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Entrepreneurial Intentions Research: A Review and Outlook

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Abstract. The author of the 1988 "Implementation of entrepreneurial ideas: The case for intention" reflects on the state of the field then and now. She critically evaluates her own work and admits that while influential and highly cited, the paper would not be publishable today. She reviews several meta analyses and other studies on intention and then addresses four concerns for future research on intention: the use of student samples, the focus of intention, the measurement of intention, and the need for intention to be used as an independent variable and predictor of behavior.

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1. Introduction

This review of entrepreneurs' intentions offers a personal and scholarly reflection on a line of inquiry that began in 1988. It begins with the publication of "Implementing entrepreneurial ideas: The case for intention" in the *Academy of Management Review*.

Intention is a cognitive construct, a future-focused conscious thought with motivational qualities. It is the psychological "process, state, or act of conscious willing in the present to make some experience be true, realized, manifested, or created in the future. We intend to experience in the future an action on our part, …a state of being.. and [or] relations to 'objects' such as other people and material 'stuff'. Thus intentions can be to <u>do</u>, to <u>be</u> or to <u>have</u>. (p. 2, B. J. Bird, 1983)"

Intention consists of thoughts about actions, targets (outcomes), context and time elements (Ajzen & Fishbein, 1980). More generally intention represents both an outcome or goal and the action plan for achieving that outcome (Tubbs & Ekeberg, 1991). Intention is a general and hierarchically abstract construct and is central to the theory of planned behavior (Ajzen, 1985; Ajzen, 1991), goal theory (Locke & Latham, 1990b) and expectancy theory (Vroom, 1964). In this regard, intention is more general, and goals, expectations and plans are more specific. In

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social interaction, intention is inferred from the action of others (Kelley, 1973) and is indeed a defining attribute of action (W. Greve, 2001). Intention is assessed by researchers and in the case of entrepreneurship, with the presumption that intention to attain an entrepreneurial identity, career, or outcome such as a new venture will result in action, and action will result in a new venture and/or those other potential targets of intention.

The 1988 article under review here, stemmed in part from the dissertation referenced above. The article focused on entrepreneurs and proposed that intention is a key construct in the behaviors of entrepreneurs and the process of venture and organizational creation. As the author, I was not deeply immersed in the psychology literature (e.g., social cognition) at the time and the appendix to this article shows how I stumbled into the arena of entrepreneurs' intention.

This review is structured to first, provide the historical context of entrepreneurship research in 1988 followed by a brief description of the impact of the 1988 publication. Then the 1988 article's main points are summarized and each is critiqued and subsequent progress briefly described. Next I review of the uses of that article in subsequent studies. Finally, I focus on four concerns about advancing the study of entrepreneurs' intentions—sampling, measurement, focus of intention on start up or other outcomes, and the need to move intention to an independent variable in future studies.

2. The Emerging Field of Entrepreneurship Research

The field of entrepreneurship scholarship remained nascent through the 1980's and did not really launch into the mainstream until well after 1986 when the Academy of Management recognized Entrepreneurship as a division (it had been an interest area since 1972). Prior to that, in 1981, Babson began offering the Babson Entrepreneurship Research Conference and I attended my first such meeting in 1985. In 1988 there were just two journals devoted to entrepreneurship, *American Journal of Small Business* (which became *Entrepreneurship Theory and Practice* in 1988) and the *Journal of Small Business Management*.

At the time of the publication of the 1988 intentions paper, there were exactly eight articles published in earlier years in *Academy of Management Review* that made any mention of entrepreneurs or entrepreneurship in the abstract.[2] Of these, four (Burgelman, 1983; Mills, Hall, Leidecker, & Margulies, 1983; Webster, 1977; Wu, 1981) focused on attempts to introduce a firm level categorization and only "tipped the hat" to the notion of corporate entrepreneurship (that line of inquiry was even more nascent). The other four dealt more specifically with the entrepreneur, specifically the female entrepreneur career (Bowen & Hisrich, 1986

2. Many of these articles are extremely short in page length, something not seen in recent years.

e.g.,), differentiating small business owners from entrepreneurs (Carland, Hoy, Boulton, & Carland, 1984), one hinting at motivation but offering a stage of organization model (Webster, 1976) and the fourth mapped relationships among individual, organization environment and the venture initiation process (Gartner, 1985).

In the empirical sister journal, *Academy of Management Journal* there were just three articles referencing entrepreneurs or entrepreneurship in the abstract prior to 1988. Of these, one is a case (Mintzberg & Waters, 1982), one involves teaching (Popp, 1973) and one instrumentally influenced the field of empirical research (Pennings, 1982).

Into this context my 1988 paper focused on the psychology of intention made its mark. What follows is a review of the impact.

3. Impact of the 1988 Intentions Paper

Since its 1988 publication the intentions paper has been cited 1330 times according to Google Scholar and 442 times according to the Web of Science. Of these 147 were in Social Science Citation Index and 10 in Science Citation Index, 36 were conference proceedings, 36 in social science and humanities and 11 in science, and 38 were in books. Interestingly 11 were found in Chinese Science Citation Database. Many of the citations in both sources were not academic journal articles so I focused my current attention on the Web of Science data.[3]

I reviewed the 120 citations to which I could gain access and with a graduate student coded these articles to reflect the major use of the 1988 article in the subsequent work. These citing articles were published in a myriad of journals with the largest proportions in *Journal of Business Venturing* (17%), *Entrepreneurship Theory and Practice* (8%) and “other entrepreneurship” journals (23%). In addition the article was cited in journals from psychology, education, management, innovation and agriculture.

The majority (60%) of citations used the paper to develop concepts directly related to intentions of entrepreneurs. Other uses included issues related to time (8%) and cognitive complexity or flexibility (7%). Other uses were to support more general notions of cognition including cognitive style, vision, action, attitude, passion, motivation including goals, support for the individual as a research focus, and venture creation and success. The other broad categories of these citing articles are reflected in Table 1.

3. I have rarely cited my own work in the years since, with one major exception, which was the B. Bird, "The Operation of Intentions in Time: The Emergence of the New Venture," Entrepreneurship Theory and Practice 17, no. 1 (1992). I have not looked at the 1988 or 1992 papers much since their publication. However, I know that the study of entrepreneurs’ intentions has proceeded quite far and fruitfully. So I was curious about what aspect of my paper was used in the research that has followed.

Table 1: Implementing entrepreneurial ideas: The case for intention categories of use on citing articles

Conceptual papers	40%
Empirical papers	69%
Micro focus (person level)	85%
Macro focus (firm level)	19%
Qualitative	20%
Quantitative	51%

4. Summary and Critique of the Article

Looking back on the 1988 article I am both proud and embarrassed. The paper contributed and it has significant shortfalls. The paper did get published and it certainly helped to define aspects of the now quite large field of study of start-ups, nascence, and individual entrepreneurs' cognition, and behavior. It stands alongside field-defining conceptual papers by Gartner (1985) and Katz and Gartner (1988). However, the 1988 paper did not dive deeply into the psychology literature, which today would be a requirement of editors and reviewers. The paper muddled the notions of propositions and hypotheses and variously compared entrepreneurs to other organizational actors or successful to less successful entrepreneurs. The paper did not clearly define what was meant by successful entrepreneurs. The paper failed to fully develop many of the ideas. It would not have been publishable today.

The paper covered a lot of territory seen through the lens of the present. There were several aspects presented. It traced source of intention from personal and social context and rational and intuitive thinking to the action consequence of intention. It posited an intentional process arising from individual differences in specific needs, values, habits, and beliefs, and the relevant social, cultural and economic context to thought processes (rational and intuitive) to predict intentionality. Intention was seen directed through three intention processes, (1) temporal tension, (2) strategic focus, and (3) intentional posture. Figure 1 shows a contemporary version of the model linking this model to the models of entrepreneurial intention formation discussed later in this review. The original model depicts the development of intention from social and personal contexts such that some environments or times in history are more likely to seed intention than others and some personal contexts are more likely to lead to intentions than others. This was based on the understanding at that time (late 1980's) that countries with more well developed capital markets and bankruptcy laws and social norms that did not stigmatize failure were more likely to have entrepreneurship activity. It was also based on some preliminary insights into entrepreneurs' psychology (e.g., Brockhaus, 1980; Meyer, Walker, & Litwin, 1961). The figure shows the two styles of thinking in the original paper and posits relationship with those and more recent "logics" of entrepreneurship—prediction/strategic and control (Sarasvathy, 2001a). The figure also links the original model to the two major theories of intention formation (e.g., theory of planned behavior and Shapiro event model). These will be discussed in depth later.

Figure 2 shows the original model that postulates intention direction from individual motives, and cognitions through temporal tension and strategic focus to choosing an intentional posture with regard to venture formation.

Figure 3 shows the two most cited entrepreneurial intention formation models as presented by Schlaegel and Koenig and elaborated to include Figure 1 precursors (e.g., contextual variables and strategic and effectual thinking. It also includes behavior as the important outcome of intention which is often neglected in studies of entrepreneurs' intention (Christopher Schlaegel, He, & Engle, 2013). This figure elaborates on the two intention creation processes, which together include attitudes, norms, self-efficacy and perceived behavioral control, perceived desirability and perceived feasibility. I now look at each of these aspects, provide the propositions advanced in 1988 and critique the manuscript through the lens of 30 years.

Figure 1: Bird Intention Model Updated

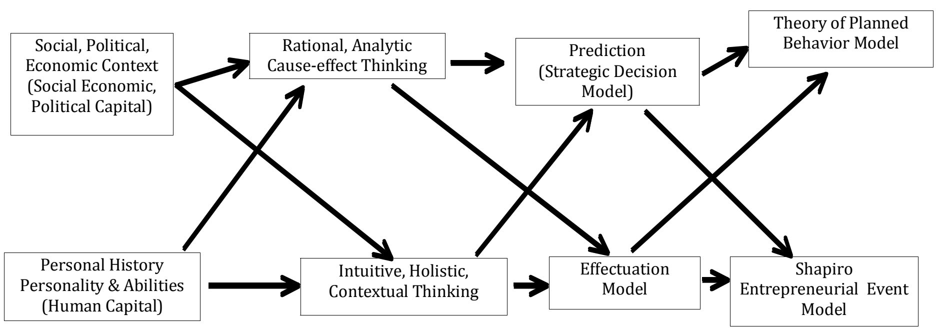


Figure 2: Intention Direction

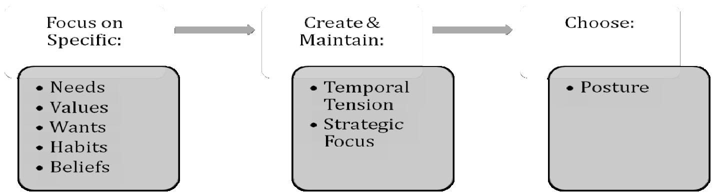
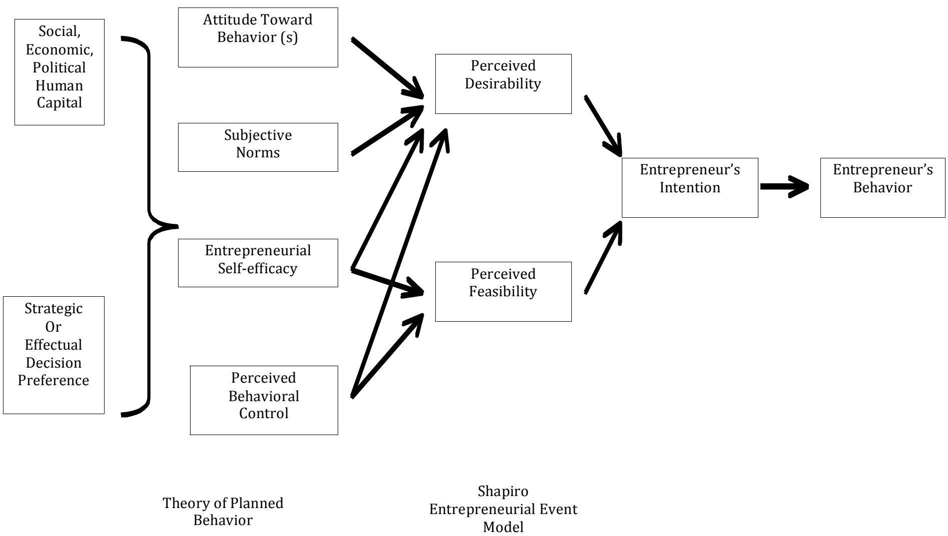


Figure 3: Expanded Schlaegel & Koenig Model



<u>Temporal tension</u>. Temporal tension was conceived as the discrepancy between what exists in the present and the desired future horizon, similar to many motivational models. Here it posited that entrepreneurs who are initially jacks-of-all-trades and often solely responsible, manage time and discrepancies differently than other economic actors with more specialized roles. I proposed:

> "Entrepreneurs with a higher need for control (greater perceptions of internal control) experience greater temporal tension."

Critique. The article did not specify or point to how investments of different sorts and different sizes might impact the tension or strain involved with a yet un-manifested future opportunity, process or entity. It did not specify that this tension might be experienced as stress or the probably curvilinear relationships between tension/stress and important outcomes. It did not elaborate on how a relatively high internal locus of control would result in greater temporal tension through psychological mechanisms.

As an element of temporal tension, the article posited the notion of *temporal complexity* based on the observation that entrepreneurs operate at all levels from strategy to operations with both future-oriented time and present-oriented time. Across these roles, entrepreneurs address temporal horizons with views to today, tomorrow, this week, next month, and years ahead. This temporal mix was thought to be more complex for entrepreneurs than other organizational actors such as operatives, managers, and leaders of established entities. Temporal complexity included both the notion of temporal orientation (past, present, future) but also future time span, which at this time in the literature was best captured by Jaques (1976) in the time span of discretion, related to the rank or position in a large organization, with higher ranks having longer spans of intention and discretion. I proposed:

> "Successful entrepreneurs are likely to spend more time thinking about the future and present and less time thinking about the past than less successful entrepreneurs."

> "Entrepreneurs will report a wider range of task time horizons than managers."

> "Successful entrepreneurs will score higher on measures of future time extension and future time coherence (Daltry, 1982) than less successful entrepreneurs."

Critique. Success in entrepreneurship was not defined. Since this publication, many scholars have attended to various definitions of venture (and entrepreneurs') success which include venture survival, growth in revenues and staff, profits, personal cash draw from the firm, and personal satisfaction. The article did not define future time extension (distance into future that one envisions) nor future time coherence (the degree to which individuals see the future as predictable, controllable and logically structured (Daltry, 1982)). It did not elaborate on how these cognitions might work in shaping entrepreneurs' behavior and other cognitions (such as planning) in the early stages of venture creation. Subsequent to the 1988 paper, researchers have developed cognitive considerations of retrospective or past-focused orientations of entrepreneurs, especially counter-factual thinking. Others have directed attention to goals and future vision of entrepreneurs. In addition, I served as co-editor of a special issue in *Entrepreneurship Theory and Practice* on entrepreneurs and time and temporality in 1997.

The third element of temporal tension was "*fast dancing,*" the need for fast decisions and actions and need for temporal attunement to the "environmental music" that represents outside forces on the timing. It identified four possible time lags: (1) timing from intention to pattern, opportunity or problem recognition (implying that opportunities are sought after "intention"), (2) timing from opportunity recognition to decisions, (3) timing from decision to action, and (4) timing from action to results. The premise of the article was that by shortening the first three lags, entrepreneurs are able to act more quickly. I proposed:

> "Successful entrepreneurs exhibit greater vigilance and intuition than less successful entrepreneurs."

> "Successful entrepreneurs are more aware of the timing of business events (e.g., business cycles) than less successful entrepreneurs."

> "Successful entrepreneurs will be better at recognizing patterns than less successful entrepreneurs."

Critique. I did not define vigilance or intuition or place those constructs in the framework of time or specify how that would operate in the entrepreneurial context. Subsequent the 1988 paper, scholars have attended to the notion of vigilance and discovery as a determinant of opportunity (and possible determinant of intention) and have added the notions of directed (intentional search) for opportunity and opportunity shaping. Other scholars have developed the idea of pattern recognition as critical to entrepreneurship. Finally some scholars have attended to decision speed in entrepreneurship contexts (J. R. Baum & Wally, 2003; L. Busenitz et al., 2003; Capelleras, Greene, Kantis, & Rabetino, 2010; Talaulicar, Grundei, & Werder, 2005).

<u>Strategic focus</u>. The article distinguished between ends-focus and means-focus intentions for entrepreneurs. The article argued that means-focused (process- or professionally-focused) entrepreneurs were likely to develop a venture that provided satisfying work rather than a specific return, what we would now call substitutes for income, self-employed, and "mom and pops". In contrast, ends-focused entrepreneurs were "opportunists" who aimed at larger outcomes usually in terms of revenues or wealth, and thus were more strategic and goal-oriented.

> "Entrepreneurs who have specific organizationally based goals are more opportunistic and instrumental, and they are more likely to devise strategies to achieve those goals than entrepreneurs who have less specific or life-style goals."

The article posited a critical role for entrepreneurial cognitive complexity and offered the metaphor of a "*zoom lens*" for intention that allowed entrepreneurs to switch focus between clarity of a temporally distant intended end goal and their less determinant immediate and specific means to achieve it.[4] The lens allowed movement between near and more distant future with compromises in depth of field or available detail. The article suggested at over time the focus of the entrepreneur would become increasingly specific with regard to the means chosen, as commitments accumulate, precedents set and pathways defined. The article also suggested that entrepreneurs' known preference for "hands-on" engagement might also be adjustable for ventures that grow (with greater delegation with greater venture size).

> "Entrepreneurs who have clear, specific goals outperform those who have less clear goals."
>
> "Entrepreneurs who have characteristics such as flexibility, field independence, and cognitive complexity are more likely to develop the 'strategic zoom lens" and more likely to make their new venture a success than entrepreneurs who lack these qualities."
>
> "Entrepreneurs who have a 'strategic zoom lens' are more likely to remain in control of a growing venture than those who lack such dynamic flexibility."

Critique. The manuscript did not develop the notion of goals and did not reference the literature on goal theory of motivation or the way that goals and perception interact. Since 1988, a substantial line of research has developed based on goal theory e.g., (J. Robert Baum, Locke, & Smith, 2001; Dunkelberg, Moore, Scott, & Stull, 2013; H. R. Greve, 2008) and another on perceptions and perceptual biases (e.g., L. W. Busenitz & Barney, 1997; Krueger, 1993; Simon, Houghton, & Aquino, 1999). The manuscript did not define the terms of control, cognitive flexibility, cognitive complexity or field independence or how these attributes provided strategic focus at the individual level or how they contribute to control exerted in the venture's development. There were no suggestions about how to operationalize the strategic zoom lens. Since 1988 there has been some attention to aspects of cognitive complexity or flexibility (E.g. Frese, 2004; Trevelyan, 2011). In addition, Sarasvathy (2001a) introduced the logics of prediction and control which reflect the idea of focus on strategic future goals (prediction) and here-and-now focus (effectuation).

<u>Intentional Posture</u>. The article posited the concept of intentional posture as the positioning of the individual and venture in relation to internal cognitions and motivations (e.g., values, needs etc.) and the individual and venture in relation to the outer world. There were two variables as part of this.

Alignment referred to the configuration of parts within a system so that all the parts contribute to the singular intention of the entrepreneur. When the system is the person, this reflects the congruence among the entrepreneurs' values, needs, motives etc. such that there is no second-guessing or ambivalence about the

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4. This conveys the then widely assumed model of strategy, now labeled "predictive" logic S. D. Sarasvathy, "Causation and Effectuation: Toward a Theoretical Shift from Economic Inevitability to Entrepreneurial Contingency," *Academy of Management. The Academy of Management Review* 26, no. 2 (2001).

pursuit of the intention (thus an intrapersonal variable). As the venture forms, the system can also refer to the new organization and the shared purpose and goals of early stage team members (thus an intraventure variable).

> "Entrepreneurs who are able to align their needs, values, beliefs and so forth with the new venture concept will be more likely to launch a successful venture than those who have less alignment."

> "Entrepreneurs who develop skills in team building and who reward collaboration among employees will achieve more alignment within the firm and will be more successful than entrepreneurs who lack these skills."

> "Entrepreneurs who have a low level of intrapersonal role conflict (Rizzo, House, & Lirtzman, 1970) will be more successful than entrepreneurs who have a high level of role conflict."

Critique. Alignment was not well defined, beyond the notion of congruence which itself was not defined. While the article referenced the major work on role conflict, the kinds of roles and types of conflict were never considered nor were other intrapersonal conflicts addressed (e.g., conflict between two values, ethical conflict, etc.) Finally, intraventure alignment was not defined beyond positing team building skills and rewards for collaboration (themselves not defined). Much more might have been offered with regard to sharing financial and psychological ownership and emergence of organizational culture, routines, etc. Again, subsequent research has addressed at least some of these ideas (Ensley & Pearce, 2001e.g., ; Pearce & Ensley, 2004; Shepherd & Krueger, 2002).

Attunement referred to the system's capacity or "requisite variety" to send and receive information from its environment and included individual characteristics of the entrepreneur such as openness to experience and vigilance as well as his or her ability to form network relationships outside the venture. The idealistic type of entrepreneur (now known as the social entrepreneur) was introduced, whose values seed a new organizational culture. In the article I called this "visionary," a term that has come to mean quite different things in leadership and entrepreneurship.

> "Entrepreneurs who have networking skills achieve greater attunement in their ventures and are more successful than entrepreneurs who lack these skills."

> "Entrepreneurs who are active learners and who are able to learn quickly from their experiences are more likely to succeed than those whose learning style is more reactive."

> "Qualities of vigilance and open-mindedness will distinguish successful from less successful entrepreneurs."

Critique. The focus appeared to be on the attributes of the entrepreneur that predispose him or her to receive information from the environment and nothing was said about abilities to articulate (e.g., pitch, legitimize) the venture to others, so only one part of attunement was elaborated. Important terms were not defined such as active and reactive learning, vigilance and open-mindedness, and networking. Nothing was said about how these combine to attune to the environment. The venture environment was not defined or described and as we now recognize, the environment for venture creation is complex, dynamic and varies across industries and time. Subsequently research has developed rich veins in social network theory (e.g., Aldrich & Zimmer, 1986; Elfring & Hulsink, 2007; A. Greve & Salaff, 2003; Zhang, Souitaris, Soh, & Wong, 2008). Scholars have identified attributes and processes of vigilance (mostly having to do with opportunity finding). Some individual characteristics have been studied including openness to experience (e.g., Ciavarella, Buchholtz, Riordan, Gatewood, & Stokes, 2004; Shane, Nicolaou, Cherkas, & Spector, 2010).

Finally, the entire model lacked the kinds of interaction and influence patterns we expect today. For example, there are ways that temporal tension and strategic focus interact (e.g, urgency about competition or cash flow can shorten the time frame of planning) and posture (such urgencies can drive an entrepreneur to violate personally held values, behave unethically and/or create competitive and fear-based corporate cultures). There are ways that individual differences such openness to experience and cognitive attributes such as cognitive complexity and vigilance or attention interact with each other and together help or hinder venture success (launch, survival, and/or growth).

Recent identification of two decision logics (Sarasvathy, 2001a, 2008)—strategic (goal focused, risk accepting, and opportunistic and effortful in obtaining means to that end), and effectual (means focused, risk minimizing, and opportunistic or accepting of the end) are better constructs for what I meant as strategic focus.

There is likely to be feedback through the linear model offered in the manuscript such that attunement through networking can influence the intentions of the entrepreneur through many mediating variables such as the time span of intention, speed, and focus of the entrepreneur's intention.

Updated model 1994. The inclusion of self-efficacy in an expanded model (Boyd & Vozikis, 1994) adds another cognition also with motivational qualities, derived from social learning theory (1986, 1997). Self-efficacy is a belief in one's ability to do a specific task and is part of the expectancy theory of motivation (Vroom, 1964) and works well with goal theory of motivation (Locke & Latham, 1990a). In the expanded model, Boyd and Vozikis see entrepreneurial self-efficacy as a proximal cause of intentions (via experience which affects self-efficacy) and as a moderator of the impact of intentions on ultimate action (a potential entrepreneur will not act on an intention unless she believes herself capable of executing the tasks involved).

5. Theoretical Models of Intention Formation

The 1988 model did not elaborate on the formation of intention nor how the intention process works to motivate behavior. However, there were efforts by other scholars to map the intention formation process. One model was developed by Shapero and Sokol (1982) although they did not call it a model of intention but rather a model of the "entrepreneurial event" with company formation as the outcome of precursors of displacement, perceived desirability and perceived feasibility. This model is variously called the Shapero-Sokol model, Shapero-Kreuger model or the Shapero entrepreneurial event model (SEE). This model was elaborated and grounded as intention creation by Krueger, Reilly and Carsrud (2000). Predating and concurrent with Shapero's original work and the Bird (1988) model, Ajzen (Ajzen, 1985; Ajzen, 1987, 1991; Ajzen & Fishbein, 1969) developed a general theory of intention creation known as the theory of planned behavior (TPB) in social psychology. Applied to entrepreneurship this theory posits intention is a result of attitude toward the behavior(s) of venture creation, subjective norms (perceptions of the respondent about the values important others have about him/her creating a venture), and perceived behavioral control (perceptions of the respondent that he/she can execute specific behavior/s). Perceived behavioral control is often considered identical to self-efficacy, and in the case of new venture creation, entrepreneurial self-efficacy (ESE), although a subsequent study casts doubt on this equivalence (Christopher Schlaegel et al., 2013). The theory of planned behavior has been used and validated across many domains including studies of weight loss (Schifter & Ajzen, 1985), academic class performance (Ajzen & Madden, 1986) and cheating (Ajzen & Madden, 1986), and condom use (Reinecke, Ajzen, & Schmidt, 1996). It was introduced to entrepreneurship literature by Krueger and Carsrud.. See Figure 3 for an integrated model that shows how the two major predictors of intention in SEE (perceived feasibility and perceived desirability) are themselves the outcome of other cognitions in the TPB model (attitude, subjective norms, entrepreneurial self-efficacy, and perceived behavioral control).

6. Current Research on Intention

Significant research on the formation of entrepreneurs' intentions has accumulated since these early theoretical efforts. Four recent studies have either directly compared intention models based on the Shapero entrepreneurship event model (SEE) and theory of planned behavior (TPB) and/or conducted meta analysis on predictors of intention. The first is a direct empirical comparison of the two models (N. Krueger et al., 2000) with a sample of 97 undergraduate business students. It found a marginally better prediction of student intention with the SEE model, but both models were predictive. From this I conclude that the models are more similar than different and that either is equally useful as a framework for future research (see Schlaegel and Koenig (2014) below for the combined model). In this study, subjective norms were not predictive, something that has been found in other studies measuring these norms (Maes, Leroy, & Sels, 2014; Siu & Lo, 2013) but results on social norms are considerably more complex in other studies (Diaz-Casero, Hernandz Mogollon, & Roldan, 2012; Meek, Pacheco, & York, 2010; Obschonka, Goethner, Silbereisen, & Cantner, 2012).

Next, chronologically, (Zhao, Seibert, & Lumpkin, 2010) conducted a meta-analysis on the effect of personality on intention. They analyzed 60 studies with 15,423 individuals and using the big five personality approach (Digman, 1990) and an additional dimension of risk taking. They found all factors predict intention, with risk propensity the best predictor.

Next, scholars (Haus, Steinmetz, Isidor, & Kabst, 2013) performed a meta-analysis on the gender effects on intention using the TPB model. While largely grounded in prior work on gender difference, this analysis of 30 studies with 52,367 individuals conducted in many different countries found gender had no significant relationship with intention in a direct model but had a small but significant effect on attitude, subjective norms, and perceived behavior control (with women lower than men). Moderators had small but significant differences with, (1) US women showing stronger relationships (compared to EU women) between attitudes, norms and perceived behavior control, and (2) students showing significantly stronger (compared to non students) relationship of gender to attitudes and weaker relationship of gender to norms and perceived behavior control.

Since much of the research to date has focused on students' entrepreneurship intention development (C. Schlaegel & Koenig, 2014), the role of education is often included in the design, purpose and samples of these studies. A meta-analysis of 73 studies and 37,285 individuals looked at the relationship of education and intention (Bae, Qian, Miao, & Fiet, 2014). This research was grounded in human capital theory predicting that education will directly influence students' intentions. It did not address the SEE or TPB models of predicting intention. The study found a small but significant relationship between education and intention with entrepreneurial education significantly more strongly associated than general business education. However, they also determined that students' pre-education intentions toward entrepreneurship reduced the impact of education to zero. That is, students choose entrepreneurship education with intentions already in place and education does not significantly alter those intentions. They found a number of moderators significantly increased the impact of education on intention with national culture's in-group cohesion, gender egalitarianism, and lower uncertainty avoidance increasing the impact. Importantly to the field, they found no significant difference in the impact of education based on how intentions were measured with either a single item measure (two forms) Kolvereid (Kolvereid, 1996a, 1996b) or a six item 7-point Likert scale (Linan & Chen, 2009).

Finally, and most central to this review, Schlaegel and Koenig (2014) performed a meta-analysis between the two competing models (SEE and TPB) and added an integration model that included both entrepreneurial self-efficacy (ESE) as well as perceived behavior control(PBC). This analysis covered 98 studies and 114,007 individuals. Theoretically these authors view TPB as a cognitive not a motivational model, whereas others (e.g., Haus et al., 2013) consider TPB motivational. Schlaegel and Koenig include “goal desire” as a motivational construct in their theoretical model but do not include it in their analysis. This analysis did find differences between TPB and SEE. TPB predicted 28% of variance in intentions, and was insensitive to time of data collection, national context and respondent type (student or non-student). The measure of attitude toward behavior was found to be important (direct measures stronger predictors than indirect). There was weak effects from subjective norms and these effects were stronger in more recent studies and studies in Western cultures than in non-Western. They found that PBC is a better predictor than ESE. SEE predicted 21% of the variance in intentions and was insensitive to time of data collection and predictor construct operationalization. Desirability’s impact on intention is stronger in recent studies, stronger in Western cultures and weaker in student samples. There was no evidence of moderation in the feasibility and propensity to act relationships to intention.

The integrated model seen in Figure 2 (C. Schlaegel & Koenig, 2014) shows TPB variables (attitude, subjective norm, entrepreneurial self-efficacy) and perceived behavioral control as precursors to perceived desirability and perceived feasibility (which partially mediate TPB) in predicting intention. They found the integrated model explains 31% of the variance in intentions. Overall comparison of the three models shows TPB a better predictor of intention and the integrated model better still.

7. Concerns

I took a look at the recent literature, seeking all journal articles since 2000 with some variant of “entrepreneurial intention” in the title and found 103 studies. Of these eight were in journals not available through the internet, nine were qualitative, conceptual or editorial introductions to a journal issue. An additional two were profoundly weak studies in which data and methods could not be interpreted, two presented the same data as in another study by the same authors, two did not measure intention at all, and two were meta-analyses. The remaining articles are the bases for the comments that follow (I also exclude the one study based on GEM data[5], leaving 78 articles). Many of the articles were published in journals that would be considered low quality but two were published in the *Journal of Applied Psychology*, considered premier at most business schools and six were published in the *Journal of Business Venturing* (one of the top entrepreneurship journals).

Four concerns arise from my review. One has to do with student samples the second with the focus of intention, third the measure of intention and the fourth with the need to use intention as an independent variable, linking intention to behavior.

Student Samples

My original paper, which did discuss in a general way the sources and implementation of intentions, did not address who the target of the study of intention ought to be. Subsequently authors have come to argue that students who have yet to pick career directions are an appropriate place to test the development of intentions and some argue that last year students (seniors or graduating MBAs) are particularly relevant. However, students are also simply convenient to scholars and amenable to educational interventions to influence career intentions. Notably it is inconvenient to test the implementation or enactment of student intentions years later as alumni, so this type of study has not yet shown up in the literature. I will address the need to look at intention as an independent variable later. My recent review of the 78 quantitative papers since 2000 found over 80% percent of the studies surveyed students and of these three looked at secondary school age students. All the others were in universities in over 27 countries. Some sampling frames exclude, include, or mix undergraduates and MBAs. Some of these student samples are in their last year and some samples include first year MBAs and all years of undergraduates. Fifteen of the articles surveyed non-student groups including retired military, adult individuals, post-doctorial academics, professionals, and entrepreneurs.

Students are different from non-students in how intentions form in both the TPB and SEE models. In the their meta-analysis Schlaegel et al. (2013) find that student samples have different results in some elements in the three intentions models they test. Students are different than others, possibly due to self-selection (some samples are only of business or entrepreneurship students). Students are also open to changing attitudes (Visser & Krosnick, 1998), may be more attuned to positive or negative influence from social or cultural norms, and have less entrepreneurial self-efficacy due to their age alone. Furthermore, the time of data

5. The Global Entrepreneurship Monitor (GEM) has a single yes-no question that "measures" intention to start a business within the next three years. See section below on the inadequacy of this measurement.

collection may play a role in student intentions, with preceding or current years of economic downturn or concerns about high unemployment playing a role.

Certainly some policy makers are interested in knowing about students immediate and distal career intentions. Many entrepreneurs have been students in the past and certainly students in technical fields and in business educational programs are important sources of future new ventures. However, there are other critical pathways to entrepreneurship including current or past employment, failure to achieve promotions or job advancement, unemployment, ending military service, household formation, marriage dissolution, retirement, immigration, and release from prison. Individuals from these populations offer fertile grounds for further tests of the intention formation processes.

Intention Focus

Intention has to focus on "intention to do, to be/to have…something"? What is that something? Is it a broad outcome such as a career or identity as an entrepreneur (whatever that means)? Is it specific, such as starting a new venture in 5 years? Or more specific, (as is done in marketing research)—taking at least one specific step toward starting the new venture within the next six months? Clearly the measure of intention needs to be related to the outcome of interest. The process of intention formation—either my model based on values and motivations, the model of human capital, TCB or SEE—applies to multiple entrepreneurship-relevant outcomes. I suspect that there are differences among these intentions and others such as self-employment, founding a high growth business, or taking over a business. Measures of intention are many and varied and will be discussed next. Beyond starting a venture, intention can also apply to other entrepreneurial actions including growth intentions (Douglas, 2013; Dutta & Thornhill, 2008), intentions to exit (Pollack, Vanepps, & Hayes, 2012) or retire (Forster-Holt, 2013). Intention could also be studied with regard to an entrepreneur's intention to secure new partners or investors, develop a legacy, give back to society, pass on to family members, expand internationally, engage in alliances, and search for a first or new opportunity. I challenge intentions researchers to use samples other than students and to pursue these kinds of outcomes (with related research questions) with whichever intention model they find most suitable.

Intention Measurement

How can intention be measured? Can intention be assessed by simply asking for a "yes" or "no" response to a single question? We are, by definition conscious of our intentions, if not so much to the obstacles to intention. Our intentions are also subject to context—when asked in the context of a survey that clearly points towards career choices, or new venture founding, or by a scholar/teacher/ administrator with a "story" about the survey purpose, intentions may be easily signaled and also be rather superficial and very much subject to social desirability bias (B. Bird, 2014b). Do intentions come in different magnitudes or intensities? Are intentions comprised of discrete "bits" of yes and no that can be summed to show greater or lesser intention? Do intentions have multiple dimensions (the doing, being and having, to suggest three)? Our measures must reflect our theorizing and conceptualization of intention (Jarvis, Mackenzie, & Podsakoff, 2003).

In my review I found articles 69 articles that should have had an empirical measure.[6] In seven of these, the journal editorial review process and manuscript quality was of low quality and I was unable to determine what items were used to measure intention. In one study respondents wrote down their occupational choice and these data were "coded" by researchers to include a category for "self-employment" (which choice was considered an intention toward entrepreneurship of some sort). Another study coded those with an existing business as having entrepreneurial intention. These are excluded from the discussion that follows.

Single item[7] (formative) measures were used in eleven studies. These indicators were often on a "scale" but having only one item serve as formative not reflective measures albeit one where some degree of intention is presumed. Some of the items asked for probability of ownership or probability of self-employment (arguably not the same intention) and required a numeric response. In other cases it was on a Likert type continuum from highly improbable to very probable. Some of these items included probability or intention to found, own, be self-employed, or chose a career or occupation with no temporal reference or reference to one, five years, 5-10 years from now, or "at sometime in the future".[8]

In two of the studies the indicator or "scale" mixed a number of very different forms of entrepreneurship including taking over or joining a family business, buying a franchise, buying an existing business and starting a new venture and

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6. I excluded one case where the same data was presented in two different journal articles. Only one of these is included in my comments.
7. Single items can be nothing other than formative.
8. While probability is a reflection of the TPB articulation, we know that subjective (self-reported) probability estimates are notoriously poor predictors of various actions without considerable additional effort D. H. Granbois and J. O. Summers, "Primary and Secondary Validity of Consumer Purchase Probabilities," *Journal of Consumer Research (pre-1986)* 1, no. 4 (1975)N. Haase, F. Renkewitz, and C. Betsch, "The Measurement of Subjective Probability: Evaluating the Sensitivity and Accuracy of Various Scales," *Risk Analysis* 33, no. 10 (2013)D. N. Kleinmuntz, M. G. Fennema, and M. E. Peecher, "Conditioned Assessment of Subjective Probabilities: Identifying the Benefits of Decomposition," *Organizational Behavior and Human Decision Processes* 66, no. 1 (1996)Zhijun Yang, "Eliciting Subjective Probability under Uncertainty: An Economic Experiment" (M.S., Mississippi State University, 2006).

being self-employed. The "stems" of these indicators included "do you intend to, "have you ever thought about", "do you have an interest in…" Clearly these types of measures cannot be psychometrically sound.

I highly advocate the reuse of existing measures, especially if they have demonstrated strong psychometric properties. There are several multiple-item indices and scales that have been used in multiple studies. The six item Linan and Chen (2009) reflective (scaled) measure was used six times and shortened versions and modified versions were used four times. The Kolvereid (1996b) 3 item index of probabilities for self-employment was used with some variations in four studies. Scales were apparently used from other sources but those sources not identified in six cases. One study (Zhao, Seibert, & Hills, 2005) in my review created a four-item reflective scale that measured interest in prototypical entrepreneurial activities in the next 5-10 years and this was used in another study. A third study reportedly used this scale but in the text referenced eight items (the Zhao scale has only four items). Another study (N. F. Krueger, Jr., M. D. Reilly, & A. L. Carsrud, 2000) developed a single item formative measure of the probability of owning in 10 years and this was reported used in one other study.

Some authors do not distinguish intention from its precursors (often co-mingling measures into one operationalization of an undefined construct), leaving these studies suspect in the conclusions regarding intention. In two other studies the authors reported a three-item and nine-item measure based on the Krueger at al 2000 paper that offered only one item.

Other studies created unique one-off scales. Often these scales co-mingled preferences, likelihoods, interests and probabilities with different or no time horizons. Again, these studies cannot contribute to a cumulative knowledge about intention.

While each of these 69 studies purportedly measured intention as a dependent measure, the measures were often muddled, unique, and sometimes not available to the reader to determine what exactly they measured. If these studies – 104 to start, 69 that actually measured intention—are a reflection of the "state of the field" of entrepreneurs' intention, there is much room for improvement.

Intention as Independent Variable

"So many financial dreams are thwarted by the failure to act upon good intentions" (Suze Orman). We all know the sayings about the road to hell and good intentions. So intentions can not only lead us astray but they can remain more dream or aspiration than action plan. We need to know what gets in the way of some individuals' entrepreneurial intention.

We know a fair bit about how intentions form from attitudes, norms, and control beliefs. We know a fair bit about student intentions. I believe it is time to look at what happens to those intentions.

This points directly at the need for those intention formation studies to follow up longitudinally in 1, 2, 5 and 10 years. We need to know how and why those intentions are enacted or fail to get acted upon. How long it takes before actions ensue and how long between initial action and a first sale, first employee, etc. It would be interesting to find out what alternative paths those intentional students took, if not to start a venture. What are the personal, social, normative, financial distracters from that entrepreneurial intention?

8. Conclusion and Future Directions

Intention has a firmly established position among the panoply of entrepreneurs' cognitions and motivations. Intention as a precursor to action is well established, however, the correlations between intention and action are lower than might be expected and fewer studies have linked intention to action. These low correlations are attributed to many causes, imprecise measurement of intention (documented above) and subsequent behavior (B. Bird, Schjoedt, & Baum, 2012), and the time lag between the measure of intention and the measure of behavior.Future research might usefully address the concerns and issues raised above: need to measure intentions in populations other than students, need to remember that intention focus is important, the urgent need to attend to measurement, and the need to look at what happens after intentions are formed.

As is true in other domains of entrepreneurship research (B. Bird, 2014a), the study of intention's effects on action would be better served if scholars spent more time theorizing about intention and used a common method of assessing those intentions and if scholars defined the common behaviors of venture formation or creation in similar ways . It is only when research accumulates a set of comparable studies that real social science advances.

Finally, I offer the following research questions:

- How long does an intention last?
- How does intention to be self-employed differ from intention to create a venture (organization)?
- Are there degrees of intention or is it best conceived as an "on-off" button?
- Is intention multidimensional as the 1988 paper proposed, with temporal dimensions and differences between goal-focused and process focused intention (strategic and effectual decision logics)?

- What role do individual differences (e.g., role, value conflicts, opportunism, and personality attributes such as openness to experience) play in whether action is taken after an intention is formed and the timing of those actions?

- How do entrepreneurs' intentions influence others (those who are referents in the perceived social norms) and those in the new venture team?

- Are there differences in the formation of intention between those who prefer strategic v. effectual decision logics?

- Do individuals with strategic and effectual decision logics have different temporal tensions?

Appendix

Backstory

In 1988 as an Assistant Professor of Organizational Behavior at Case Western Reserve University I wrote a conceptual paper "Implementing entrepreneurial ideas: The case for intention" which was published in the *Academy of Management Review*. This appendix reflects on the origins of that paper.

I took my PhD. in organizational behavior at University of Southern California. My first mentor was Chet Schriesheim who left for the University of Miami before I finished coursework and with whom I learned invaluable methods of measurement and quantitative analysis. About that time I took a leadership seminar led by Warren Bennis and his methods allowed us to write pensees and learning contracts on any material we found relevant or of interest. I dove into literature on will and intention with the self-serving notion that if I knew more about the uses of will I would be able to generate more of what I wanted in the life ahead. I read William James, Freud, and cybernetics among the many areas. Warren had me revisit Shakespeare's Hamlet and the notion of ennui. I chose Warren to be my dissertation chair and was his first doctoral student at University of Southern California. Shortly after that seminar, Warren challenged me to find something or someone to empirically study with regard to will and intention. He recommended a study of entrepreneurs as the most "intentional" of business actors (compared to the managers and employees of large organizations which were/are the mainstay of organizational behavior studies).

Thus began the nearly 40-year career in entrepreneurship. Having shown my quantitative skills under the mentorship of Chet Schreisheim[9], I had the privilege to pursue qualitative research for the dissertation. My dissertation "Intentional Maps of Entrepreneurs" was a small qualitative study of entrepreneurs, with very little about the state of entrepreneurship research included. It was based on this and my early leadership as newsletter editor for the emerging Academy of Management Entrepreneurship Division, that I got my first academic appointment at Case Western Reserve University.

The 1988 intentions paper came from that dissertation, additional interviews and a mad scramble to learn everything I could about the nascent field of entrepreneurship scholarship. In the mid 1980's when I was writing this, there was not much out there to read. I chose to submit to *Academy of Management Review* since one of my mentors had recommended (wisely) trying for the most prestigious journals first. The article went through the usual nail biting series of reviews and was finally accepted and the editor asked if I minded allowing one reviewer to use the article in a doctoral seminar he was teaching. That was my

9. On the faculty of the management department at that time were Steve Kerr, MaryAnn VonGlinow, Sue and Monty Mohrman, Ian Mitroff, Richard Mason, Ed Lawler, Larry Griener, Tom Cummings as well as Chet Schriesheim and Warren Bennis.

introduction to Don Sexton who became a great supporter of my work that followed.

I write this review article as I contemplate retirement in 2017 from teaching and the kind of active (if not prolific) research that has accompanied and enabled my career. I think the bookends of 1988 and 2015 are appropriate and timely.

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