

# The nascent entrepreneurship hub: goals, entrepreneurial self-efficacy and start-up outcomes

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Accepted: 1 December 2010 / Published online: 14 August 2011  
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**Abstract** Entrepreneurship involves human agency. The entrepreneurial process occurs because people are motivated to pursue and exploit perceived opportunities. It is rooted in the theory that action is the result of motivation and cognition. Therefore, this paper applies elements of goal theory and social cognitive theory to develop a motivational model of nascent entrepreneurial start-up outcomes. The objective of this model is to renew attention on motivational constructs in entrepreneurship research. Additionally, it provides predictive value for the likelihood of new firm founding among nascent entrepreneurs. Results suggest that motivational antecedents among nascent entrepreneurs significantly influence the likelihood of quitting the start-up process versus continuing nascent entrepreneurial start-up efforts.

**Keywords** Nascent entrepreneurship · Entrepreneurial self-efficacy · Business planning · Goal setting

**JEL Classifications** L25 · L26 · M13

## 1 Introduction

The importance of human motivation in entrepreneurship is gathering increasing interest. However, relatively little of this motivation research in entrepreneurship has considered the effects of motivation on specific steps in the entrepreneurial process (Shane et al. 2003). This is a limitation in existing research since starting up a new venture is a dynamic process, and is likely to involve a variety of motivational factors at various stages of the process. For example, an engineer might be highly motivated to invent a new medical device with a potential commercial application, but may lack the motivation to assemble the required financial resources for a new venture. In this paper, we employ a process approach to study motivation and new firm formation among nascent entrepreneurs. A *nascent* entrepreneur is a person who initiates actions that are intended to culminate in a viable new firm (Reynolds 1994). Gartner (1988) has proposed that entrepreneurship ends when organizational creation is over. Consequently, we limit our focus to individuals in the earliest stages of the start-up process to identify those motivational factors that may differentiate nascent

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entrepreneurs who actually start new operative firms from those who quit, and from those “hobbyists” who continue in their start-up efforts for extended periods of time. Our study is a response to a call for research that would incorporate motivations into a dynamic, evolutionary perspective on entrepreneurship by using motivations to distinguish those individuals who continue to pursue opportunities from those who abandon the effort (Shane et al. 2003).

An examination of recent individual level entrepreneurship research reveals a range of theoretical and empirical approaches to explain new firm births, often from a process approach (Gelderen et al. 2006; Dimov 2007; Gruber 2007; Teece 2007; Brush et al. 2008; Harper 2008). This overall process approach, however, does not discount the additional importance of individual level entrepreneurial factors. There have been a number of individual level factors that have been studied in the entrepreneurship field. Some of the more common include the need for achievement (McClelland 1965; Hansemark 2003), risk-taking propensity (Brockhaus 1980; Brockhaus and Horwitz 1986; Corman et al. 1988), and internal locus of control (Rotter 1966; Borland 1974; Hansemark 1998; Kaufman et al. 1995). However, there are limited discussions of entrepreneurial motivation in the process literature.

When motivation has been studied, it has often been for the purpose of discussing why people enter the start-up process from the labor force. Indeed, Gatewood et al. (2002) provide evidence that motivations prove most powerful in understanding the determinants of organizational creation. Herron and Sapienza (1992, p. 49) state, “motivation plays an important part in the creation of new organizations, theories of organization creation that fail to address this notion are incomplete.” The concept of *motivation* is used to explain the direction, effort, and persistence of action (Kanfer 1990). Focusing on the direction of action, this study proposes that entrepreneurs are motivated to accomplish the goals that they set for themselves (Naffziger et al. 1994). A *goal* is what an individual is trying to accomplish; it is the object or aim of an action (Locke et al. 1981). In the case of nascent entrepreneurs, goals may vary from cashing out quickly to pursuing one’s intrinsic goals. The common denominator for these and other goals of nascent entrepreneurs is that they all involve establishing a new firm as a first step.

The model developed in this paper suggests that entrepreneurial start-up outcomes are, in part, driven by an individual’s motivation. Theoretically, we base our proposed model on concepts borrowed from goal setting (Locke and Latham 1990) and social cognitive theory (Bandura 2001). Goal setting theory is not limited to but focuses primarily on motivation in work settings, and the focus of goal setting theory is on the fundamental properties of an effective goal. Social cognitive theory and the research that underlies it are primarily focused on self-efficacy. Both theories agree about what is considered important in performance motivation (Locke and Latham 2002). As a result, we apply goal setting and social cognitive theory as motivational mechanisms (although cognitive elements are necessarily involved) to help understand new firm emergence. We posit that the coalescence of self-efficacy and goal specificity provide a robust individual level motivational model for understanding the outcomes of the start-up process. Such a model essentially answers the research question of “Why do individuals start new businesses?”, and consequently has implications for entrepreneurship policy and education, in addition to academic research.

The following two sections of this paper will review the key theories on which our arguments are based. Subsequently, we will explicate our operationalization of key constructs and overview our findings in the “[Analysis and results](#)” section. Finally, we will discuss the implications of our findings and summarize our conclusions.

## 2 A starting point: the motivation hub

Our work draws from Locke’s (1991) *motivation sequence* which attempts to understand human, and especially work, motivation. In his *motivation sequence* model, Locke first profiles *needs*, which directly feed into the *motivation core* (values and motives). Secondly, the *motivation core* directly impacts the *motivation hub*, which then leads to *rewards* and, finally, *satisfaction*.

The *motivation hub* is the core of action (Locke 1991). The *motivation hub* includes linkages between goals, self-efficacy and performance. As such, the *motivation hub* is the central component of the model (Locke 1991), and self-efficacy is depicted as having

direct relationships to goals and performance. According to Locke's (1991) model, what people do is powerfully (though not solely) influenced by their goals or intents and by their perceived confidence in being able to take the actions in question. Subsequent empirical findings in goal setting and task motivation research have also found that self-efficacy operates as a moderator between goals and performance (Bass 1985; Bandura 1997; White and Locke 2000; Locke and Latham 2002).

What Locke (1991) called the *motivation hub*, meaning where the action is, consists of personal goals and self-efficacy. These variables are often, though not invariably, the most immediate, conscious motivational determinants of action (Locke and Latham 2002). Building and expanding on the *motivation hub*, the *nascent entrepreneurship hub* is aimed at understanding how goals, self-efficacy, and start-up outcomes (i.e. 'performance' in Locke's model) are linked in the context of new firm creation.

### 2.1 The nascent entrepreneurship hub: goal setting and social cognitive theory as motivational mechanisms

A nascent entrepreneur is defined as someone who initiates activities that are intended to culminate in a viable new firm (Reynolds 1994). Operationally, nascent entrepreneurs (1) consider themselves as starting a business, (2) have engaged in start-up activities within the past year, (3) expect to own all or part of the new business, and (4) have not experienced more than three months positive cash flow (Reynolds 2007). A benefit of utilizing nascent entrepreneurs as units of observation in entrepreneurial motivation research is the explication of the cognitive sequence for individuals who enter the start-up process. It is advantageous because it provides an opportunity for scholars to identify cognitive differences among individuals who are subsequently (1) successful in implementing a new firm, (2) unsuccessful in their efforts, but keep on trying, and/or (3) unsuccessful and quit (Reynolds 2007). Few studies to date have investigated the role of entrepreneurial motivation and its subsequent translation into action aimed at organizational creation in general, and focused on nascent entrepreneurial activity in particular. In this manuscript, we introduce the elements of the "nascent

entrepreneurship hub," based on Locke's motivation hub, and formulate hypotheses for empirical testing.

### 2.2 Goal specificity

Following Locke and Latham's (1990) goal theory, we know that goals direct attention and action to goal-related activities. Second, goals have an energizing function. Harder goals lead to greater effort than easier goals (Locke et al. 1981; Locke and Latham 2002). Third, goals affect persistence. When participants are allowed to control the time they spend on a task, hard goals prolong effort (LaPorte and Nath 1976). Fourth, goals affect action indirectly by leading to the arousal, discovery, and/or use of task-relevant knowledge and strategies (Wood et al. 1987). However, despite this obvious relevance for entrepreneurship research, there is little extant research that applies goal theory's predictions to entrepreneurial situations, with the exception of Shane and Delmar's (2004) study on business planning.

In the context of nascent entrepreneurship, goal setting theory suggests that undertaking business planning before acting will enhance the start-up performance of new ventures (Shane and Delmar 2004). Plans are particularly useful when tasks are fuzzy or uncertain, and the decision maker cannot rely on previous experience (Campbell 1988), which is often the case in new business start-ups. Goal setting theory also suggests that written planning improves human action. Writing a plan clarifies goals and permits people to set more specific objectives, which facilitate the achievement of those goals (Locke and Latham 1990; Shane and Delmar 2004). In a retrospective empirical study of a limited sample of entrepreneurs, van Gelder et al. (2007) found that entrepreneurs running surviving businesses had set more specific goals than entrepreneurs, whose businesses had ceased to exist.

In general, we posit that entrepreneurs have a set of goals they seek to accomplish when they decide to enter nascent entrepreneurship (e.g., Naffziger et al. 1994). In most goal setting studies, the term *goal* generally refers to attaining a specific standard of proficiency on a task, usually within a specified time limit (Locke et al. 1981). These goals may vary for each nascent entrepreneur: some may seek to rapidly grow a firm and cash out while others may seek to

grow and build their venture over time. Despite variability in goals, goal setting theory states that specific and difficult goals lead to higher performance than vague or easy goals (Locke and Latham 2002). For example, Wiese et al. (2002) found that individuals who report setting difficult work goals showed stronger progress towards their goals than individuals who perceived their goals as less difficult. Indeed, Shane and Delmar (2004) find that this prediction of goal setting theory holds with respect to the value of business planning. Completing business plans before undertaking marketing activities (i.e., specifying and formalizing one's goals) reduces the hazard of termination of new ventures (Shane and Delmar 2004). While not specifically focused on goal setting theory, other research suggests that business plan formalization<sup>1</sup> is an antecedent to venture organizing activity (Delmar and Shane 2003; Honig and Karlsson 2004; Liao and Gartner 2006).

In sum, goals seem to regulate performance most predictably when they are expressed in specific quantitative terms (or as specific intentions to take a certain action, such as quitting a job) rather than as vague intentions to "try hard" or as subjective estimates of task or goal difficulty. Given the findings of prior research, as well as extant classroom and community entrepreneurship pedagogy, which often has an emphasis on planning, we hypothesize that more specific goals (i.e., more formal plans) will benefit nascent entrepreneurs who aim to establish a new firm. Since entrepreneurs self-select their goals, a business plan would serve as a proxy to measure how specifically they have formalized that self-selected goal. Therefore, we hypothesize that:

**H1** There is a positive relationship between goal specificity and the new firm outcome status. Specifically, nascent entrepreneurs with more formalized and specific quantified goals are more likely to start new ventures

In Locke's (1991) motivation sequence model, as well as in the findings of Shane and Delmar (2004), goals are directly related to performance (see also Baum and Locke 2004). However, especially in the context of nascent entrepreneurship, goals by themselves may not be sufficient to lead to start-up

performance outcomes unless the goals are actually being pursued by individuals who at a minimum feel that they are capable of starting such a venture. Individuals must have the ability to attain or at least approach their goals. Therefore, self-efficacy undoubtedly plays a critical role in directing behavior aimed at goal attainment.

### 2.3 Self-efficacy

Self-efficacy refers to the extent to which a person believes that he/she can organize and effectively execute actions to produce given attainments (Bandura 2001). It is one of the single best predictors of an individual's performance in general (Locke and Latham 2002). It is considered a state-like characteristic that generally increases with experience and is highly related to actual ability (Phillips and Gully 1997). This mechanism of personal agency is most central to social cognitive theory, a theory of self-regulation (Bandura 1989, 2001).

Self-efficacy beliefs influence an individual's level of motivation, as reflected in how much effort he/she will exert in an endeavor, and how long he/she will persevere in the face of obstacles (Bandura 1994). For instance, Cervone and Peake (1986) found that the higher was the instated perceived self-efficacy, the longer individuals persevered on difficult and unsolvable problems before they quit. Therefore, individuals with a strong sense of self-efficacy will put forth a high degree of effort in order to meet their commitments, and attribute failure to things which are in their control, rather than blaming external factors (Bandura 1994; Zacharakis 1999). Self-efficacious individuals also recover quickly from setbacks, and ultimately are likely to achieve their personal goals (Bandura 1997). Conversely, individuals with low self-efficacy believe they cannot be successful, and thus are less likely to make a concerted, extended effort and may consider challenging tasks as threats that are to be avoided (Margolis and McCabe 2006).

Self-efficacy has been linked theoretically and empirically with managerial and entrepreneurial phenomena (Krueger et al. 2000; Markman and Baronb 2003). In organizational research, separate meta-analyses by both Stajkovic and Luthans (1998) and Judge and Bono (2001) have demonstrated a robust positive relationship between employee self-efficacy

<sup>1</sup> Business plan formalization is the degree of specificity for the business plan.

and performance. Self-efficacy, and particularly entrepreneurial self-efficacy (McGee et al. 2009), appears to be an important antecedent to new venture intentions and creation (Chen et al. 1988; Boyd and Vozikis 1994; Zhao et al. 2005; Barbosa et al. 2007; Markman et al. 2005; Wilson et al. 2007; Townsend et al. 2010). Entrepreneurial self-efficacy is a context-specific measure of self-efficacy. This research focuses on the belief of individuals in their ability to perform entrepreneurship-related tasks. For example, Chen et al. (1988) created a measure of entrepreneurial self-efficacy comprised of dimensions related to marketing, innovation, management, risk-taking, and financial control. Using this measure, Chen et al. (1988) found entrepreneurial self-efficacy to significantly differentiate entrepreneurs from non-entrepreneurs. In addition to its effect on entrepreneurial intent and immediate venture creation, entrepreneurial self-efficacy of the founder has even been found to influence performance outcomes on the firm level (e.g., Baum and Locke 2004; Hmieleski and Baron 2008).

Based on prior self-efficacy research, we believe that nascent entrepreneurs who have a strong belief in their capabilities—that is, high entrepreneurial self-efficacy—exert greater effort when they face difficult or ambiguous challenges in the start-up process. Such strong perseverance contributes to the outcomes of the process. Therefore, we hypothesize that:

**H2** There is a positive relationship between entrepreneurial self-efficacy and the new firm outcome status. Specifically, nascent entrepreneurs with higher degrees of entrepreneurial self-efficacy are more likely to start new ventures.

Both goal setting and social cognitive theory literature suggests that the relationship between self-efficacy and goal attainment varies as a function of goal specificity. This would suggest that the nascent entrepreneurial motivation hub is incomplete without more fully considering the moderating effect that self-efficacy has on goal-specificity to start-up outcome status.

#### 2.4 Goal specificity and entrepreneurial self-efficacy

Behavior is powerfully influenced by both goals and by the perceived confidence in being able to take action (i.e., self-efficacy) (Locke 1991; Latham and

Pinder 2005a, b). Previous research from the goal setting perspective has found that specific, challenging (difficult) goals led to higher output than vague goals such as “do your best” (Locke 1968). As described earlier, self-efficacy has also been found to be an antecedent of a variety of positive task outcomes. Goal setting and social cognitive theories in general, and self-efficacy in particular, are considered to be the most direct and immediate motivational determinants of work performance (Latham and Pinder 2005a, b), and thus particularly relevant to understanding why nascent entrepreneurs engage in the firm creation process.

Building on previous research that has investigated the role of self-efficacy as an intervening variable in entrepreneurial models (Zhao et al. 2005; Hmieleski and Corbett 2008) and between goals and performance (Locke and Latham 2002), we believe that perceived self-efficacy will also moderate the relationship between specific goals and positive start-up process outcomes. Those who have a strong belief in their capabilities exert greater effort, and when directed by specific goals, such efforts will result in desired outcomes. However, individuals who have doubts about their entrepreneurial skills and knowledge—i.e. their self-efficacy concerning entrepreneurial tasks is low—are not likely to fully benefit from the specific goals that they still may be able to set for their start-up endeavors. As Bandura (2001) implies, making a decision is not the same as implementing the decision, and entrepreneurial self-efficacy is needed to carry out the implementation stages of the nascent venture. This suggests that critical insights can be gained from the interaction of goals and self-efficacy on start-up outcomes. Therefore, we hypothesize that:

**H3** Entrepreneurial self-efficacy moderates the goal specificity to new firm outcome status relationship, such that a higher degree of entrepreneurial self-efficacy will strengthen the positive relationship proposed in Hypothesis 1.

### 3 Methods

Data for the empirical analysis come from the Panel Study of Entrepreneurial Dynamics I (PSEDI). The PSEDI is a longitudinal study that involves more than

100 entrepreneurship scholars who came together as part of the Entrepreneurial Research Consortium (ERC). Initially, random digit dialing calls were made to 31,261 individuals in 1998–1999. The study methodology allowed researchers to identify nascent entrepreneurs—those individuals in the process of starting up a new venture—from this pool of individuals and to longitudinally follow their progression through data collection periods over time. The breadth and quality of the PSED data provides a unique opportunity to avoid the survival bias typical for studies of young firms. Since the PSED focuses on nascent entrepreneurs (individuals actively involved in the start-up process who have yet to experience three months of positive operating cash flow) and is a longitudinal study, it also avoids the recollection bias, typical for cross-sectional surveys. The PSED dataset and related codebooks are publicly available on the consortium's website.<sup>2</sup> A total of 830 nascent entrepreneurs were identified for this longitudinal study. These nascent entrepreneurs were then followed up at about one-year intervals to enquire about the current status of their start-up efforts. Three such follow-up waves were completed. Additional detailed descriptions of the methods and sampling used to generate the PSED can be found in Reynolds and Curtin (2004).

### 3.1 Dependent variable

#### 3.1.1 Outcome status

For this assessment, start-up outcome status has three possibilities for nascent start-ups. A nascent entrepreneur can quit the start-up process, reach new firm status, or continue in the start-up process. For our dependent variable (i.e., new firm, start-up continues, quit initiative), we utilized a time-lagged measure from the PSED sample which asks respondents to categorize the status of their potential venture at each follow-up wave. These results were cross-checked with a related question where the respondents reported the actual year and month the venture began operation as well as respondent statements on the cash flow figures for the nascent venture. Consequently, a nascent start-up is classified as a new firm

if the respondent answers that the firm is up and running, and, furthermore, the venture has experienced at least 3 months of positive cash flow within the 72-month investigation period. If the nascent start-up has not experienced at least three months consecutive positive cash flow, it remains in the continued start-up category. Finally, all respondents who self-identified as disengaging from the process were categorized as “quits”.

### 3.2 Independent variables

#### 3.2.1 Business plan formalization

In order to measure goal specificity, we use PSED items q114-r/s/t571 to compute the final form of business planning as an ordinal variable with four levels (none, unwritten in head, informal, and formal). Business planning has engendered a lengthy discussion by various scholars regarding its efficacy to facilitate goal attainment largely around business planning helping firm founders to undertake guided venture development activities (Cyert and March 1963; Simon 1964; Locke 1968; Latham and Yukl 1975; Bird 1988; Smith et al. 1990; Timmons 2000; Baum et al. 2001; Shane and Delmar 2004; Baum and Locke 2004). Therefore, guided by Shane and Delmar (2004), we measure goal specificity of nascent entrepreneurs by looking at their business planning activities. A realized business plan is defined as having (formally or informally) identified the current state and the presupposed future of the fledgling organization (Honig and Karlsson 2004). Writing a plan typically clarifies goals while allowing entrepreneurs to set more specific goals (Locke and Latham 1990; Shane and Delmar 2004). In the PSED protocol, the level of business plan formalization is assessed through two questions. First, the nascent entrepreneurs were asked: “A business plan usually outlines the markets to be served, the products or services to be provided, the resources required—including money—and the expected growth and profit for the new business. Has a business plan been prepared for this start-up?”. If the answer to this question was “No”, the value for business plan formalization is zero. For those who answered “Yes” to the question above, the level of formalization was then subsequently queried. Individuals with unwritten, “in head” plans were coded 1, individuals with informally written plans

<sup>2</sup> <http://www.psed.isr.umich.edu/main.php>.

were coded 2, and individuals with formally prepared written plans were coded 3.

### 3.2.2 Entrepreneurial self-efficacy

Bandura (1977) has argued that self-efficacy should be focused on a specific context and activity domain. The more task-specific one can make the measurement of self-efficacy, the better the predictive role efficacy is likely to play in research on the task-specific outcomes of interest (Bandura 1977; McGee et al. 2009). To measure degree of entrepreneurial self-efficacy, first interview (Wave Q) responses were utilized in order to overcome post hoc rationalization among respondents. A direct approach is taken in measuring entrepreneurial self-efficacy, based on responses to Likert scale items from the mail questionnaire. Cassar and Friedman (2009), validated the following items as a measure of entrepreneurial self-efficacy: Qk1a, Qk1d, Qk1e and Qk1f (see Table 1 for variable descriptions).<sup>3</sup> Exploratory factor analysis confirmed the unidimensional factor structure. Some examples of items included in the entrepreneurial self-efficacy scale are: “If I work hard, I can successfully start a business,” and “I am confident, I can put in the effort needed to start a business,” where 1 indicated completely disagreed and 5 indicated completely agreed. The items selected were then averaged to create the entrepreneurial self-efficacy scale (Cronbach  $\alpha = .80$ ).

### 3.3 Control variables

In the analysis, several control variables were identified for inclusion. These include educational attainment, income and wealth measures, sex of the lead respondent, total number of individuals on the team, degree of firm innovativeness, prior industry experience, prior start-up experience and conception lag (in months) for the start-up. Educational attainment is an ordinal variable (grade school, no high school degree, high school degree, post-high school no college

degree, college degree, post-college experience). This measure was used since education is often a factor reported to influence business planning (Autio et al. 1997; Krueger 1993; Honig and Karlsson 2004). Income and wealth measures were self-reports of respondent household income and assets (adjusted for inflation in 2009). This measure was included because availability of resources may positively influence new firm emergence. Sex was self-report from the respondent. Sex was included as a measure because men are more likely than women to engage in entrepreneurial activity (Robb and Coleman 2009). Team size was also controlled for since more team members may positively influence the availability of human, social, fiscal and cultural resources. Degree of innovativeness was controlled for, since degree of innovation may impact the difficulty of new firm emergence as routines and competencies are new and often foreign to the market (Aldrich and Ruef 2006). Prior start-up and industry experience were included because such measures have been found to positively influence operational firm status (Reynolds 2007). Finally, conception lag was included to control for time, since individuals who have been in the start-up process longer may more likely reach some form of resolution (Reynolds 2007; Reynolds and Curtin 2004).

## 4 Analysis and results

We apply univariate and bivariate techniques to describe the sample. Moreover, multivariate statistics such as multinomial logistic regression will be utilized to test the hypotheses.

After executing listwise deletion of cases with missing data, the sample size for this analysis totals 342 nascent entrepreneurs ( $n = 342$ ). Data for this analysis are re-weighted to represent all nascent entrepreneurs on which information on our study variables are available at the end 72-month interview window. Descriptive statistics for the sample can be found in Table 2. The data show that, within the sample, a third of all cases reach new firm status, a third continue in their efforts, and a thirds quit after the 72-month follow-up period. Men represent about 51% of the cases and women 49%. The mean for education is post-high school or some college (about 32% of the cases) followed by college degree (25% of the cases). The mean household income for the

<sup>3</sup> Note that item Qk1a was originally developed as measure of expectancy (Gatewood 2004) and is used as such by Renko et al. in this journal issue. Since the theoretical constructs of expectancy and self-efficacy have similarities (Bandura 1977; Steel and Konig 2006), item Qk1a has also been used in a validated scale measuring entrepreneurial self-efficacy by Cassar and Friedman (2009).

**Table 1** PSED I variables operationalizations

Variable	Description	PSED Item	Measurement level
Educational attainment	Educational attainment level	Q343	Ordinal
Team size	Total number of people on team	TEAMSZ	Ordinal
Industry experience	Total years of same industry experience	Q199	Continuous
Start-up experience	Total number of other start-up initiatives engaged in	Q200	Continuous
Household income	Total household income from all sources	Q386	Continuous
Household net worth	Estimated current net worth of the household	Q391	Continuous
Conception lag	Months lag from conception to first interview in months. Computed from difference in first start-up activity reported to first wave interview.	Start-up characteristics section, PHDAY, PHMTH, PHYR,	Continuous
Degree of firm innovativeness	Degree of innovativeness of the start-up	Q299-Q301	Ordinal
Business plan formalization	Degree of formality of business plan	Q114-R/S/T571	Ordinal
Entrepreneurial self-efficacy	Degree of belief in skills and abilities for entrepreneurial tasks	Qk1a, Qk1d, Qk1e, Qk1f	Ordinal
Outcome status	72-month outcome status based on respondent self-reports and month and year revenue first exceeded the expenses	R/S/T502, R/S/T622_my	Nominal
Sex	Sex of respondent	NCGENDER	Nominal

sample is US\$70,000, with a mean household net worth of \$177,000. On average, nascent entrepreneurs have about 8 years of industry experience and have participated in about 1.2 other start-up teams. However, it should be noted that the median for previous start-up team experience is 0. On average, most nascent start-ups score low on hi-tech emphasis. Furthermore, the average team size for the sample is two, and the time from conception, or first initial start-up action taken, to the first wave of the PSED interviews is 25.57 months, or a little over two years.

Furthermore, Table 2 presents the bivariate correlations among the variables, assuming compound symmetry. Initial analysis of Table 2 shows that multicollinearity is not likely to affect our results. Moreover, Table 2 highlights the various relationships between the control and independent variables. Particularly, business plan formalization shows a positive, significant correlation with education ( $r = .118$ ;  $p = .005$ ), household income ( $r = .149$ ;  $p = .001$ ), household net worth ( $r = .151$ ;  $p = .001$ ), start-up experience ( $r = .140$ ;  $p = .001$ ), business hi-tech index ( $r = .140$ ;  $p = .001$ ), and team size ( $r = .180$ ;  $p = .004$ ). However, entrepreneurial self-efficacy is only significantly correlated to the control variable conception lag ( $r = -.149$ ;  $p = .001$ ). Therefore, as conception lag increases, self-efficacy decreases. Moreover, business plan formalization and self-

efficacy are significantly correlated ( $r = .124$ ;  $p = .004$ ). Therefore, as business plan formality increases, self-efficacy increases (see Table 2).

In order to investigate the effects of business plan formalization and entrepreneurial self-efficacy on new firm emergence, multinomial logistic regression was utilized. Multinomial logistic regression breaks the regression up into a series of binary regressions comparing each group to a baseline, or referent group. The referent category for this analysis is continued start-up status. In order to identify the most parsimonious model, the independent variables were force entered, and forward stepwise selection was simultaneously employed to identify the most significant control variables. The forward stepwise selection criteria included control variables with a likelihood ratio  $p$  probability of  $p \leq .05$  and removed the variable if the likelihood ratio  $p$  probability  $p \geq .10$ . This procedure selected conception lag (in months) and sex of the respondent as the only significant controls differentiating continuing start-up efforts from new firms or quits. All other control variables were not significant (and therefore excluded from the model).

To assess the goodness of fit for the model, the deviance statistic was computed. Thus, we can conclude that the model fits the data relatively well ( $\chi^2 = 705.53$ ,  $df = 772$ ,  $p = .180$ ) (Agresti 1996; Tabachnick and Fidell 1996). Also, pseudo R square



**Table 2** Descriptive statistics and correlations

Variable	Mean	SD	Mode	1	2	3	4	5	6	7	8	9	10
1. Educational attainment	4.210	1.100	4.000	1.000									
2. Team size	1.740	0.970	1.000	.079*	1.000								
3. Industry experience	8.720	9.980	0.000	.105**	-0.051	1.000							
4. No. of start-up experiences	1.190	3.240	0.000	.144**	.107**	.136**	1.000						
5. Household income (1,000)	70.120	93.410	59.000	.125**	.129**	0.054	0.040	1.000					
6. Household net worth (1,000)	176.920	391.480	234.000	.200**	.155**	.112**	.192**	.476**	1.000				
7. Conception lag in months	25.570	35.880	10.280	-.077*	-0.025	.257**	-0.010	-0.030	-0.016	1.000			
8. Degree of firm innovativeness	0.970	0.900	1.000	0.047	.109**	0.029	0.056	0.012	0.013	-0.012	1.000		
9. Business plan formalization	1.410	1.150	0.000	.118**	.180**	0.039	.140**	.149**	.151**	-0.014	.140**	1.000	
10. Entrepreneurial self-efficacy	4.230	0.590	4.000	0.024	-0.001	0.074	0.009	-0.007	0.019	-0.149**	-0.010	.124**	1.000
11. Outcome status	2.040	0.810	3.000										
12. Sex	0.510	0.500	1.000										

\* Correlation is significant at the 0.05 level (2-tailed)

\*\* Correlation is significant at the 0.01 level (2-tailed)

**Table 3** Multinomial logistic regression results for the entrepreneurship hub model

Outcome status	B	SE	Wald	df	p	Exp (B)	95% CI of Exp (B)	
							Lower bound	Upper bound
<b>New firm</b>								
Intercept	-1.733	1.909	.824	1	.364			
Entrepreneurial self-efficacy	.357	.438	.663	1	.415	1.429	.605	3.374
Business plan formalization	.068	.927	.005	1	.941	1.071	.174	6.593
Business plan × entrepreneurial self-efficacy	-.002	.214	.000	1	.993	.998	.656	1.519
Conception lag (months)	-.003	.006	.250	1	.617	.997	.985	1.009
Sex	.204	.273	.558	1	.455	1.226	.718	2.095
<b>Quit</b>								
Intercept	4.603	1.738	7.017	1	.008			
Entrepreneurial self-efficacy	-1.066	.415	6.584	1	.010	.344	.153	.777
Business plan formalization	-1.668	.893	3.485	1	.062	.189	.033	1.087
Business plan × entrepreneurial self-efficacy	.411	.211	3.771	1	.052	1.508	.996	2.282
Conception lag (months)	-.038	.009	16.670	1	.000	.962	.945	.980
Sex	.730	.289	6.355	1	.012	2.074	1.176	3.658

<sup>a</sup> The reference category is start-up continues

statistics show that about 12% to 6% of the variation in start-up outcome status is explained by the model in this analysis. Finally, the overall model fitting criteria (2LL for the overall model:  $\chi^2 = 45.02$ ,  $df = 10$ ,  $p < .0005$ ) is significant, and therefore we reject the null hypothesis that business plan formalization, self-efficacy and their interaction effect, as well as control variables of sex and conception lag (in months) make no difference in odds for continuing start-up efforts versus new firms or quitting (see Table 3).

Examination of Table 3 in regards to continued start-up status versus new firm status shows that none of the independent variables or control variables influence the odds of new firm emergence versus continuing start-up efforts. Hence, we find no support for our H1–H3. However, comparing nascent entrepreneurs who continue start-up efforts to those that quit, significant patterns emerge, different to what we originally hypothesized.<sup>4</sup> In this model, both conception lag ( $p = .0005$ ) and sex ( $p = .012$ ) are significant control variables. A one unit increase in conception lag (months) decreases the odds of quitting by 2% versus continuing start-up efforts. Similarly, men are more likely to quit than women

compared to continuing start-up efforts. Moreover, business plan formalization is significant ( $p = .062$ ), such that a one unit increase in business plan formalization decreases the odds of quitting by 81%, after controlling for other variables in the model. Similarly, entrepreneurial self-efficacy is also significant ( $p = .01$ ), such that a one unit increase in entrepreneurial self-efficacy among nascents decreases the odds of being in the quit category by 66%, controlling for other variables in the model. Finally, the interaction term for business plan formalization and self-efficacy is significant ( $p = .052$ ), such that a one unit increase in the interaction coefficient increases by 50% the chances of being in the quit category. Although our hypotheses were not supported, we did find evidence that coincides with goal theory and social cognitive theory. The subsequent discussion further explores the nature of our findings, particularly the interaction effect of goal specificity and entrepreneurial self-efficacy found between nascent entrepreneurs who quit compared to those who continue on the start-up.

#### 4.1 Post hoc analysis

In order to further investigate the nature of the relationship between the dependent and independent variables, we will employ cross-classification data

<sup>4</sup> We set our level of significance at  $\alpha = .10$ .

**Table 4** Relationship between business plan formalization and entrepreneurial self-efficacy by outcome status

	New firm			Quit			Start-up continues		
	Low self-efficacy	High self-efficacy	Total	Low self-efficacy	High self-efficacy	Total	Low self-efficacy	High self-efficacy	Total
No plan	16 43.20%	21 56.80%	37 100%	37 71.20%	15 28.80%	52 100%	27 50.90%	26 49.10%	53 100%
Yes plan	38 33.30%	76 66.70%	114 100%	50 47.60%	55 52.40%	157 100%	50 44.60%	62 55.40%	112 100%
Total	54 35.80%	97 64.20%	151 100%	87 55.40%	70 44.60%	157 100%	77 46.70%	88 53.30%	165 100%
Odds				Odds			Odds		
High self-efficacy and no plan/ low self-efficacy and no plan	1.31			0.41			0.96		
High self-efficacy and yes plan/ low self-efficacy and yes plan	2.00			1.10			1.24		
Odds ratio	1.52			2.71			1.29		

techniques. As a result, the independent variables were categorized into dichotomous variables. Business plan formalization was recoded to no planning and yes planning (where unwritten, informal, and formal were all grouped). And entrepreneurial self-efficacy was recoded into low and high, where all cases over the median (MD = 4.33) were coded as high and cases under the median as low. Table 4 shows the frequencies for each classification of self-efficacy by planning among the three outcome categories (new firm, quits, and start-up continues). Initial analysis shows that business planning and entrepreneurial self-efficacy are significantly positively correlated (see Table 2). Subsequent chi-square analysis also shows that business planning and entrepreneurial self-efficacy are dependent constructs ( $\chi^2 = 11.55, df = 1, p = .001$ ). Therefore, the column and row frequencies for entrepreneurial self-efficacy and business planning are not random.

Therefore, in order to more closely examine differences in entrepreneurial self-efficacy and business planning among nascent outcome categories, odds ratios were calculated. This procedure will aid in identifying the nature of the relationship between business planning and entrepreneurial self-efficacy.

First, we examine the odds ratio, which is the ratio of two conditional odds. If we look at Table 4, the question can be raised whether the odds ratio is homogenous across categories of nascent outcome start-up status. To test this, we perform the Mantel–Haenszel test. The Mantel–Haenszel chi-square coefficient tests whether the common odds ratio across the various start-up outcome categories is 1.0, indicating no effect of the stratification variable (Agresti 1996). This test of conditional independence shows that the odds ratio does vary by category according to the Mantel–Haenszel test ( $\chi^2 = 6.70, df = 1, p = .01$ ).

Additionally, we see that in each outcome category, the odds ratio is greater than 1 (see Table 4). An odds ratio of 1.0 indicates that there is no association for the two variables. Moreover, the further the odds ratio is away from 1.0, the more different are the conditional odds. Among those who reach new firm status, the conditional odds of having a plan are 1.52 as high among respondents with high entrepreneurial self-efficacy than low entrepreneurial self-efficacy (see Table 4). Moreover, for those who continue in their start-up efforts, the conditional odds of having a plan is 1.29 times as high among those with high self-efficacy as among those with low

entrepreneurial self-efficacy. Finally, we can conclude that there is a strong positive association between entrepreneurial self-efficacy and business planning, particularly among the quit group, whose odds ratio = 2.71. So among nascent who plan and quit, the odds of high entrepreneurial self-efficacy are about 2.71 times greater than those who do not plan. This implies that, in the quit group, highly efficacious nascent plan more readily. Therefore, planning and high entrepreneurial may lead to quitting the start-up process more readily than continuing in start-up efforts.

## 5 Discussion

This assessment has contributed to the understanding of how motivation influences the outcomes of the nascent entrepreneurship process from a goal setting perspective. Goal setting theory purports that more specific goals, self-efficacy, as well as their interaction increase task performance. A critical outcome for nascent entrepreneurs is the establishment of a viable, new business. Hence, our hypotheses predicted that having specific goals (H1) and higher self-efficacy (H2) would be related to the establishment of a new business among nascent entrepreneurs. Surprisingly, we found no hypothesized effects for “new firm status” as an outcome category. What we did find, however, was having a more formalized business plan and higher self-efficacy contributed to *maintaining in a start-up effort versus quitting* among nascent entrepreneurs. Therefore, the value of planning and entrepreneurial self-efficacy is that it facilitates the determination that a given initiative is not economically viable (Reynolds 2007). Moreover, our findings confirm prior findings by Cassar and Friedman (2009). Although Cassar and Friedman (2009) found entrepreneurial self-efficacy positively influenced operational status among nascent entrepreneurs, they did not examine differences between quits and continuing start-ups. Therefore, our study advances our understanding of entrepreneurial self-efficacy, from a goal setting perspective, on task performance. Particularly, demonstrating that high entrepreneurial self-efficacy and specific goals positively influence the likelihood of continuing start-up efforts versus quitting.

Our study operationalized goal specificity through formality of business planning which is recognized

precedent in the entrepreneurial literature (Locke 1968; Latham and Yukl 1975; Bird 1988; Smith et al. 1990; Timmons 2000; Baum et al. 2001; Shane and Delmar 2004; Baum and Locke 2004). Our analysis provides evidence that entrepreneurial self-efficacy and business plan formality are dependent constructs. Moreover, there is also evidence that goal specificity, operationalized as business plan formality, varies as a function of entrepreneurial self-efficacy. Particularly, among quits, there is compelling evidence that individuals with low self-efficacy are less likely to plan formally. Although our hypotheses were not supported, we did find evidence that coincides with goal theory and social cognitive theory.

These findings suggest that, in the context of nascent entrepreneurship, goal specificity and entrepreneurial self-efficacy operate together to cue nascent entrepreneurs regarding the feasibility of their prospective opportunity, thus increasing the likelihood of persisting in continuing start-up efforts versus quitting. Moreover, the higher levels of entrepreneurial self-efficacy with more formalized goals (or business planning) increases the likelihood of quitting start-up efforts versus persisting. Therefore, it could be inferred that goal setting in the context of nascent entrepreneurship influences start-up outcomes, such that nascent entrepreneurs who have high entrepreneurial self-efficacy and formalize goals via business planning are more likely to identify unworthwhile opportunities more rapidly, and subsequently more likely to exit efforts than individuals with formalized goals and low entrepreneurial self-efficacy and individuals with unformalized goal and high entrepreneurial self-efficacy. Thus, when people fail to fulfill a challenging standard, they lower or change their goals, but others remain confident and persist in the face of failure and even raise their goals (Baum and Locke 2004).

Moreover the finding that individuals with high entrepreneurial self-efficacy who plan are more likely to quit before those with low entrepreneurial self-efficacy and no plan is no surprise. Bandura and Jourden (1991), as well as Stone (1994), found that high self-efficacy led to overconfidence in one's abilities. Instead of high self-efficacy individuals contributing more of their resources toward the task, they contributed less. These participants were both less attentive and effortful than were their low self-efficacy counterparts. One might conclude that, although high self-efficacy can motivate individuals

to adopt high level goals, it may reduce motivation within a goal level. Hence, high self-efficacy along with highly formal goals likely lead to predictions of higher states (i.e., reaching the goals sooner) than predictions made when self-efficacy is low (Vancouver et al. 2002). The result is that self-efficacy can lower performance, and in turn explain the interaction effect found in our analysis. Another reason why individuals with higher degrees of entrepreneurial self-efficacy who plan to quit more readily maybe because they find and use better task strategies to attain the goal of establishing a new firm based on the negative feedback they may have obtained from that initial opportunity. As a result, nascents may shift their efforts to identify another opportunity to exploit (Locke and Latham 1990; Seijts and Latham 2001).

Additionally, findings show that the time lag since conception, the first initial action taken towards implementing the prospective new firm, is also significant in predicting the odds of quitting versus continuing with start-up efforts. The longer nascent entrepreneurs are engaged in their start-up initiative, the lower their odds of quitting the start-up process. According to Reynolds (2007), it takes half a year or longer to quit the start-up process than it does to create an operating firm. Previous entrepreneurship research has shown that entrepreneurs persist with under-performing firms (DeTienne et al. 2008). On the firm level, such a phenomenon has been explained based on threshold theory (Gimeno et al. 1997) and the escalation of commitment (Staw 1976). However, the reasons for this increasing commitment to a start-up effort among nascent entrepreneurs provide an interesting topic for future research.

Future research should investigate other factors to improve model fit and to provide a more comprehensive test of Locke's (1991) *motivation sequence*. Our research has focused on the *motivation hub* of Locke (1991), but future research would benefit from an analysis of other parts of the *motivation sequence*. How, for example, do values and motives influence nascent entrepreneurs' goals? Or what are the perceived rewards and satisfaction that entrepreneurs achieve after establishing the start-up? Also, within *the motivation hub*, additional research could look at the effects of goal difficulty, goal commitment, and goal acceptance in addition to goal specificity studied here. Atkinson (1958) showed that task difficulty,

measured as probability of task success, was related to performance in a curvilinear, inverse function. The highest level of effort occurred when the task was moderately difficult, and the lowest levels occurred when the task was either very easy or very hard (Locke and Latham 2002). Although our analysis included a control measure for degree of innovativeness of the start-up, it was a non-significant covariate in the analysis. We suggest that future studies attempt to identify ways to operationalize goal difficulty beyond industry classification.

A question raised by our selected outcome variables concerns the desirability of these very outcomes. We have found that having a formalized business plan combined with high self-efficacy of a nascent entrepreneur is a recipe for an increased likelihood of exiting the start-up process. One may argue that this, after all, may not be such a negative outcome as one might first think. It is possible that the mere engagement in a business gestation process allows the individual to learn for their future career and possible future start-up efforts. Along the same lines, continued start-up effort may sometimes be a signal of wasting resources and unwillingness to face the market and competitive realities of the economy. When considering the kind of "task performance" that goal setting theory might predict among nascent entrepreneurs, one should keep in mind that a variety of positive outcomes are possible, and some of them, like quitting, may initially come in disguise.

Business planning is widely encouraged across various entrepreneurship education programs. Our results show that, compared to non-planners, nascent entrepreneurs with formalized business plans persevere longer in the process. Those who do not plan are more likely to quit trying. As long as discouraging exits from the firm gestation process is an outcome sought by various business planning programs, our results should be welcome news for entrepreneurship educators. Also, previous research has suggested that educators can influence students' entrepreneurial intentions by improving their entrepreneurial self-efficacy (e.g. Wilson et al. 2007). Our results suggest that this heightened self-efficacy with formalized business planning may improve an individuals' capabilities to promptly identify those business opportunities that are not worthy further pursuit are in line with this finding of previous research.

## 6 Limitations

Using PSED data limited our research design in a few ways. First, due to the large amount of questions included in the survey, survey designers elected to shorten many of the scales used to measure certain cognitive variables (in some cases) to single responses (Shaver 2004). We are confident that the measures we use are consistent with the core theory utilized here; however, we do recommend that future research seek to re-confirm our results with more complete scales to further strengthen the evidence we present in this paper. We also recommend that the PSED data should be used to model changes in self-efficacy and goal commitment instead of stock measures, as has been analyzed here. It may be that over subsequent waves of data, the changes in these measures are more influential than the actual level at the onset of the processes itself.

Also, we do recognize that there is a long-running debate in the entrepreneurship literature regarding the differences between small business owners and high growth entrepreneurial business ventures (Carland et al. 1984; Shane and Venkataraman 2001; Mahoney and Michael 2005). The majority of respondents in the PSED sample are actually classified as reproducer small business owners, and not as innovating entrepreneurs (Aldrich and Ruef 2006). This, although a true reflection of the kinds of new businesses that the American population is starting, may disappoint those who are more interested in understanding the dynamics of high-growth innovator firms.

Finally, it should be noted that our analysis does not causally link planning and self-efficacy to outcome status. Our findings highlight how the odds of transitioning from start-up status to either new firm or quitting the process are influenced by goal formality and self-efficacy. Therefore, we acknowledge this may represent a study limitation.

## 7 Conclusion

Entrepreneurship involves human agency. People start businesses, they are not started by macro-economic conditions, presence of opportunities, availability of finance, social networks, positive entrepreneurial climate, regional/geographic attributes, or market characteristics. Although such factors are influential, the

entrepreneurial process occurs because people are motivated to act and pursue perceived opportunities. All action is the result of motivational factors. Therefore, it is imperative for scholars to incorporate theories of motivation into entrepreneurial research to better comprehend the entrepreneur and how he/she operates. Accordingly, we have developed and tested a framework that looks at interconnections between goals, self-efficacy, and start-up process outcomes to understand how individuals navigate the nascent entrepreneurial process. Goal-setting theory is not limited to but focuses primarily on motivation in work settings. Social cognitive theory and the research that underlies it are primarily focused on self-efficacy, its measurement, its causes, and its consequences. The nascent entrepreneurship hub framework presented here has integrated the key constructs from both theories. Our empirical results have shown that significant relationships between self-efficacy, goal specificity, and start-up process outcomes exist. As a result, we believe that the nascent entrepreneurship hub truly provides a starting point to understand how motivation impacts outcome status among would-be entrepreneurs.

**Acknowledgements** The authors would like to acknowledge the College of Business at the University of Cincinnati, which awarded our project funds from Title VI Learning Grant to facilitate presentation of this research at the 2008 International Council for Small Business World Conference in Halifax, Nova Scotia Canada. We would also like to thank participants at the 2008 Symposium on the Panel Study of Entrepreneurial Dynamics: “Research on Business Creation” in Greenville, South Carolina for their valuable feedback on a prior version of this work.

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