepreneurial action to a detailed specification of *how* it matters. By theorizing the path to entrepreneurial action as time-contingent we provide a set of constructs and conceptualizations needed to incorporate temporal aspects of action into a wide range of entrepreneurial phenomena. Given the breadth of research that relates to entrepreneurial action (see Shepherd et al., 2018 for a recent review), our work has implications for a range of current conversations in the field of entrepreneurship and management more broadly. In this spirit, we next highlight several significant streams of research that are likely to be impacted by our theorizing.

Implications for Theory

The first and most obvious area of contribution is that our approach opens the black box of time and temporality that is an essential part of research on action under conditions of uncertainty. Accounting for action in entrepreneurial endeavors has spawned fertile theories like effectuation (Sarasvathy, 2001), bricolage (Baker & Nelson, 2005) and creation (Alvarez &

Barney, 2007). Although most of these theories account for some type of "process" and hence allude to notions of time and temporality, they are silent on specifying how time is related to entrepreneurial action.

Effectuation, for instance, specifies that entrepreneurs initiate action by asking questions "who am I," "what do I know," and "who do I know" (Sarasvathy, 2001), and use responses to these questions to begin creating new effects. Entrepreneurs therefore apply what Sarasvathy referred to as the "bird in the hand" principle of "starting with the means and creating new effects" (Sarasvathy, 2008: 73–74). However, the temporal dimensions associated with connecting responses to these questions to concrete forms of entrepreneurial action are not accounted for in effectuation theory. Our conceptualization of time-calibrated narratives helps fill this gap by explaining how entrepreneurs move from identifying what they have and who they know to calibrating when to take action. Indeed, Sarasvathy and colleagues have recently alluded to both narrative construction and temporal considerations as potentially essential to effectuation (Sarasvathy, Menon & Kuechle, 2013). Our model holds promise in this regard as it specifies the ways in which narratives frame action, effectual or otherwise, along the time dimension in which they occur.

Like effectuation, the creation perspective accounts for purposeful and emergent action by entrepreneurs to create new offerings (Alvarez & Barney, 2007; Wood & McKinley, 2010). These actions come about through an iterative cycle of interaction between entrepreneurs, their stakeholders, and the uncertain environment that accumulates over time to reveal a profitable opportunity. Through probing, experimentation and consensus building (Alvarez & Barney, 2013) entrepreneurs construct what was previously unknown and in some cases unanticipated. To be sure, scholars are explicit that these constructions unfold via a dynamic process, but the

timing of that process, including its initialization, pace and chronology, is largely unaccounted for. This is problematic because possibilities for stakeholder engagement that are key to creation (Wood & McKinley, 2017) are not open-ended and thus time is likely to be an important variable. The conceptual tools developed in this paper provide the theoretical apparatus to begin to unpack and specify the temporal aspects of the creation process, and thereby lay the foundation to bring greater specificity and insight to creation theory.

Another area likely to be influenced by our theory is entrepreneurial cognition. By introducing internal narrative construction, we present a cognitive mechanism that explains how entrepreneurs think about time as they contemplate action within entrepreneurial endeavors. Entrepreneurial cognition research specifies mental tools (Grégoire, Barr & Shepherd, 2010), emotional elements (Cardon et al., 2009), motivational factors (Miller, Grimes, McMullen & Vogus; 2012) and individual experiences (Wood et al., 2014) as elements that come together in entrepreneurs thinking about what can be done. Prior research on entrepreneurial cognition, however, is largely devoid of discussions of time and temporality. Our model highlights that central to entrepreneurial cognition around entrepreneurial action is the time-calibration that individual entrepreneurs place on these efforts. This has concrete implications for cognition research. Take for example, long-standing cognitive phenomena such as entrepreneurial intentions (e.g., Krueger, Reilly & Carsrud, 2000). Our model calls into question the validity of theorizing entrepreneurial intentions as formed without time-calibration. Variations in initialization, pace and chronology have every potential to change one's assessments of feasibility and desirability of engaging in entrepreneurial action, core factors in the formation of entrepreneurial intentions (Fitzsimmons & Douglas, 2011). This feeds into recent theory that articulates elements of the "entrepreneurial mindset" (McMullen & Kier, 2016) and brings time-

calibration into entrepreneurs' "practical imaginativeness" (Kier & McMullen, 2018) as they consider entrepreneurial action.

An additional stream of research impacted by our conceptualization is the literature on the use of narratives in entrepreneurship (e.g. Aldrich & Fiol, 1994; Lounsbury & Glynn, 2001). Prior research accounts for how *external* narratives—stories that are communicated by entrepreneurs to potential stakeholders—have implications for entrepreneurial resource acquisition (e.g. Martens et al., 2007; Navis & Glynn, 2011) and legitimacy management over time (Fisher, Kotha & Lahiri, 2016). We extend this work by accounting for the internal narratives—the time-calibrated stories entrepreneurs tell themselves—that precede the articulation of any kind of external narrative. Hence, we unpack a key antecedent to the external entrepreneurial narratives that have been studied in the entrepreneurship literature to date. Furthermore, the temporal dimensions of initialization, pace and chronology provide a theoretical tool to account for and examine how issues of time and temporality in external narratives impact issues of resource acquisition and legitimacy management in entrepreneurial ventures. How, for example, are variations in entrepreneurs' pace narratives perceived by investors and ultimately what effect do they have on allocations of capital? Our model facilitates exploration of these types of questions and therein can bring an additional layer of depth and richness to narrative research in entrepreneurship.

A further arena of research potentially impacted by the ideas we introduce is the burgeoning interest in entrepreneurs' use of impulsivity (Brown, Packard & Bylund, 2018; Lerner, Hunt & Dimov, 2018; Wiklund, Yu & Patzelt, 2018). Whether impulsive action is an effective strategy remains an open question, but the notion that impulsive tendencies may benefit entrepreneurs in certain contexts (Lerner et al., 2018) leads us to highlight the usefulness of our

theorizing for this line of research. An entrepreneur's impulsiveness represents a very rapid (almost instantaneous) approach to account for the temporal dimensions we identify and perhaps without much concern for the potential negative consequences of these reactions (Wiklund et al., 2018). Hence, while our model assumes entrepreneurs use of foresight, it also points to the conditions under which entrepreneurs may be more likely to act impulsively. We would argue that situations where pace is extremely short and chronology lays out much less complex tasks at the start of an endeavor are contexts where an individual is likely to quickly conclude: "right now is the time to act" (i.e., the narrative would set forth an extremely proximal initialization date). While an extremely proximal initialization may be seen as impulsive, a possible alternate explanation that flows from our theory is that the envisioned temporal dimensions of the endeavor time-calibrate it in a way that one is compelled to act immediately. This is a mere conjecture at this point, but even the possibility has implications for impulsivity (e.g., Wiklund et al., 2018). Specifically, the temporal dimensions of an entrepreneurial endeavor may align in ways that scream "immediate action" to those who are hyperactive. Our model is not intended to address such issues, but these are the types of important future research questions stimulated by our time-calibrated theory of entrepreneurial action.

Implications for Practice and Education

Our theory also provides insights for practicing entrepreneurs by highlighting the different types of time calibrations that become embedded in action toward the fulfillment of envisioned endeavors. Some entrepreneurs highlight the role that good timing may have played in their successes (or failures), and when they do so they occasionally lump together issues of time, luck, and good fortune into a single bucket. Such treatment reflects that some entrepreneurs seem to believe that the time aspects of entrepreneurial projects are uncontrollable and hence

success is somewhat random. Our model highlights this as a potential mischaracterization, one that likely flows from entrepreneurs' inability to talk about time and temporality in a concrete way. Though entrepreneurs cannot control time, they can envisage time-calibrations and even create favorable timing by synchronizing their actions with receptiveness of others to those actions. That is, aspects of temporality "do not simply arise out of inexorable structures or inherent qualities" (Grzymala-Busse, 2011, p. 1273). Instead, actors often have a degree of insight regarding the ways they might design, space, and execute action over time (Mitchell, 1989; Venkataraman et al., 2012).

By breaking down phenomena along these lines into temporal dimensions of initialization, pace and chronology time becomes more concretely linked to entrepreneurial action such that entrepreneurs can better quantify and account for what they are doing through the construction of narratives. When considering pace retrospectively, for example, one might ask an entrepreneur "when you envisaged pursuing your idea, how long did you think it would take from when you first took action until you reached a key milestone such as first sale"? This is a dimension of temporality that entrepreneurs can likely articulate. As one moves to the prospective realm, this too becomes useful because entrepreneurs would be able to think of time in operational rather than philosophical terms. Entrepreneurs who concretize time by articulating initialization, pace and chronology may be more likely to identify barriers to action ex ante.

Building on this, entrepreneurship educators may find the temporal dimensions we specify useful for teaching aspiring entrepreneurs' various aspects of the entrepreneurial process. The entrepreneurship curriculum tends to focus on creative idea generation and evaluation, either through feasibility analysis or lean start-up type experimentation, as triggers for venture creation (e.g., Barringer & Ireland, 2016). What is rarely considered is that time is a key variable in these

activities. That is, while the "when" or "how long" of action may be implicit in students' thinking, it is rarely specified how these should be concretized in written plans or in lean start-up hypotheses. Even when emphasized by instructors, there has not been a framework that systematically breaks down time into operational units that can be used to quantify temporal dimensions of entrepreneurial endeavors that time-calibrate their ideas. We provide the building blocks for such a framework. Furthermore, most entrepreneurship education is designed to encourage students to take entrepreneurial action and our model highlights the potentially destructive role of hypervigilance and hyper-externalization to those efforts. Students who become obsessed with "perfect timing" or compulsively "talk and talk to anyone who will listen" are less likely to act; our efforts provide a vehicle by which students can be made aware of this.

Conclusion

We provided a novel, time-calibrated perspective on entrepreneurial action. We developed a conceptual framework that specifies the dimensions of time that entrepreneurs contemplate and introduce the notion of time-calibrated narratives as a cognitive mechanism entrepreneurs use to integrate temporal considerations. The insights generated highlight time-calibrations as a key lever for action under uncertainty; one not visible in prior entrepreneurial action theory. By bringing into focus the ways in which entrepreneurs account for time in their endeavors, we provided a rich picture of how entrepreneurs go "back to the future" as they position their endeavors in a dynamic temporal landscape.

REFERENCES

Ancona, D. G., Goodman, P. S., Lawrence, B. S., & Tushman, M. L. 2001. Time: A new research lens. ***Academy of Management Review,*** 26**:** 645-663.

Ainslie, G., & Haslam, N. 1992. Hyperbolic discounting, in ***Choice over time***, pp. 67-92. Loewenstein, G & Elster, J. (eds). New York: Russell Sage.

Ajzen, I. 1996. The social psychology of decision making, in ***Social psychology: Handbook of basic principles***, 297–325.

Aldrich, H. E., & Fiol, C. M. 1994. Fools rush in? The institutional context of industry creation. ***Academy of Management Review***, 19(4): 645-670.

Allen, J. F. 1984. Towards a general theory of action and time. ***Artificial Intelligence***, 23(2): 123–154.

Alvarez, S. A., & Barney, J. B. 2007. Discovery and creation: Alternative theories of entrepreneurial action. ***Strategic Entrepreneurship Journal***, 1(1-2): 11-26.

Alvarez, S. A., & Barney, J. B. 2013. Epistemology, opportunities, and entrepreneurship: Comments on Venkataraman et al. (2012) and Shane (2012). ***Academy of Management Review***, 38(1): 154–157.

Alvarez, S. A., & Barney, J. B. 2019. Has the Concept of Opportunities Been Fruitful in the Field of Entrepreneurship? ***Academy of Management Perspectives,*** on-line first, https://journals.aom.org/doi/10.5465/amp.2018.0014.

Alvarez, S. A., & Parker, S. C. 2009. Emerging firms and the allocation of control rights: A Bayesian approach. ***Academy of Management Review***, 34(2): 209–227.

Alvarez, S. A., Young, S. L., & Woolley, J. L. 2015. Opportunities and institutions: A co-creation story of the king crab industry. ***Journal of Business Venturing***, 30(1): 95–112.

Ansoff, H. I., & Stewart, J. M. 1967. Strategies for a technology-based business. ***Harvard Business Review***, 45(6): 71–83.

Araujo, L., & Harrison, D. 2002. Path dependence, agency and technological evolution. ***Technology Analysis & Strategic Management***, 14(1): 5-19.

Ariely, D., 2009. ***Predictably irrational, revised and expanded edition: The hidden forces that shape our decision.*** Harper Collins, New York.

Atuahene-Gima, K., & Ko, A. 2001. An empirical investigation of the effect of market orientation and entrepreneurship orientation alignment on product innovation. ***Organization Science***, 12(1): 54–74.

Baker, T., & Nelson, R. E. 2005. Creating something from nothing: Resource construction through entrepreneurial bricolage. ***Administrative Science Quarterly***, *50*(3): 329-366.

Bakker, R. M., & Josefy, M. A. 2018. More than just a number? The conceptualization and measurement of firm age in an era of temporary organizations. ***Academy of Management Annals***, (forthcoming).

Bakker, R. M., & Shepherd, D. A. 2017. Pull the plug or take the plunge: Multiple opportunities and the speed of venturing decisions in the Australian mining industry. ***Academy of Management Journal***, 60(1): 130–155.

Baradell, J. G., & Klein, K. 1993. Relationship of life stress and body consciousness to hypervigilant decision making. ***Journal of Personality and Social Psychology***, 64(2): 267.

Baron, R. A. 2006. Opportunity recognition as pattern recognition: How entrepreneurs "connect the dots" to identify new business opportunities. ***Academy of Management Perspectives***, *20*(1): 104-119.

Barringer, B. R., & Ireland, R. D. 2016. ***Entrepreneurship: Successfully launching new ventures, 5/E***. Upper Saddle River, NJ: Pearson.

Begley, T. M., & Boyd, D. P. 1987. A comparison of entrepreneurs and managers of small business firms. ***Journal of Management***, 13(1): 99–108.

Benner, M. J., & Tushman, M. L. 2003. Exploitation, exploration, and process management: The productivity dilemma revisited. ***Academy of Management Review***, 28(2): 238–256.

Berends, H., Jelinek, M., Reymen, I., & Stultiëns, R. 2014. Product innovation processes in small firms: Combining entrepreneurial effectuation and managerial causation. ***Journal of Product Innovation Management***, 31(3): 616–635.

Bhawe, N., Rawhouser, H., & Pollack, J. M. 2016. Horse and cart: The role of resource acquisition order in new ventures. ***Journal of Business Venturing Insights***, 6: 7-13.

Bhide, A. 1992. Bootstrap finance: The art of start-ups. ***Harvard Business Review***, 70(6): 109–117.

Bingham, C. B., Eisenhardt, K. M., & Furr, N. R. 2011. Which strategy when. ***MIT Sloan Management Review***, 53(1): 71–77.

Bingham, C. B., & Kahl, S. 2014. Anticipatory learning. ***Strategic Entrepreneurship Journal***, 8(2), 101-127.

Bird, B. J. 1992. The operation of intentions in time: The emergence of the new venture. ***Entrepreneurship Theory and Practice***, 17(1): 11–20.

Bird, B. J., & West III, G. P. 1998. Time and entrepreneurship. ***Entrepreneurship Theory and Practice***, 22(2): 5-9.

Bluedorn, A. C. 2002. ***The human organization of time: Temporal realities and experience***. Stanford University Press.

Boje, D. M. 1991. Consulting and change in the storytelling organisation. ***Journal of Organizational Change Managemen***t, 4(3): 7-17.

Boyd, N. G., & Vozikis, G. S. 1994. The influence of self-efficacy on the development of entrepreneurial intentions and actions. ***Entrepreneurship Theory and Practice***, 18(4): 63–77.

Brown, T. M., & Miller, C. E. 2000. Communication networks in task-performing groups: Effects of task complexity, time pressure, and interpersonal dominance. ***Small Group Research***, 31(2): 131–157.

Browning, L. & Morris, G. 2012. ***Narrative theory and organizational life: Ideas and applications.*** Taylor & Francis: Hoboken, NJ.

Brown, L., Packard, M., & Bylund, P. 2018. Judgment, fast and slow: Toward a judgment view of entrepreneurs' impulsivity. ***Journal of Business Venturing Insights***, 10.

Bruner, J. 1991. The narrative construction of reality. ***Critical Inquiry,*** 18(1): 1-21.

Burns, B. L., Barney, J. B., Angus, R. W., & Herrick, H. N. 2016. Enrolling stakeholders under conditions of risk and uncertainty. ***Strategic Entrepreneurship Journal***, 10(1): 97-106.

Buttriss, G. J., & Wilkinson, I. F. 2006. Using narrative sequence methods to advance international entrepreneurship theory. ***Journal of International Entrepreneurship***, 4(4): 157–174.

Campbell, D. J. 1988. Task complexity: A review and analysis. ***Academy of Management Review***, 13(1): 40–52.

Cardon, M. S., & Patel, P. C. 2015. Is stress worth it? Stress-related health and wealth trade-offs for entrepreneurs. ***Applied Psychology***, 64(2): 379–420.

Cardon, M. S., Wincent, J., Singh, J., & Drnovsek, M. 2009. The nature and experience of entrepreneurial passion. ***Academy of Management Review***, 34(3): 511–532.

Cassar, G. (2010). Are individuals entering self-employment overly optimistic? An empirical test of plans and projections on nascent entrepreneur expectations. ***Strategic Management Journal***, 31(8), 822-840.

Chandler, G. N., DeTienne, D. R., McKelvie, A., & Mumford, T. V. 2011. Causation and effectuation processes: A validation study. ***Journal of Business Venturing***, 26(3): 375–390.

Chen, H. S., Mitchell, R. K., Brigham, K. H., Howell, R., & Steinbauer, R. 2018. Perceived psychological distance, construal processes, and abstractness of entrepreneurial action. ***Journal of Business Venturing***, 33(3): 296–314.

Chia, R. 2002. Time, duration and simultaneity: Rethinking process and change in organizational analysis. ***Organization Studies***, 23(6): 863–868.

Chiles, T. H., Tuggle, C. S., McMullen, J. S., Bierman, L., & Greening, D. W. 2010. Dynamic creation: Extending the radical Austrian approach to entrepreneurship. ***Organization Studies***, 31(1): 7–46.

Choi, Y. R., Lévesque, M., & Shepherd, D. A. 2008. When should entrepreneurs expedite or delay opportunity exploitation? ***Journal of Business Venturing***, 23(3): 333–355.

Clydesdale, G. 2009. ***Entrepreneurial opportunity: The right place at the right time***. New York: Routledge.

David, P. A. 1994. Why are institutions the 'carriers of history'?: Path dependence and the evolution of conventions, organizations and institutions. ***Structural Change and Economic Dynamics***, 5(2): 205–220.

Davidsson, P. 2015. Entrepreneurial opportunities and the entrepreneurship nexus: A re-conceptualization. ***Journal of Business Venturing***, 30(5): 674–695.

Delmar, F., & Davidsson, P. 2000. Where do they come from? Prevalence and characteristics of nascent entrepreneurs. ***Entrepreneurship & Regional Development***, 12(1): 1–23.

DeMers, J. 2015. Why Entrepreneurship Always Takes More Time Than You Expect. ***Entrepreneur Magazine***. https://www.entrepreneur.com/article/253104

Dimov, D. 2011. Grappling with the unbearable elusiveness of entrepreneurial opportunities. ***Entrepreneurship Theory and Practice***, 35(1): 57–81.

Dixit, A. K., Dixit, R. K., Pindyck, R. S., & Pindyck, R. 1994. ***Investment under uncertainty***. Princeton university press.

Downing, S. 2005. The social construction of entrepreneurship: Narrative and dramatic processes in the coproduction of organizations and identities. ***Entrepreneurship Theory and Practice,*** 29(2), 185-204.

Druckman, J. N., & Nelson, K. R. 2003. Framing and deliberation: How citizens' conversations limit elite influence. ***American Journal of Political Science***, 47(4): 729–745.

Dubin, R. (1978). ***Theory building.*** New York: Free Press.

DuBrin, A. J. 2004. *Leadership: Research findings, practice, and skills,* (4th ed.) New York: Houghton Mifflin Company.

Durkheim, E. 1961. ***The elementary forms*** **of** ***the religious life.*** New York: Collier-MacMillian.

Dweck, C. S., & Gilliard, D. 1975. Expectancy statements as determinants of reactions to failure: Sex differences in persistence and expectancy change. ***Journal of Personality and Social Psychology***, 32(6): 1077.

Eckhardt, J. T., & Shane, S. A. 2003. Opportunities and entrepreneurship. ***Journal of Management***, 29(3): 333–349.

Emirbayer, M., & Mische, A. 1998. What is agency?. ***American Journal of Sociology***, 103(4): 962-1023.

Eisenhardt, K. M. 1989. Making fast strategic decisions in high-velocity environments. ***Academy of Management Journal***, 32(3): 543-576

Fang, E. 2008. Customer participation and the trade-off between new product innovativeness and speed to market. ***Journal of Marketing***, 72(4): 90–104.

Fisher, G., Kotha, S., & Lahiri, A. 2016. Changing with the times: An integrated view of identity, legitimacy, and new venture life cycles. ***Academy of Management Review***, 41(3): 383–409.

Fitzsimmons, J. R., & Douglas, E. J. 2011. Interaction between feasibility and desirability in the formation of entrepreneurial intentions. ***Journal of Business Venturing***, 26(4): 431–440.

Foss, N. J., & Klein, P. G. 2012. ***Organizing entrepreneurial judgment: A new approach to the firm***. Cambridge, MA: Cambridge University Press.

Gans, J. S., & Stern, S. 2003. The product market and the market for "ideas": commercialization strategies for technology entrepreneurs. ***Research Policy***, *32*(2), 333-350

Gartner, W. B. 1985. A conceptual framework for describing the phenomenon of new venture creation. ***Academy of Management Review***, *10*(4): 696-706.

Garud, R., & Giuliani, A. P. 2013. A narrative perspective on entrepreneurial opportunities. ***Academy of Management Review***, 38(1): 157–160.

Garud, R., Schildt, H. A., & Lant, T. K. 2014. Entrepreneurial storytelling, future expectations, and the paradox of legitimacy. ***Organization Science***, 25(5): 1479–1492.

Gell, A. 1992. ***The anthropology of time - cultural constructions of temporal maps and images***. United Kingdom: Emerald.

Gergen, K. J., Gergen, M. M., & Barrett, F. J. 2004. Dialogue: Life and death of the organization. ***The Sage Handbook of Organizational Discourse***, 39–59.

Gersick, C. J. G. 1988. Time and transition in work teams: Toward a new model of group development. ***Academy of Management Journal***, 31(1): 9–41.

Gilovich, T., Kerr, M., & Medvec, V. H. 1993. Effect of temporal perspective on subjective confidence. ***Journal of Personality and Social Psychology***, 64(4): 552.

Grant, S. J., & Tybout, A. M. 2008. The effect of temporal frame on information considered in new product evaluation: The role of uncertainty. ***Journal of Consumer Research***, 34(6): 897–913.

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. 1998. Measuring individual differences in implicit cognition: the implicit association test. ***Journal of Personality and Social Psychology***, 74(6): 1464.

Grégoire, D. A., Barr, P. S., & Shepherd, D. A. 2010. Cognitive processes of opportunity recognition: The role of structural alignment. ***Organization Science***, 21(2): 413–431.

Grzymala-Busse, A. 2011. Time will tell? Temporality and the analysis of causal mechanisms and processes. ***Comparative Political Studies***, 44(9): 1267–1297.

Gubrium, J. F., & Holstein, J. A. 1998. Narrative practice and the coherence of personal stories. ***Sociological Quarterly***, 39(1), 163-187.

Haynie, J. M., Shepherd, D., Mosakowski, E., & Earley, P. C. 2010. A situated metacognitive model of the entrepreneurial mindset. ***Journal of Business Venturing***, 25(2): 217-229.

Harvey, M., & Evans, R. 1995. Strategic windows in the entrepreneurial process. ***Journal of Business Venturing***, 10(5): 331–347.

Herbert, R. F. & Link, A.N. 1988. ***The entrepreneur: Mainstream views and radical critiques.*** New York: Praeger.

Hollenbeck, J. R., & Klein, H. J. 1987. Goal commitment and the goal-setting process: Problems, prospects, and proposals for future research. ***Journal of Applied Psychology***, 72(2): 212.

Janis, I. L., & Mann, L. 1977. ***Decision making: A psychological analysis of conflict, choice, and commitment.*** New York: Free press.

Jansen, K. J., & Kristof-Brown, A. L. 2005. Marching to the beat of a different drummer: Examining the impact of pacing congruence. ***Organizational Behavior and Human Decision Processes***, 97(2): 93–105.

Johnson-Laird, P. N. 1988. A computational analysis of consciousness. In A. J. Marcel & E. Bisiach (Eds.), ***Consciousness in contemporary science*** (pp. 357–368). Oxford, England: Oxford University Press.

Johnston, J. H., Driskell, J. E., & Salas, E. 1997. Vigilant and hypervigilant decision making. ***Journal of Applied Psychology***, 82(4): 614.

Kauffman, S. A. 2008. ***Reinventing the sacred: A new view of science, reason, and religion***. New York: Basic Books.

Kahneman, D. 2011. ***Thinking fast and slow***. New York: Farrar, Straus and Giroux.

Kahneman, D., & Tversky, A. 1979. Prospect theory: An analysis of decision under risk. ***Econometrica***, 47(2): 263–291.

Kaplan, S., & Orlikowski, W. J. 2013. Temporal work in strategy making. ***Organization Science***, 24(4): 965–995.

Keinan, G. 1987. Decision making under stress: Scanning of alternatives under controllable and uncontrollable threats. ***Journal of Personality and Social Psychology***, 52(3): 639.

Kelly, J. R., & Karau, S. J. 1999. Group decision making: The effects of initial preferences and time pressure. ***Personality and Social Psychology Bulletin***, 25(11): 1342–1354.

Khavul, S., Pérez-Nordtvedt, L., & Wood, E. 2010. Organizational entrainment and international new ventures from emerging markets. ***Journal of Business Venturing***, 25(1): 104–119.

Kier, A., & McMullen, J. S. 2018. Entrepreneurial imaginativeness within new venture teams: A key to startup performance. ***Academy of Management Proceedings***, 2018: 10474. Academy of Management Briarcliff Manor, NY 10510.

Kim, J., & Kim, E. J. 2008. Theorizing dialogic deliberation: Everyday political talk as communicative action and dialogue. ***Communication Theory***, 18(1): 51–70.

Klein, P. G. 2008. Opportunity discovery, entrepreneurial action, and economic organization. ***Strategic Entrepreneurship Journal***, *2*(3): 175-190.

Knight, F. H. 1921. ***Risk, uncertainty and profit***. Boston: Hart, Schaffner & Marx; Houghton Mifflin Co.

Krueger, N. F., Reilly, M. D., & Carsrud, A. L. 2000. Competing models of entrepreneurial intentions. ***Journal of Business Venturing***, 15(5–6): 411–432.

Kwan, D., Craver, C. F., Green, L., Myerson, J., Boyer, P., et al. 2012. Future decision-making without episodic mental time travel. ***Hippocampus***, 22(6): 1215–1219.

Langer, E. J. 1997. ***The power of mindful learning.*** Reading, MA: Addison Wesley.

Lanz, A., Reichert, M., & Weber, B. 2016. Process time patterns: A formal foundation. ***Information Systems***, 57: 38–68.

Lerner, D. A., Hunt, R. A., & Dimov, D. 2018. Action! Moving beyond the intendedly-rational logics of entrepreneurship. ***Journal of Business Venturing***, 33(1): 52–69.

Lévesque, M & Ute, S. 2019. It's time we talk about time in entrepreneurship. ***Entrepreneurship Theory and Practice,*** online first, https://doi.org/10.1177/1042258719839711 |

Liao, J., Welsch, H., & Tan, W.-L. 2005. Venture gestation paths of nascent entrepreneurs: Exploring the temporal patterns. ***The Journal of High Technology Management Research***, 16(1): 1–22.

Lieberman, M. B., & Montgomery, D. B. 1988. First-mover advantages. ***Strategic Management Journal*****,** 9(1): 41-58.

Liberman, N., & Trope, Y. 1998. The role of feasibility and desirability considerations in near and distant future decisions: A test of temporal construal theory. ***Journal of Personality and Social Psychology***, 75(1): 5.

Lilien, G. L., & Yoon, E. 1990. The timing of competitive market entry: An exploratory study of new industrial products. ***Management Science***, 36(5): 568–585.

Lounsbury, M., & Glynn, M. A. 2001. Cultural entrepreneurship: Stories, legitimacy, and the acquisition of resources. ***Strategic Management Journal***, 22(6–7): 545–564.

Mann, L., Burnett, P., Radford, M., & Ford, S. 1997. The Melbourne Decision Making Questionnaire: An instrument for measuring patterns for coping with decisional conflict. ***Journal of Behavioral Decision Making***, 10(1), 1-19.

Martens, M. L., Jennings, J. E., & Jennings, P. D. 2007. Do the stories they tell get them the money they need? The role of entrepreneurial narratives in resource acquisition. ***Academy of Management Journal***, 50(5): 1107–1132.

McCaul, K. D., Hinsz, V. B., & McCaul, H. S. 1987. The effects of commitment to performance goals on effort 1. ***Journal of Applied Social Psychology***, 17(5): 437–452.

McGrath, J. E., & Kelly, J. R. 1986. ***Time and human interaction: Toward a social psychology of time.*** Guilford Press.

McKelvie, A., Haynie, J. M., & Gustavsson, V. 2011. Unpacking the uncertainty construct: Implications for entrepreneurial action. ***Journal of Business Venturing***, 26(3): 273–292.

McMullen, J. S., & Dimov, D. 2013. Time and the entrepreneurial journey: The problems and promise of studying entrepreneurship as a process. *Jo**urnal of Management Studies***, 50(8): 1481-1512.

McMullen, J. S., & Kier, A. S. 2016. Trapped by the entrepreneurial mindset: Opportunity seeking and escalation of commitment in the Mount Everest disaster. ***Journal of Business Venturing***, 31(6): 663–686.

McMullen, J. S., & Shepherd, D. A. 2006. Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. ***Academy of Management Review***, *31*(1): 132-152.

Miller, T. L., Grimes, M. G., McMullen, J. S., & Vogus, T. J. 2012. Venturing for others with heart and head: How compassion encourages social entrepreneurship. ***Academy of Management Review***, 37(4): 616–640.

Mitchell, J. R., & Shepherd, D. A. 2010. To thine own self be true: Images of self, images of opportunity, and entrepreneurial action. ***Journal of Business Venturing***, 25(1): 138–154.

Mitchell, W. 1989. Whether and when? Probability and timing of incumbents' entry into emerging industrial subfields. ***Administrative Science Quarterly***, 208–230.

Mitteness, C. R., Baucus, M. S., & Sudek, R. 2012. Horse vs. jockey? How stage of funding process and industry experience affect the evaluations of angel investors. ***Venture Capital***, 14(4): 241–267.

Morris, M. H., Kuratko, D. F., & Schindehutte, M. 2001. Towards integration: Understanding entrepreneurship through frameworks. ***The International Journal of Entrepreneurship and Innovation***, 2(1): 35–49.

Mullins, J. W., & Forlani, D. 2005. Missing the boat or sinking the boat: A study of new venture decision making. ***Journal of Business Venturing***, 20(1): 47–69.

Murray, S. 1994. ***Death-defying decisions by aircraft pilots: The development of a simple reminder to avoid the hypervigilance trap***. PhD Thesis, University of Johannesburg.

Navis, C., & Glynn, M. A. 2010. How new market categories emerge: Temporal dynamics of legitimacy, identity, and entrepreneurship in satellite radio, 1990–2005. ***Administrative Science Quarterly***, 55(3), 439-471.

Navis, C., & Glynn, M. A. 2011. Legitimate distinctiveness and the entrepreneurial identity: Influence on investor judgments of new venture plausibility. ***Academy of Management Review***, 36(3): 479–499.

Orlikowski, W. J. 2002. Knowing in practice: Enacting a collective capability in distributed organizing. ***Organization Science***, 13(3): 249–273.

Packard, M. D., Clark, B. B., & Klein, P. G. 2017. Uncertainty types and transitions in the entrepreneurial process. ***Organization Science*****,** 28(5): 840-856.

Pennebaker, J. W., & Seagal, J. D. 1999. Forming a story: The health benefits of narrative. ***Journal of Clinical Psychology***, 55(10): 1243–1254.

Perrings, C. 1991. Reserved rationality and the precautionary principle - technological change, time and uncertainty in environmental decision making. ***Ecological Economics - The science and management of sustainability***: 153–167.

Pfeffer, J., & Sutton, R. I. 1999. The smart-talk trap. ***Harvard Business Review***, 77(3): 134–42.

Pierce, J. R., & Aguinis, H. 2013. The too-much-of-a-good-thing effect in management. ***Journal of Management***, 39(2): 313–338.

Reinecke, J., & Ansari, S. 2015. When times collide: Temporal brokerage at the intersection of markets and developments. ***Academy of Management Journal***, 58(2): 618–648.

Ricoeur, P. 1984. ***Time and Narrative***. Vol. 1. Translated by Kathleen McLaughlin and David Pellauer. Chicago, UP.

Sanna, L. J., Parks, C. D., Chang, E. C., & Carter, S. E. 2005. The hourglass is half full or half empty: Temporal framing and the group planning fallacy. ***Group Dynamics: Theory, Research, and Practice***, 9(3): 173.

Sarasvathy, S. D. 2001. Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. ***Academy of Management Review***, 26(2): 243–263.

Sarasvathy, S. D. 2008. ***Effectuation: Elements of entrepreneurial expertise***. Cheltenham: Edward Elgar.

Sarasvathy, S. D., Menon, A. R., & Kuechle, G. 2013. Failing firms and successful entrepreneurs: Serial entrepreneurship as a temporal portfolio. ***Small Business Economics***, 40(2): 417-434.

Schilling, M. A. 2002. Technology success and failure in winner-take-all markets: The impact of learning orientation, timing, and network externalities. ***Academy of Management Journal***, 45(2): 387–398.

Schoonhoven, C. B., Eisenhardt, K. M., & Lyman, K. 1990. Speeding products to market: Waiting time to first product introduction in new firms. ***Administrative Science Quarterly***, 177–207.

Schudson, M. 1997. Why conversation is not the soul of democracy. ***Critical Studies in Media Communication***, 14(4): 297–309.

Schumpeter, J. A. 1934. ***The theory of economic development***. Cambridge, MA: Harvard University Press.

Shackle, G. L. S. 1979. ***Imagination and the Nature of Choice***. Columbia University Press.

Shane, S. 2000. Prior knowledge and the discovery of entrepreneurial opportunities. ***Organization Science***, 11(4): 448–469.

Shane, S., & Venkataraman, S. 2000. The promise of entrepreneurship as a field of research. ***Academy of Management Review***, 25(1): 217-226.

Sharpe, B., & Hodgson, A. 2017. Anticipation in Three horizons. In R. Poli (Ed.). ***Handbook of Anticipation***, pp. 1–18. Cham: Springer International Publishing.

Shepherd, D. A., Douglas, E. J., & Shanley, M. 2000. New venture survival: Ignorance, external shocks, and risk reduction strategies. ***Journal of Business Venturing***, 15(5–6): 393–410.

Shepherd, D. A., McMullen, J. S., & Jennings, P. D. 2007. The formation of opportunity beliefs: Overcoming ignorance and reducing doubt. ***Strategic Entrepreneurship Journal***, 1(1-2): 75-95.

Shepherd, D. A., & Patzelt, H. 2018. ***Entrepreneurial Cognition: Exploring the Mindset of Entrepreneurs***. Springer.

Shepherd, D. A., Wennberg, K., Suddaby, R., & Wiklund, J. 2018. What are we explaining? A review and agenda on initiating, engaging, performing, and contextualizing entrepreneurship. ***Journal of Management*** (forthcoming).

Smith, R. E. 2003. The cost of remembering to remember in event-based prospective memory: investigating the capacity demands of delayed intention performance. ***Journal of Experimental Psychology: Learning, Memory, and Cognition***, 29(3): 347.

Stewart, A. 1990. The bigman metaphor for entrepreneurship: A "library tale" with morals on alternatives for further research. ***Organization Science***, 1(2): 143-159.

Suddendorf, T., & Corballis, M. C. 2007. The evolution of foresight: What is mental time travel, and is it unique to humans? ***Behavioral and Brain Sciences***, 30(3): 299–313.

Sydow, J., Schreyögg, G., & Koch, J. 2009. Organizational path dependence: Opening the black box. ***Academy of Management Review***, 34(4): 689–709.

Torraco, R. J. (1997). Theory-building research methods. In R. A. Swanson & E. F. Holton III (Eds.), ***Human resource development handbook: Linking research and practice*** (pp. 114-137). San Francisco: Berrett-Koehler.

Tumasjan, A., Welpe, I., & Spörrle, M. 2013. Easy now, desirable later: The moderating role of temporal distance in opportunity evaluation and exploitation. ***Entrepreneurship Theory and Practice***, 37(4): 859–888.

Vallacher, R. R., & Wegner, D. M. 1985. What do people think they're doing? Action identification and human behavior. ***Psychological Review***, 94(1): 3.

Van Eerde, W. 2000. Procrastination: Self-regulation in initiating aversive goals. ***Applied Psychology***, 49(3): 372–389.

Venkataraman, S., Sarasvathy, S. D., Dew, N., & Forster, W. R. 2013. Of narratives and artifacts. ***Academy of Management Review***, 38(1): 163–166.

Wiklund, J., Yu, W., & Patzelt, H. 2018. Impulsivity and entrepreneurial action. ***Academy of Management Perspectives***, 32(3): 379–403.

Wood, M. S., McKelvie, A., & Haynie, J. M. 2014. Making it personal: Opportunity individuation and the shaping of opportunity beliefs. ***Journal of Business Venturing***, 29(2), 252-272.

Wood, M. S., & McKinley, W. 2010. The production of entrepreneurial opportunity: A constructivist perspective. ***Strategic Entrepreneurship Journal***, *4*(1): 66-84.

Wood, M. S., & McKinley, W. 2017. After the venture: The reproduction and destruction of entrepreneurial opportunity. ***Strategic Entrepreneurship Journal***, 11(1) 18-35.

Wood, M. S., Williams, D. W., & Drover, W. 2017. Past as prologue: Entrepreneurial inaction decisions and subsequent action judgments. ***Journal of Business Venturing***, 32(1): 107-127.

Zammuto, R. F., & Cameron, K. 1985. Environmental decline and organizational response. In L. L. Cummings & B. M. Staw (Eds.), ***Research in organizational behavior*** (Vol. 7): 223-263). Greenwich, CT: JAI Press.

TABLE 1:
Temporal Dimensions of Entrepreneurial Endeavors

Temporal Dimension	*Initialization*	*Pace*	*Chronology*
Definition	Point in time that an entrepreneur envisions is appropriate for incipient entrepreneurial action.	What an entrepreneur envisages as the time lapse between initial action and the desired outcome.	What an entrepreneur envisages as proper sequencing of actions to realize the desired outcome.
Unit	*Temporal positioning* of initial action on a timeline	*Temporal length* from initial action to milestone	*Temporal ordering* of actions, events, and outcomes
Entrepreneurial Task	Calibrate the "when" of action in a future entrepreneurial endeavor	Calibrate the "length" from action to milestone in a future entrepreneurial endeavor	Calibrate the "sequence" of action in a future entrepreneurial endeavor
Encapsulated Dynamics	***Abell, 1978:*** Timing of funds to be committed to a new market entry, notion of "strategic windows" ***Ansoff & Stewart, 1967:*** Strategies of technology-based businesses based on timing of initial entry ***Bakker & Shepherd, 2017****:* Timing of exploration and exploitation decisions regarding mineral mining ventures ***Bird, 1992:***Entrepreneurs' timeframes for the birth of new ventures ("intentions in time"); entrepreneurs "always have a timetable" (p. 13) ***Gompers, Kovner, Lerner & Scharfstein, 2010:*** Notion of "market timing skill" as the right time to start a new venture ***Harvey & Evans, 1995:*** Timing-of-entry strategies of entrepreneurs ***Lilien & Yoon, 1990*****:** Timing of competitive market entry and success ***Schilling, 2002:*** Timing of entry of new technologies in the computer industry, which influence subsequent success	***Alvarez, Young & Wooley, 2015:*** The process of entrepreneurial action consumes significantly more time than is often assumed ***Alvarez& Parker, 2009:*** Founders must sometimes make organizing decisions about the allocation of control before the economic value of an opportunity is known ***Bird, 1992***: Pacing in new ventures is "the speed with which the organizing events occur [..] [It] reflects the time between bracketed events [..]" (p. 16). ***Bhide, 1992***: Fastest U.S. start-ups get operational fast and look for projects that quickly break even ***Liao, Welsch & Tan, 2005:*** Firm gestation is a time-based pacing process in which entrepreneurs explore various possible paths and activities ***Morris, Kuratko & Schindehutte, 2001:*** Notion of time to exit in entrep-reneurial harvest strategies ***Schoonhoven, Eisenhardt & Lyman, 1990***: The number of months that it takes a new organization from date of founding to ship its first product is an entrepreneurial event of key importance	***Buttriss & Wilkinson, 2006:*** The order of events makes a fundamental difference to outcomes in international entrepreneurship ***Katila & Chen, 2008:*** Whether firms search after their competitors do, or instead ahead of them, influences product innovation ***Khavul, Perez-Nordtvedt & Wood, 2009:*** Synchronization of activity cycles of international new ventures are important to achieve temporal fit with overseas customers ***Lichtenstein, Carter, Dooley & Gartner, 2007:*** Specific dynamic patterns in start-up activities will lead to the emergence of new firms ***McMullen & Dimov, 2013:*** The sequence with which entrepreneurs acquire information influences the ease or difficulty they encounter when attempting to make use of it, and partly determines what can be created from it ***Morris, Kuratko & Schindehutte, 2001:*** The entrepreneurial effort can be broken down into specific stages, which sometimes overlap but tend to evolve in logical progression (p. 39)

FIGURE 1:
A Time-Calibrated Model of Entrepreneurial Action

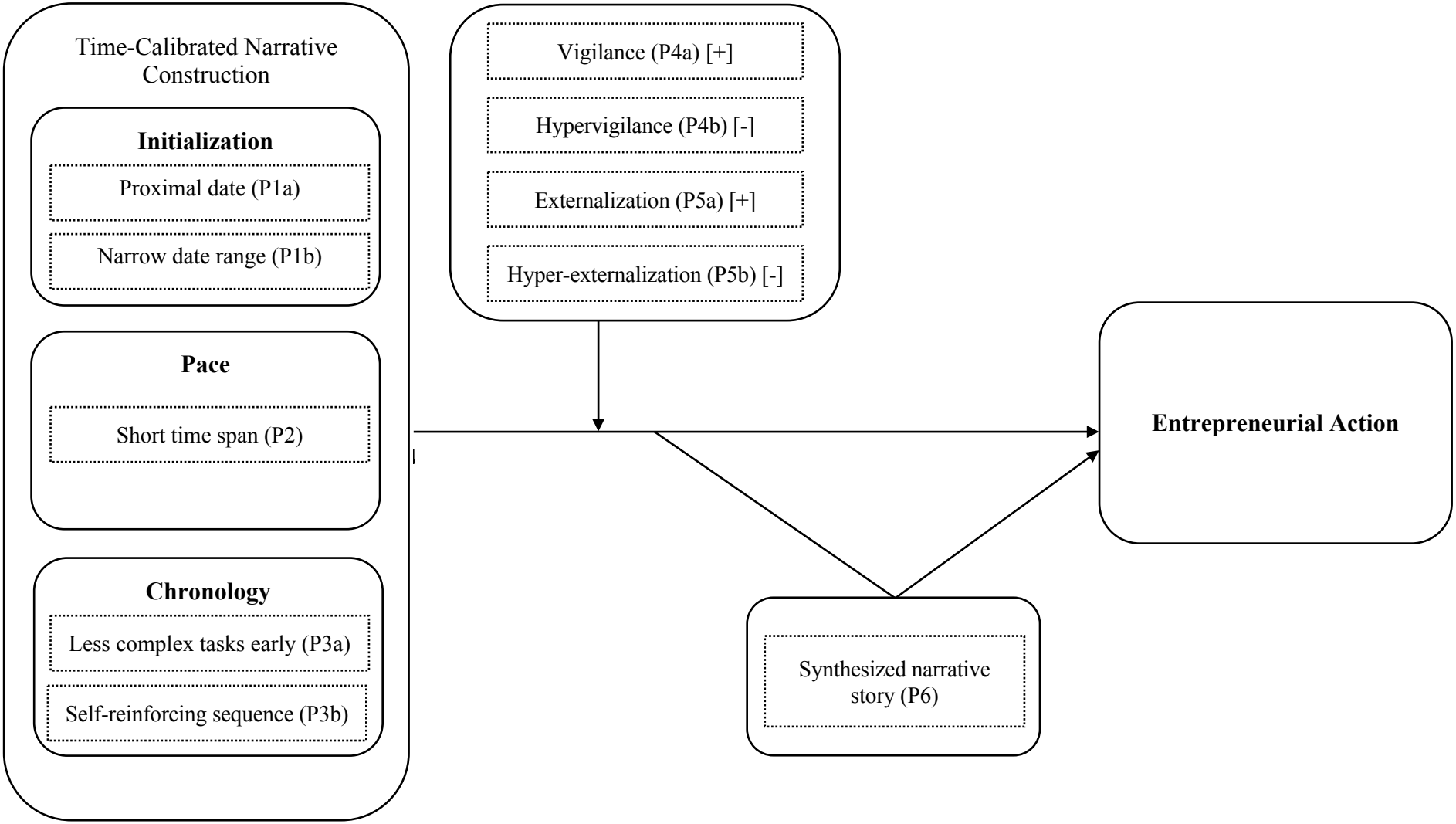
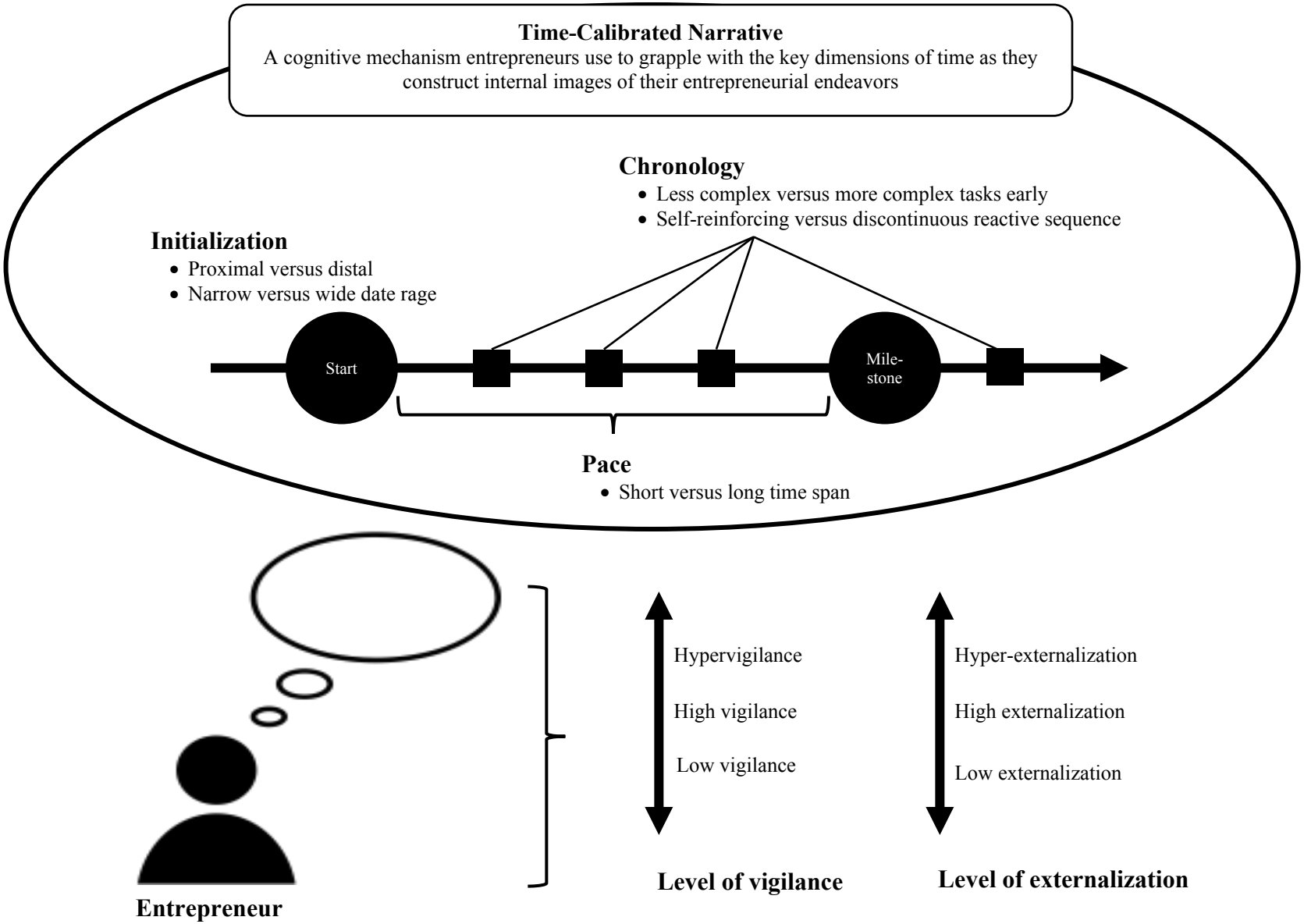


FIGURE 2:
Time-Calibrated Narratives



AUTHOR BIOGRAPHIES

Matthew S. Wood (ms_wood@baylor.edu) is an associate professor and holds the Ben Williams Professorship in Entrepreneurship at the Hankamer School of Business, Baylor University. A former entrepreneur in the commercial printing industry, he received his Ph.D. from Southern Illinois University at Carbondale. His research examines cognition and decision-making related to entrepreneurial action and entrepreneurial opportunity.

Rene M. Bakker (bakker@rsm.nl) is associate professor of Strategy and Entrepreneurship at the Rotterdam School of Management at Erasmus University. He received his PhD in Organization Studies from Tilburg University. His research studies how small (and large) firms manage environmental uncertainty, interconnectedness, and transience.

Greg Fisher (fisherg@indiana.edu) is an associate professor and holds the Larry and Barbara Sharpf Professorship in Entrepreneurship at the Kelley School of Business, Indiana University. He received his Ph.D. from the Michael G. Foster School of Business at the University of Washington. His research examines entrepreneurship and strategy in nascent and evolving markets, focusing on strategic action and resource acquisition in these settings.