Are Planners Doers? Pre-Venture Planning and the Start-Up Behaviors of Entrepreneurs

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EXECUTIVE SUMMARY

There are differing views on whether the process of pre-venture planning influences the success of new ventures. Some suggest that pre-venture planning enables entrepreneurs to articulate their assumptions about factors leading to success, reduce delays in implementing critical activities, identify critical activities, and communicate their vision to others. Others suggest that planning is a distraction from the real work of creating and building a new enterprise.

We test hypotheses about the relationship between business planning and action using data from the Panel Study of Entrepreneurial Dynamics (PSED), which is a longitudinal generalizable sample of individuals in the process of starting businesses in the United States. Three dimensions of the business planning process: *presence* (whether a business plan has been completed), *formality* (whether the business plan is written down), and *timing* (when the business plan was completed in the business creation process) are examined in regards to their effect on the venture creation process. We measure the venture creation process by examining the *rate* (i.e., the number) of entrepreneurial activities undertaken in a given period of time; the *concentration* of these activities (how closely activities are undertaken in relationship to each other); and the *timing* of these activities (the degree to which activities tend to cluster early or late in the time span of the event history). In general terms then, this study explores whether and when business planning might be an impetus towards entrepreneurial action.

Our findings indicate that the activity of business planning does not, as a main effect, seem to influence whether entrepreneurs will engage in more activities (rate),

bunch these activities together (concentration), or accomplish these activities earlier or later in the start-up process (timing). And, the degree of formality of the business plan (whether the plan is written, informally written, or "in one's head") does not, as a main effect, influence the rate, concentration or timing of other start-up activities.

But, our results do indicate that nascent entrepreneurs tend to show a spurt of activities when they have a formal business plan and when they plan early. In contrast, nascent entrepreneurs seem to have a steady pace for their start-up processes when they have a formally written business plan but at a later stage in the venture creation process. Given the finding that formal early planners would have an early concentration of activities, this would also imply that these activities would be undertaken early (early timing) as well.

Our findings indicate that early formal planners are doers. We believe that challenging prospective entrepreneurs to accomplish a formal business plan early in the venture creation process will likely enable them to engage in additional start-up behaviors that could further the process of business creation. By engaging in venture creation activities earlier rather than later, prospective investors and other venture supporters might ascertain earlier whether a fledgling idea has potential as an ongoing business.

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INTRODUCTION

There is some dispute about the value of business planning for the creation of new ventures. Recent evidence suggests that entrepreneurs should engage in business planning during the process of venture creation as a way to guide them toward activities useful for starting new firms (Delmar and Shane, 2003; Delmar and Shane, 2004; Liao and Gartner, 2006; Reynolds, 2007; Shane and Delmar, 2004). For example, studies of entrepreneurs using the PSED seem to indicate that planning is highly correlated to engaging in other start-up behaviors: Delmar and Shane (2003) found a .60 correlation between planning and engaging in other organizing activities. Yet Bhide (2000) suggests that taking action to develop the business is more important than completing a business plan. His study found that only 28% of a sample of Inc. 500 firms had completed a formal business plan, and, for these plans approximately 63% of these firms took only a few months to plan, and less than 9% took more than a year (p.55). And Honig and Karlson (2004) offer evidence that entrepreneurs may write business plans only to satisfy "institutional" pressures from advisors, investors, and educators, which could be called "planning for planning's sake." This section explores some of the reasons and evidence for the value of business planning as well as arguments for why engaging in planning might be less helpful for starting a business.

Why Plan?

Delmar and Shane (2003) offer four reasons why entrepreneurs should engage in planning during the process of venture creation. They suggest that planning helps

individuals develop a framework and context for taking action so that individuals can: (1) quickly identify what they do not know, (2) understand what resources they need and when these resources might be utilized, (3) identify specific actions that can help solve problems and attain goals, and (4) help communicate to others the purposes, objectives, and activities necessary to achieve venture success (Ansoff, 1991; Locke and Latham, 1990).

Entrepreneurs who develop a plan become conscious of their assumptions about how their proposed new business will succeed. Assumptions about the ability of the new firm to be profitable, the resources necessary to start and operate the firm, the knowledge necessary to provide products and services in a timely and cost-effective manner, and the number of potential customers are a few of many issues entrepreneurs consider when planning. By surfacing these assumptions, entrepreneurs can test their beliefs, rather than invest time and resources in actions that may have little chance of succeeding. Planning, therefore, can save time and money in the venture creation process (Armstrong, 1982).

Planning can also reduce the likelihood of delays in organizing the new venture, acquiring plant and equipment, and producing goods or providing services. Planning can help an entrepreneur identify when key resources (such as inventory, equipment, licenses and permits, and trained personnel) will likely be needed during the business creation process, thereby saving time and money (Armstrong, 1982; Bracker, Keats, and Pearson, 1988).

Planning can help entrepreneurs identify specific actions they will need to take to achieve their goals (Locke and Latham, 1990). By identifying specific actions,

entrepreneurs can focus their efforts, as well as realize when their efforts are not producing their desired goals. Planning, therefore, keeps individuals on track by channeling their energy and providing benchmarks (Robinson, 1984; Schrader, Taylor, and Dalton, 1984).

Finally, planning helps entrepreneurs communicate their vision to others, enabling the emerging venture to gain support and resources (Bird, 1992). By having a plan, entrepreneurs can enlist potential investors, suppliers, customers, and employees to become involved in the new venture. A business plan also represents a form of "legitimacy," in that entrepreneurs who have a plan are likely to be seen by others as individuals who have knowledge of the requirements for business success, rather than "dreamers" who are unaware of potential pitfalls in the start-up process (Delmar and Shane, 2004; Honig and Karlsson, 2004).

Reasons for Not Planning

A number of reasons are offered for why entrepreneurs may not benefit from business planning. First, the process of business creation for new and radically innovative companies may be so unpredictable and uncertain that planning might not help to identify critical contingencies and options. Because planning consists of specifying objectives that must take place in the future, planning may serve to constrain entrepreneurial activity (Mintzberg, 1994). Plans may also effectively serve to limit opportunity recognition and adaptation (Honig and Karlsson, 2004). Matthews and Scott (1995) suggested that entrepreneurs who perceive highly uncertain environments may be less likely to engage

in planning because they believe that planning efforts will not provide any information that can be usefully acted upon. They found that as the perceptions of uncertainty for how business success might be achieved in particular environments increased for entrepreneurs, they were less likely to engage in business planning.

The process of planning takes time, effort, and resources that could be used to engage in activities that might be more helpful for the creation of the new business. For example, Carter, Gartner and Reynolds (1996) suggest that:

> "Behavior such as buying facilities and equipment might be a more significant indicator to others that a nascent business is real than undertaking a behavior such as planning. Buying facilities may show others that the entrepreneur has made a significant commitment to creating a new business compared to what might be a less public demonstration of commitment like planning" (p. 154).

Planning, then, might be a distraction from taking the necessary actions to create a business. Entrepreneurs might experience "analysis paralysis" distracting them with the process of planning, rather than taking actions to secure customers, acquire resources, hire employees, or undertake other tasks to make the business a reality.

Purpose of This Study

This study explores the relationship of business planning to the activity levels of these nascent entrepreneurs, as a whole. We study whether pre-venture planning appears to spur nascent entrepreneurs to engage in other venture creation activities. Engaging in planning may be a catalyst to undertake more action to create a business.

This study examines how three dimensions of the business planning process (presence, formality, and timing) affect the venture creation process, overall. The dimensions of the business planning process we focus on are: *presence* (whether a business plan has been completed), *formality* (whether the business plan is written down), and *timing* (at what point in the business creation process the business plan was completed). We measure the venture creation process by examining the *rate* (i.e., the number) of entrepreneurial activities undertaken in a given period of time; the *concentration* of these activities (how closely activities are undertaken in relationship to each other); and the timing of these activities (the degree to which activities tend to cluster early or late in the time span of the event history) (Lichtenstein, et al., 2007). In general terms then, this study explores whether and when business planning might be an impetus toward entrepreneurial action.

In the next section of this paper we offer hypotheses that suggest that various dimensions of the venture creation process will be affected by how and when business planning occurs. We then describe the sample we used from the Panel Study of Entrepreneurial Dynamics (Gartner, et. al, 2004), the measures used for analyses, and the methods for comparing differences among the cases. The results from these analyses are presented and these findings are discussed. Implications regarding the results are offered and suggestions for future research are presented.

THEORETICAL BACKGROUND AND HYPOTHESES

We believe that the evidence that pre-venture planning has a significant and positive influence on the subsequent ability of entrepreneurs to successfully start new ventures is formidable (Delmar and Shane, 2003 and 2004; Gartner and Liao, 2007; Liao and Gartner, 2006; Reynolds, 2007; Shane and Delmar, 2004). All of the aforementioned studies used samples that identified nascent entrepreneurs in the process of starting their businesses and subsequently followed these efforts to ascertain whether new businesses were started, or not (Delmar and Davidsson, 2000; Gartner, et. al, 2004). By using samples of entrepreneurs in the process of starting businesses, many of the problems related to "survivorship bias" are eliminated, and therefore, significant differences in the characteristics of successful start-ups versus unsuccessful start-ups can be determined (Gartner, 1989). Yet, Honig and Karlsson (2004) believe that the outcome by which some of these studies measure "venture creation success" as "persistence" may reflect these entrepreneurs' inability to recognize failure and begin anew.

Business Planning and Start-up Behaviors

As indicated in the paragraph above, we believe there is a substantial body of empirical evidence that indicates that the *presence* of a business plan during the venture creation process significantly improves the odds of successfully starting a business. In addition, Gartner and Liao (2007) found that the *formality* of the business plan (e.g., unwritten, informal, formally written) significantly influences the success of starting a business. And in Liao and Gartner (2006) found that the *timing* of business planning

(early or late in the venture creation process) influences success at venture creation (depending on the kind of environment the venture is started in). Given the significance of the results in these previous studies, it seemed appropriate to explore whether these three characteristics of business planning (presence, formality, and timing) might influence the venture creation process, itself.

There are many ways to study the activities involved in the venture creation process (Lichtenstein et al., 2007). Most prior efforts at studying venture creation activities have looked at specific venture creation activities and have then attempted to ascertain how combinations of these actions might lead to success (Carter et al., 1996, Gatewood et al., 1995; Liao, Welsch, and Tan, 2005; Reynolds, 2007; Reynolds and Miller, 1992). The approach used in this study follows Lichtenstein et al. (2007) by exploring, in a broad way, how venture creation activities are undertaken over the entire venture creation process. This approach explores when start-up activities take place, that is, their temporal dynamics. Three ways to characterize when activities take place is to analyze the following components:

rate – the number of activities undertaken over a period of time (e.g., the higher the rate the more activities are accomplished in a given period of time);

concentration – a measure of how closely activities are accomplished over a period of time (e.g., a high concentration would mean that many of the activities are bunched together); and

timing – whether the bulk of activities occurs early or later over the entire business creation time period.

The development of hypotheses for this research effort are divided into three sections, focusing on how the three characteristics of business planning (presence, formality, and timing) and the interaction of formality and timing will affect the rate, concentration, and timing of start-up behaviors in the venture creation process.

Business Planning and the Rate of Start-up Behaviors

There are two ways to look at how the presence of a business plan will influence the rate of start-up behaviors during the venture creation process. The first perspective would assume an efficiency logic, in that individuals who accomplish a plan would be more likely to consider what activities are necessary for the successful development of a new venture, and then, undertake only those actions (Shane and Delmar, 2004; Locke and Latham, 1990; Rousseau, 1997). Planners would be more likely to accomplish fewer activities because they would engage only in activities that have more efficacy for venture creation success. The second perspective would suggest that individuals have limited amount of time, overall, in their ability to pursue and exploit opportunities (Gifford, 1992), and, therefore individuals engaged in completing a business plan would not have time to engage in other business creation activities. From both perspectives, individuals who completed a business plan would be less likely to engage in other behaviors.

H1a: Doing a business plan is negatively related to the rate of start-up behaviors.

Planning formality measures whether an entrepreneur has completed: a written business plan, an informal business plan, or a plan that is in the individual's head. We

would assume that an individual who completed a more formal plan would have a more visible and therefore more conscious understanding of what activities would need to be accomplished in order to ensure success at creating a new venture. Using the two rationales described above, a formal plan is likely to be more efficient, and therefore would result in the accomplishment of fewer activities, or, a formal plan would likely take more time to accomplish, therefore, other behaviors could not be undertaken.

H1b: The greater the degree of planning formality, the lower the rate of start-up behaviors.

The timing of business planning focuses on when planning occurs during the venture creation process. The timing of a business plan could be either a stimulus or a hindrance to engaging in action. By completing a business plan early, we could assume that the entrepreneur then has more time (Gifford, 1992) to engage in other actions. Or, by completing a business plan early, the entrepreneur would see which behaviors are more likely to have value and therefore engage in fewer activities during the remainder of the start-up process. We suggest that entrepreneurs are more likely to engage in more start-up behaviors if they complete a business plan early in the process. When entrepreneurs have more time, they are likely to do more, as well.

H1c: The earlier the timing of business planning, the greater the rate of start-up behaviors: (And, conversely, the later the timing of business planning, the lower the rate of start-up behaviors).

We believe there is likely to be an interaction between the formality of business planning and the timing of business planning. Rather than posit an efficiency argument

that entrepreneurs who formally plan early would likely engage in fewer creation activities after planning, we believe that those individuals who formally plan early would likely have more time to engage in venture creation activities.

H1d: The greater the formality of business planning, the greater the impact of timing of business planning on the rate of start-up behaviors.

Business Planning and the Concentration of Start-up Behaviors

Concentration of start-up behaviors refers to these behaviors being "bunched" together rather than spread more evenly across the entire start-up period. We would assume that individuals with a business plan might be more systematic in their efforts at developing a business than those individuals who did not plan. If a more systematic approach was used then individuals would be more likely to spread their activities more evenly across the venture creation process rather than bunch these activities together.

H2a: The presence of a business plan is negatively related to a concentration of start-up behaviors.

Assuming that a formal business plan is more systematic than an informal business plan, individuals who completed formal business plans would be more likely to spread their activities more evenly across the venture creation process rather than bunch these activities together.

H2b: The formality of business planning is negatively related to the concentration of nascent start-up behaviors. (That is, the greater the formality of business planning, the less the degree of concentration of start-up behaviors.)

Continuing with a "systematic" logic for planning, those individuals who completed a business plan early in the venture creation process would be more likely to space their venture creation activities over the venture creation process. The completion of a business plan provides these individuals with more time to systematically engage in activities in a less hurried and punctuated way than individuals who wait until the last minute to plan.

H2c: The timing of business planning is positively related to concentration. (That is the earlier the timing of business planning, the lower the degree of concentration of start-up behaviors.)

If early planning and formal planning both lead to a more systematic process of engaging in other entrepreneurial activities, we would assume that early formal planners would have less concentration in their activities. Early formal planners would space their start-up activities out over the start-up process, while late informal planners would be more likely to bunch their start-up activities towards the end of the venture creation process.

H2d: The impact of business plan timing is greater when a business plan is formally written than informally written or unwritten, therefore, an early formal business plan will result in less concentration of start-up behaviors.

Business Planning and the Timing of Start-up Activities

The timing of start-up behaviors measures whether start-up activities are likely to occur early or late in the start-up process. Since the measure of the presence of a

business plan indicates only whether planning has occurred, and not the point at which it occurs, we do not believe that the presence of a business plan would have any effect on when other start-up behaviors occur. Neither of the rationales presented earlier (regarding efficiency and the use of time) appear to indicate that planning has an influence on whether start-up activities occur early or late in the venture creation process. Therefore,

H3a: Completing a business plan will have no relationship to the timing of start-up activities.

Similarly, we do not believe that the formality of planning will influence when other start-up activities take place. If individuals who complete a formal business plan are likely to be more systematic in their other activities and these activities are more evenly spaced across the venture creation process, then formal planners would not have their other activities either early or late in the venture creation process.

H3b: The greater the degree of planning formality, the less likely that other start-up activities will be either early or late in the start-up process.

If entrepreneurs have a limited amount of time in which to carry out venture creation activities (Gifford, 1992), then individuals who complete business plans early in the venture creation process would be unable to complete other tasks during that time. Therefore, other venture creation activities would likely occur at times opposite to venture planning activities.

H3c: The timing of business planning is inversely related to the timing of start-up activities.

We would assume that early formal planners would be more systematic in the creation of their businesses; therefore, their activities would likely be more evenly spaced during the venture creation process, rather than bunched together either early or late. Yet, if there is a limited amount of time available for entrepreneurs to engage in venture creation activities (Gifford, 1992), then, those entrepreneurs who engaged in early formal planning would have less time early in the process to engage in any other activities. So, an argument could be offered that early formal planning is negatively related to the timing of other activities. We suggest that:

H3d: *The greater the formality of business planning, the greater the impact of timing of business planning on the timing of start-up activities.*

RESEARCH METHODS

The PSED Sample

Data for this study were obtained from the Panel Study of Entrepreneurial Dynamics (PSED). The Institute for Social Research at the University of Michigan administers the PSED (http://projects.isr.umich.edu/psed/), and a comprehensive overview of all datasets, questionnaires, and codebooks can be found at: www.psed.info. Additional information about the methods and sampling used to generate the PSED can be found in Gartner et al. (2004). The PSED is a longitudinal data set of individuals in the process of starting businesses who were identified from a random digit dialing telephone survey of 64,622 adults in the United States (Reynolds and Curtin, 2004). The PSED research program provides systematic, reliable, and generalizable data on important

features of the start-up process in the United States. The PSED provides information on the proportion and characteristics of the American adult population involved in efforts to start firms, the activities that constitute the start-up process, and the proportion and characteristics of the start-up efforts that become new firms. In addition, the PSED takes into account the political, social, and economic factors that continually affect the entrepreneurial process and follows individuals through the venture creation process at three stages with two transition points.

The first transition point in the model, *conception,* signifies when individuals from these two sources choose to pursue a new business start-up. Individuals in the start-up phase who intend an independent start-up are considered nascent independent entrepreneurs. Those sponsored by an existing business are nascent corporate entrepreneurs. Both groups are referred to as nascent entrepreneurs. The primary concerns at conception include the following: (1) determining the tendency of individuals to begin the business start-up process; and (2) determining the uniqueness of the individuals or their situation that leads some to enter this transition. The issues underlying conception are related to whether entrepreneurs are different from other individuals in the general population.

The second stage of the entrepreneurial process, *gestation,* encompasses bringing businesses into existence. The detailed emphasis the PSED puts on this stage distinguishes this research program from other efforts. In gestation, the focus is on activities that nascent entrepreneurs undertake to get the start-up launched, as well as the length of time involved in these start-up efforts. The amounts and types of resources

invested during the start-up process are of interest, as are questions regarding the composition and characteristics of the individuals involved. The model recognizes three pathways that emerging ventures may follow through gestation: (1) the nascent entrepreneur creates a new firm; (2) the nascent entrepreneur is "still trying" to start the business; and (3) the nascent entrepreneur "gives up" and abandons the start-up effort. In essence, the gestation stage encompasses questions about how nascent entrepreneurs go about the process of starting firms.

The second transition point in the entrepreneurial process model represents the outcome of gestation, birth, when entrepreneurial activities lead to an infant business. Relative to this transition point, the model asks: Why do some of the business start-up efforts succeed in creating new firms? When a firm birth occurs, the new business transitions into the third stage, infancy, in which many new firms struggle through a "liability of newness," a time when the firm's very survival may be at risk. During infancy, three types of trajectories are possible: growth, persistent but stable survival, or termination.

PSED data allow the study of gestation, birth, and infancy over time to determine how the nature of the individuals, their gestation strategies, and the context of the start-up affect future development of the new firm.

The PSED's methodology stresses two important aspects: (1) a procedure for identifying and interviewing nascent entrepreneurs and a comparison group; and (2) the content of the interviews. The first stage in identifying and interviewing nascent entrepreneurs involved large-scale screening of households to create two samples

representative of the national population of adults, 18 years and older. First, a sample of individuals attempting to start a new business was identified—either nascent independent entrepreneurs or nascent corporate entrepreneurs. Second, a representative sample of typical adults not involved with a business start-up was selected as a comparison group. The comparison group is critical for evaluating the tendencies and characteristics of the nascent entrepreneurs and generalizing the findings to a representative group of typical adults in the U.S. population. Once the screening procedures identified individuals for the two samples, detailed phone interviews were administered, followed by completion of self-administered questionnaires mailed to respondents. The third stage involved follow-up interviews with the nascent entrepreneurs 12, 24, and 36 months after their first interview.

In the screening phase of the data collection, a total of 64,622 individuals were contacted by telephone using a random digit dialing process to locate households with listed and unlisted numbers. All screening interviews were completed between July 1998 and January 2000. The subsequent detailed interviews of the two samples covered a wide range of topics. Nascent entrepreneurs completed a phone interview that averaged 60 minutes in length, with a range of 35 to 90 minutes. A similar procedure was followed with the comparison group, except that only a randomly selected subset of respondents was taken from those who volunteered during the national screening. The phone interview with respondents in the comparison group took about 25 minutes to complete.

At the completion of the phone interview, all respondents—the nascent entrepreneurs and the comparison group—were asked if they would be willing to

complete a self-administered mail questionnaire (10 or 12 pages long). Ninety-eight percent agreed, and 68 percent of the nascent entrepreneurs and 77 percent of the comparison group returned the mail questionnaires.

Two major PSED datasets are available for scholars to analyze and study. The first dataset is known as "the Screener." The Screener contains information on all 64,622 individuals that were contacted by telephone. The interviews provide information on 14 sociodemographic variables relative to the individual and household, including the county and state where the individual is located. Having information on these variables allowed a large number of county-related variables to be added to the records from other data sources (e.g., Census data). The Screener is useful for providing information on broad demographic variables for both the nascent entrepreneurs and for individuals and their households in the comparison group who indicated they were not involved in business start-up activities. This dataset also provides information on the economic and social context (including national and local conditions) of the respondents. With such a large sample of individuals (64,622), the Screener is very useful for computing prevalence rates for nascent entrepreneurial activity as well as for making comparisons between nascent entrepreneurs and individuals in the comparison group on the 181 variables.

The second PSED dataset is known as "the Sample." The Sample contains detailed information on the nascent entrepreneurs and individuals in the comparison group who agreed to participate in in-depth phone interviews and mail surveys. There are 1,261 respondents in the Sample (830 nascent entrepreneurs and 431 from the

comparison group) and more than 1,200 variables in this dataset for most of the respondents. The Sample provides information about the nascent entrepreneurs and the comparison group on their demographic characteristics, personal context, including work and family responsibilities, social networks, personal background and work experiences, personal dispositions, decision-making styles, risk preferences, and aspirations. In addition, for the nascent entrepreneurs there is detailed information on the nature and sequence of the start-up activities pursued in the firm creation process; the sources and kinds of resources used; and the strategic focus, kinds of industries, and characteristics of the markets where the prospective firms are intended to compete. Follow-up information on the nascent entrepreneurs also was collected 12, 24, and 36 months after the first interview. The variables in the follow-ups are similar to information collected in the first interviews, except that where firms have been started, information on the characteristics of the new firms also was collected.

Sample Selection for this Study

We follow Reynolds (2007) for selecting cases for this study. First, we retain cases that did not report going into business prior to the initial interview. We then retain cases with at least one follow-up interview, having three or more start-up activities, having two start-up activities occurring within a 12-month period, and which did not report positive monthly cash flow two years prior to any other start-up event. Finally, we retain cases where initial activity was reported less than ten years before the initial

interview. These criteria result in the inclusion of 638 cases. With the missing data for our dependent and independent variables, our final data set has 451 cases for the analysis of the effects of doing a business plan or not, and 304 cases for the analysis of the effects of planning timing and formality.

The PSED dataset comes with post-stratification weights for each respondent based on estimates from the U.S. Census Bureau's Current Population Survey (Curtin and Reynolds, 2004). According to these authors, "Weights should be used in all types of analyses" to insure the generalizability of these results to the U.S. population of working-age adults (p. 492). Per their suggestion, we adjusted the weights to reflect the reduction in the number of cases due to missing and inapplicable responses.

Measures

Start-up Activities. We follow the methodological approach of Van de Ven, Angle, and Poole (1989) for coding activity measures in the PSED. We code an entrepreneur's chronological listing of activity events with dichotomous indicators. The PSED lists 26 start-up activities with questions such as "Have marketing or promotional efforts been started?" If a nascent entrepreneur responded with a "yes," follow-up questions were asked to document the specific month and year when the activity took place.

A dichotomous indicator was used, with "1" representing the presence and "0" the absence of certain informative features of the qualitative event in the venture creation process. For each event, there was a time stamp, including the

year and month when the event occurred. Those who could not specifically remember the exact month in which an event occurred, were also given the choices of spring, summer, winter, and fall. We then recode the seasons so that: winter equals "1;" spring equals "4;" summer equals "7;" and fall equals "10."

To create the temporal sequence of events for each nascent entrepreneur, we follow Reynolds and Miller (1992). We consider the time that elapsed from the first event to the last event as the gestation period, regardless of the nature of the events. The time stamp for each event is calculated using the following steps: (1) The earliest year and the latest year among all the activities engaged in by a nascent entrepreneur in all four rounds (Q, R, S, T) of data collection were identified. This is considered the start year of the venture gestation process. (2) We convert the month and year for each event for all events across the Q, R, S, and T rounds. (3) If an event occurred in the follow-up interviews, we keep the time and occurrence for the latest round. For example, if a nascent entrepreneur responded with a "yes" to the question of "Have marketing or promotional efforts been started?" during the Q round and S round, we keep the time stamp of the S round in our dataset. The final dataset has all the consolidated activities engaged in by each nascent entrepreneur coded in bitmap format, with the time stamp in the form of months.

The measurement of concentration, rate, and timing is consistent with Lichtenstein et al. (2007). *Concentration* is measured by the degree to which organizing activities are clustered or spread in time. It is operationalized in terms of the variance of monthly activity time. The smaller the variance, the greater the degree of concentration

(i.e., activities are highly clustered). The larger the variance, the smaller the degree of concentration (activities are widely dispersed). Unlike Lichtenstein et al. (2007), we further transform the variance measures in two ways: (1) as the variance for start-up activities is large, we do a log transformation; (2) to simply the interpretation of these scores, we reverse-code the log-transformed variance by subtracting it from 5. Therefore, the greater the measure, the greater the degree of concentration. *Rate of organizing* is calculated by the total number of events divided by the duration of the gestation time, which is the difference between the earliest time and the latest time, regardless of the nature of the event. A greater rate of organizing will mean there are a greater number of activities accomplished for a given period of time. *Timing* is measured by the average event time divided by the duration of gestation time. A value of timing closer to 0 means most of the start-up activities occur at the early stage of gestation process, whereas a value of timing closer to 1 suggests that most of the start-up activities occur at late in gestation process.

Business Planning. During the four waves of data collection (Q, R, S, T), nascent entrepreneurs were asked "Has a business plan been prepared for this start-up?" For the *presence of business planning,* we coded the following two scenarios as "1" for "business plan has been prepared"—either nascent entrepreneurs have prepared a business plan in the Q wave or business plans have been developed in a later wave (R, S, T). We coded the cases as "0" for "business plan has not prepared" if nascent entrepreneurs consistently responded "no" in all four rounds. The other two important business planning measures are timing and formality. Business planning may occur at any point of time during the

venture gestation process. *The timing of business planning* is measured by time stamp in months of business planning divided by the total gestation time. A low ratio suggests that business planning takes place at the early phase of gestation process, whereas a large ratio indicates that business planning occurs at a later phase of venture creation. *The formality of business planning* is measured by a nascent entrepreneur's response to the question of "What is the current form of your business plan: in your head, informally written, and formally prepared? "Unwritten/in head" is coded as 1, "informally written" as 2, and "formally written" as 3.

Prior studies indicate that human capital-related factors may affect the venture creation process (Bates, 1990; Bruderl, Preisendorfer, and Ziegler, 1992; Castrogiovanni, 1996). Following Shane and Delmar (2004), we control for these dimensions of human capital: education, industry experience, managerial experience and start-up team as well as for industry sector. For *educatio*n, nascent entrepreneurs were asked "What is the highest level of education you have completed so far?" Responses were coded on an ordinal scale from 0 to 9, with 0 indicating "up to eighth grade" and 9 indicating "LLD, MD, Ph.D or EDD degree." We then convert the levels of education into years. We measure *industry experience* as the total years of full-time paid work experience in the industry that these nascent entrepreneurs were starting their firms in. For *managerial experience*, nascent entrepreneurs were asked to respond to the question, "For how many years, if any, did you have any managerial, supervisory or administrative responsibilities." If the nascent entrepreneurs has a *start-up team,* this was coded as 1,

otherwise 0. For *sector*, nascent entrepreneurs were asked if they "consider this start-up a high-tech?" "Yes" is coded as 1, otherwise it's 0.

Prior research also suggests that opportunity search and opportunity recognition affect the venture creation process (Ardichvil, Cardozo and Ray, 2003; Kaish and Gilad, 1991). For the *opportunity search* measure, nascent entrepreneurs were asked to respond to the statement of "I have engaged in a deliberate, systematic search for an idea for a new business" in a Likert scale with 1 for "completely disagree" and 5 for completely agree." In a similar vein, for the *opportunity recognition* measure, nascent entrepreneurs were asked to respond to the statement, "The best business ideas just come, without a need to search for them."

Table 1 describes items used from the PSED questionnaires for analysis. Table 2 lists the questions involved with the 26 start-up activities and their timing.

Models

Hypotheses are tested in a series of hierarchical regression models with concentration, rate, and timing of gestation process as dependent variables and the three planning variables (and the interaction between formality, presence, and timing) as independent variables. Control variables include education, years of industry experience, years of managerial experience, sector, start-up team, opportunity search, and opportunity recognition. We first created a base model, and then included additional planning and interactive variables of interest. In each case, increment R-square and F change were identified and tested to evaluate the model's fit and the explanatory power of the additional predictors.

RESULTS

Table 3 lists mean, standard deviation, and correlations for our dependent, independent, and control variables. From the mean values we can observe that our sample of nascent entrepreneurs have an average of 14.3 years of education, 18 years of industry experience, and about nine years of managerial experience.

Rate of Start-up Activities

Model 1 of Table 4 shows the impact of the control variables on the rate of start-up activities. Years of education ($\beta = -.101$; $p<0.05$) and opportunity recognition ($\beta = -.164$; $p<0.01$) show a significant negative impact on the rate of start-up activities. These results suggest that more years of education and more challenges in recognizing an

opportunity lead to smaller numbers of start-up activities within a given period of time. These entrepreneurs might be thought of as putting in less effort toward accomplishing specific start-up behavior. The factors that appear to have no direct or significant bearing on the rate of start-up activities are years of industry and managerial experience, sector, and search efforts.

Model 2 of Table 4 provides a test of the independent impact of business planning on the rate of start-up activities. The presence of business planning in this model has a coefficient of -.012. Though our result is consistent with the hypothesized directionality, it is not statistically significant. Hypothesis 1a which states that doing a business plan is associated with a low rate of creation activities is not supported. Model 3 of Table 4 tests the independent impact of formality and timing of business planning on the rate of venture creation activities. Hypothesis 1b, which posits that greater formality of planning is associated with a lower rate of venture creation activities is not supported ($\beta = -.032$). However, Model 3 yields a coefficient of -.121 ($p<0.05$) for the timing of business planning, lending support for Hypothesis 1c: the earlier that a business plan is completed the greater the rate of venture creation activities. Model 4 of Table 4 tests the interaction between timing and formality of the business plan and yields a coefficient of -.333, which is not statistically significant. Therefore Hypothesis 1d is not supported.

Concentration of Start-up Activities

As indicated in Model 1 of Table 5, education, industry experience and opportunity recognition have a significant negative impact on the concentration of start-

up activities (coefficients of -.154, -.106 and -.147 respectively). This suggests that the greater the number of years education and managerial experience and the greater the difficulty of recognizing a business opportunity, the less the degree of concentration or the larger spread, over time, of the venture creation process. Surprisingly, we failed to detect any significant impact of managerial experience and start-up team on the venture process as previous studies suggested (i.e., Bruderl, Preisendorfer, and Ziegler, 1992). We also found that concentration is independent of industry sector, which suggests that the nature of the start-up, high-tech or no-tech, would not affect the degree of clustering or pacing in venture creation activities.

Model 2 of Table 5 shows a coefficient of -0.057 for business planning. Hypothesis 2a is not supported. Although it is not statistically significant, the negative direction suggests that nascent entrepreneurs who do a business plan would be more likely to have lower concentration of start-up activities during the venture creation process. Model 3 and Model 4 of Table 5 demonstrate the independent and interactive effects of planning formality and timing. Neither the coefficient for planning formality nor that for planning timing at Model 3 are statistically significant, lending no support for Hypotheses H2b and H2c. Model 4 shows a coefficient of -1.939 ($p<0.05$) for the interactive term of business formality and timing. To further interpret the interactive effect, we follow methods suggested by Cohen and Levinthal (1990) by first substituting all the predictors except for the timing and formality of planning and the cross product between the two. The result is a reduced equation with the two predictors and their cross product. We then select values for high and low of planning formality as one standard

deviation above and one standard deviation below respectively. Substituting each of these values into the reduced equation yields the two sets of linear equations, which is subsequently depicted in Figure 1a. The opposite of Hypothesis 2d is therefore supported.

Our results suggest that the formality of business planning moderates the relationship between timing of business planning and concentration. Specifically, when planning early, entrepreneurs who have a formally written business plan would have a higher level of activity concentration than those who have a business plan informally written or unwritten. By contrast, when planning late, entrepreneurs with informally written or unwritten business plans seem to have higher levels of concentration of activities than those with formally written ones. In other words, our results suggest that nascent entrepreneurs tend to show a spurt of activities when they have a formal business plan and when they plan early. In contrast, nascent entrepreneurs seem to have a steady pace of start-up activities when they have a formally written business plan at a later stage in the venture creation process.

Timing of Start-up Activities

Model 1 of Table 6 provides a base model for the presence of business planning and the formality and timing of business planning. None of the control variables is statistically significant. Model 2 of Table 6 tests the incremental impact of business planning on the rate of start-up activities and yields a coefficient of .042. Hypothesis 3a states that completing a business plan is not significantly related to the timing of nascent activities. This hypothesis is supported. In Model 3 of Table 6, we test the independent

effects of planning formality and timing on the rate of organizing, which yields coefficients of 0.033 and 0.678 ($p<0.01$) respectively. Hypothesis 3b is supported, whereas Hypothesis 3c is not supported. This finding suggests that the rate of start-up activities, i.e., the intensity of start-up efforts, would not be affected by business planning formality, be it unwritten, informally written or formally written. By contrast, the timing of planning is positively related to rate, therefore suggesting that the earlier a business plan is completed, the earlier other start-up activities will take place.

Model 4 of Table 6 tests the interactive effect of planning formality and timing on the rate of nascent activities and yields a coefficient of .375 ($p<0.05$). Similar to the method for interpreting the interactive effect stated above, we depict this interactive term in Figure 1b. Figure 1b suggests that the positive impact of the timing of business planning on the timing of start-up activities will be greater for nascent entrepreneurs who have business plans formally written than for those who have informally written or unwritten ones. Hypothesis 3d is therefore supported.

DISCUSSION

Are planners doers? It all depends. The presence of planning (whether entrepreneurs complete a business plan, or not) does not appear to influence the rate, concentration, or timing of start-up activities, as a whole. So, in general, the activity of business planning does not, as a main effect, seem to influence whether entrepreneurs will engage in more activities (rate), bunch these activities together (concentration), or accomplish these activities earlier or later in the start-up process (timing). And, the

degree of formality of the business plan (whether the plan is written, informally written, or "in one's head") does not, as a main effect, influence the rate, concentration or timing of other start-up activities.

There is a significant effect regarding the timing of business planning (early or late in the start-up process) and the rate of start-up activities. When entrepreneurs engage in early planning efforts, they will be more likely to accomplish a greater number of start-up activities in a given period of time than those entrepreneurs who do not plan. When entrepreneurs create a formal plan early, they are more likely to concentrate their start-up efforts (i.e., to accomplish more start-up activities) early in the start-up process, rather than later. Given the finding that formal early planners would have an early concentration of activities, this would also imply that these activities would be early (early timing) as well. Formal early planners accomplished more activities early than did the other kinds of planners.

It should also be pointed out that those entrepreneurs who generated informal or unwritten plans late in the start-up process are significantly more likely to accomplish start-up activities late in the start-up process, and these activities are likely to be concentrated late in the start-up process as well.

Completing a business plan early, and, more specifically, completing a formal business plan early, appears to lead to engaging in more start-up activities and to concentrating these activities early in the start-up process. While this study did not test whether the combination of planning and various start-up behavior characteristics would more likely lead to success at getting into business, previous studies (Delmar and Shane,

2003; 2004; Gartner and Liao, 2007; Honig and Karlsson, 2004; Liao and Gartner, 2006; Reynolds, 2007; Shane and Delmar, 2004) have shown that completing a business plan significantly increases the likelihood that a business will be successfully started. We would suggest that our findings about early planning and start-up activities seem to indicate that early planning does appear to stimulate more action toward venture development and that the combination of planning and these other activities increases chances of getting into business. This suggestion is subject to empirical testing and should be the subject of future studies.

Early formal planners are doers. This finding may be of value to those individuals involved in new venture creation training and in supporting new venture creation development. Challenging prospective entrepreneurs to accomplish a formal business plan early in the venture creation process will likely enable them to engage in additional start-up activities that could further the process of business creation. By engaging in venture creation activities earlier rather than later, prospective investors and other venture supporters might ascertain earlier whether a fledgling idea has potential as an ongoing business.

Our results challenge a logic that suggests that entrepreneurs who engage in business planning are more systematic in their start-up efforts over time. We find that early formal planners concentrate their start-up activities early in the start-up process. Early planning in these circumstances appears to focus the efforts of entrepreneurs to accomplish more earlier. Early planning is an impetus for early action.

One intriguing result that merits further exploration is the finding that entrepreneurs who felt that business opportunities had to be sought are likely to engage in fewer activities and to spread their start-up activities more evenly over a period of time. This finding may suggest that individuals involved more heavily in the search for a business opportunity or idea have less time to engage in other activities after the search process has been completed. Or, it may indicate that entrepreneurs who believe in the importance of searching for an idea are continuing their search for an idea, and are therefore not accomplishing any of the other start-up activities. Further research on the characteristics of the opportunities that are pursued by nascent entrepreneurs, and how the characteristics of these opportunities are likely to influence the kinds of start-up activities, as well as the rate, concentration and timing of these activities overall, may have significant value. Some opportunities may require a more systematic evaluation and exploitation process than others; business planning may be one activity that could further the development of these opportunities sooner, rather than later, in the venture creation process.

Finally, it should be noted that this study explored the impact of planning on start-up activities overall, rather than evaluating how planning might influence specific activities. There may be some value in evaluating whether the presence, formality, and timing of business planning influences specific activities such as marketing, finance, and operations. Shane and Delmar (2004) found that those nascent entrepreneurs who engaged in business planning before undertaking marketing activities were more likely to successfully start businesses than those who did not. Exploring the specific sequence of

activities necessary to start a business may lead to insights into particular patterns or groupings of activities at particular times in the start-up process which might be more likely to lead to successful venture creation (Liao, Welsch and Tan, 2005).

CONCLUSIONS

We believe that the evidence from this study and evidence from previous studies using the Panel Study of Entrepreneurial Dynamics indicate that engaging in pre-venture business planning has significant benefits that appear to encourage action and success at getting into business. We would encourage entrepreneurship scholars who are interested in the process of new venture creation to invest the time and effort necessary to utilize the datasets developed in the PSED. (These can be found at: www.psed.info or www.psed.isr.umich.edu/psed). A significant amount of information is still to be gleaned from this research program on the nature of the venture creation process.

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Table 1: Descriptions of PSED Questions: Key Variables

Variable Definition	PSED	Item Descriptions and Coding
Education	Q343	What is the highest level of education you have completed so far? (READ ONLY IF NECESSARY) 00. Up to eighth grade 01. Some high school 02. High school degree 03. Tech. or voc. degree 04. Some college 05. Comm. college degree 06. College degree 07. Some graduate training 08. MBA, MA, MS degree 09. LLB, MD, PhD, EDD degree 99. DK; NA
Industry Experience	Q199	How many years of work experience have you had in this industry . the one where the new business will compete? CODE NUMBER OF YEARS (0-60) 00. Less than one year 99. DK; NA
Management Experience	Q341	For how many years, if any, did you have managerial, supervisory, or administrative responsibilities? CODE ACTUAL NUMBER (0-60) 99. DK; NA
Tech vs Non-tech	Q301	Would you consider this new business to be high-tech? 1. Yes 2. No 3. Not applicable (vol) 9. DK; NA
Start-up Team	Q116	Has a start-up team been organized? (A start-up team is more than one person that helps to put the firm in place, expecting to share ownership. If both married partners own and operate a business, that is a start-up team.) 1. Yes 2. No 8. DK 9. NA

Opportunity Search	QK1J	I have engaged in a deliberate, systematic search for an idea for a new business. 1. Completely disagree 2. Generally disagree 3. Neutral 4. Generally agree 5. Completely agree 9. NA
Opportunity Recognition	QK1K	The best business ideas just come, without a need to search for them 1. Completely disagree 2. Generally disagree 3. Neutral 4. Generally agree 5. Completely agree 9. NA
Business plan presence	Q111+ R568+ S568+ T568	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? 1. Yes 2. No 8. DK 9. NA
Business Plan Formality	Q114 R571 S571 T571	What is the current form of your business plan . unwritten or in your head, informally written, formally prepared, or something else? 1. Unwritten/in head 2. Informally written 3. Formally prepared 4. Both 1 and 2 0. Something else 8. DK 9. NA

Table 2: Descriptions of PSED Questions: A List of Start-up Activities and Timing

		Q Round			R Round			S Round			T Round		
Items	**Events**	**Code**	**Time (yr)**	**Time (month)**	**Code**	**Time (yr)**	**Time (month)**	**Code**	**Time (yr)**	**Time (month)**	**Code**	**Time (yr)**	**Time (month)**
A	Spent time on thinking about business idea?	Q109	Q110	Q110a	R566	R567	R567a	S566	S567	S567a	T566	T567	T567a
B	Has a business plan been prepared for?	Q111	Q115	Q115a	R568	R572	R572a	S568	S572	S572a	T568	T572	T572a
C	Has a start-up team been organized?	Q116	Q119	Q119a	R573	R576	R576a	S573	S576	S576a	T573	T576	T576a
D	Developing models and procedures?	Q120	Q121	Q121a	R577	R578	R578a	S577	S578	S578a	T577	T578	T578a
E	Have marketing or promotional efforts been started?	Q122	Q123	Q123a	R579	R580	R580a	S579	S580	S580a	T579	T580	T580a
F	Application for a patent/copyright/trademark?	Q124	Q127	Q127a	R581	R584	R584a	S581	S584	S584a	T581	T584	T584a
G	Purchase of raw materials, inventory, supplies?	Q128	Q130	Q130a	R585	R587	R587a	S585	S587	S587a	R585	R587	R587a
H	Purchase/lease/rent of equipment/facilities/property?	Q131	Q133	Q133a	R588	R590	R590a	S588	S590	S590a	T588	T590	T590a
I	Defined market opportunities?	Q134	Q136	Q136a	R591	R593	R593a	S591	S593	S593a	T591	T593	T593a
J	Developed projected financial statements?	Q137	Q138	Q138a	R594	R595	R595a	S594	S595	S595a	T594	T595	T595a
K	Saved money to invest in the business?	Q139	Q142	Q142a	R596	R599	R599a	S596	S599	S599a	T596	T599	T599a
L	Invested your own money in this business?	Q143	Q144	Q144a	R600	R601	R601a	S600	S601	S601a	T600	T601	T601a
M	Asked financial institutions or other people for funds?	Q145	Q148	Q148a	R602	R605	R605a	S602	S605	S605a	T602	T605	T605a

N	Established credit with a supplier?	Q149	Q150	Q150a	R606	R607	R607a	S606	S607	S607a	T606	T607	T607a
O	Arranged child care or household help to allow more time on business?	Q151	Q152	Q152a	R608	R609	R609a	S608	S609	S609a	T608	T609	T609a
P	Devoted full time to the business (>35 hour/week)	Q153	Q154	Q154a	R610	R611	R611a	S610	S611	S611a	T610	T611	T611a
Q	Hired any employees/managers?	Q155	Q157	Q157a	R612	R614	R614a	S612	S614	S614a	T612	T614	T614a
R	Opened a bank account exclusively for this business?	Q160	Q161	Q161a	R617	R618	R618a	S617	S618	S618a	T617	T618	T618a
S	Received money for the sales of goods/services?	Q162	Q162a	Q162b	R619	R620	R620a	S619	S620	S620a	T619	T620	T620a
T	Taken any classes/workshop on starting a business?	Q167	Q170	Q170a	R625	R628	R628a	S625	S628	S628a	T625	T628	T628a
U	Listed new business in the phone book?	Q171	Q172	Q172a	R629	R630	R630a	S629	S630	S630a	T629	T630	T630a
V	Installed a designated phone line for business?	Q173	Q174	Q174a	R631	R632	R632a	S631	S632	S632a	T631	T632	T632a
W	Paid state unemployment insurance tax?	Q175	Q176	Q176a	R633	R634	R634a	S633	S634	S634a	T633	T634	T634a
X	Paid federal social security taxes (FICA)?	Q177	Q178	Q178a	R635	R636	R636a	S635	S636	S636a	T635	T636	T636a
Y	Filed a federal tax return?	Q179	Q180		R637	R638		S637	S638		T637	T638	
Z	Listed with Dun & Bradstreet	Q181	Q182	Q182a	R639	R640	R640a	S639	S640	S640a	T639	T640	T640a

Table 3 -- Descriptive Statistics: Mean, Standard Deviation, Correlations

	Mean	STD	1	2	3	4	5	6	7	8	9	10	11	12	13
Education (Years)	14.325	2.252	1.000												
Industry Experience (Years)	18.242	10.972	0.070*	1.000											
Managerial Experience (Years)	8.900	8.509	.225***	.619***	1.000										
Tech vs Nontech	0.350	0.477	0.027	-0.010	0.032	1.000									
Startup Team Organized? (Y/N)	0.677	0.468	0.008	-0.032	0.038	0.077*	1.000								
Opportunity Search	2.794	1.318	-.093**	.092**	0.011	-0.031	-0.037	1.000							
Opportunity Recognition	2.834	1.212	-0.020	-0.080*	-.118**	0.067	0.089*	-.117*	1.000						
Business Plan Presence (Y/N)	0.702	0.458	0.059	0.014	0.058	.090**	.296***	0.076	0.015	1.000					
Business Plan Formality	2.328	0.698	.230***	-0.033	0.040	.099**	0.045	0.041	-0.005	0.032	1.000				
Business Plan Timing (Early or Late)	0.633	0.301	-0.004	-0.038	-0.046	0.013	-0.029	-0.056	0.090	-0.034	-0.070	1.000			
Concentration of Venture Creation Behaviors	2.530	0.914	-.102***	-.166***	-.139***	-0.049	0.025	0.008	-0.087	-0.047	-0.071	-.109**	1.000		
Rate of Venture Creation Bahaviors	0.293	0.292	-0.055	-.099**	-0.052	-0.024	.095**	0.029	-.120***	0.015	-0.012	-.161***	.790**	1.000	
Timing of Venture Creation Behaviors	0.658	0.174	0.037	0.049	0.057	-0.054	-0.029	-0.018	-0.039	0.032	-0.028	.663***	-.120***	-.144***	1.000

***. p< 0.01 level; **p<0.05; *p<0.1 ;

Table 4 – Business Planning and the Rate of Nascent Behaviors

	Model 1		Model 2		Model 3		Model 4	
	β	t	β	t	β	t	β	t
Education (Years)	-0.101	-2.159**	-0.101	-2.139**	-0.047	-0.776	-0.040	-0.670
Industry Experience (Years)	-0.078	-1.306	-0.078	-1.304	-0.110	-1.481	-0.092	-1.227
Managerial Experience (Years)	-0.021	-0.340	-0.020	-0.332	0.014	0.189	0.006	0.080
Tech vs Nontech	-0.001	-0.017	0.000	-0.004	-0.011	-0.186	-0.018	-0.310
Startup Team	0.147	3.152***	0.150	3.093***	0.174	3.019***	0.176	3.065***
Opportunity Search	-0.007	-0.156	-0.006	-0.127	0.005	0.082	0.000	0.001
Opportunity Recognition	-0.164	-3.487***	-0.164	-3.473***	-0.104	-1.791**	-0.098	-1.691*
Business Plan Presence(Y/N)			-0.012	-0.238				
Business Plan Formality					-0.032	-0.543	0.143	1.085
Business Plan Timing					-0.121	-2.141**	0.157	0.803
Business Plan Timing X Formality							-0.333	-1.486
R-Square		0.059		0.059		0.066		0.073
R-Square Change		0.059		0.000		0.015		0.007
F Change		3.986***		0.057		2.394*		2.208
N		452.000		452.000		304.000		304.000

***. p< 0.01 level; **p<0.05; *p<0.1 ;

Table 5 – Business Planning and the Concentration of Nascent Behaviors

	Model 1		Model 2		Model 3		Model 4	
	β	t	β	t	β	t	β	t
Education (Years)	-0.154	-3.307***	-0.151	-3.230***	-0.056	-0.939	-0.048	-0.807
Industry Experience (Years)	-0.106	-1.787*	-0.106	-1.784*	-0.158	-2.143**	-0.136	-1.827*
Managerial Experience (Years)	-0.073	-1.209	-0.071	-1.174	-0.044	-0.577	-0.054	-0.719
Tech vs Nontech	-0.005	-0.104	-0.002	-0.047	-0.022	-0.391	-0.030	-0.539
Startup Team	0.062	1.330	0.078	1.607	0.140	2.462**	0.142	2.509**
Opportunity Search	-0.035	-0.757	-0.028	-0.609	-0.046	-0.806	-0.052	-0.928
Opportunity Recognition	-0.147	-3.128***	-0.145	-3.088***	-0.135	-2.354**	-0.127	-2.227**
Business Plan Presence (Y/N)			-0.057	-1.188				
Business Plan Formality					-0.079	-1.361	0.145	1.120
Business PlanTiming					-0.091	-1.617	0.270	1.390
Business Plan Timing X Formality							-0.431	-1.939**
R-Square		0.070		0.073		0.088		0.099
R-Square Change		0.070		0.003		0.013		0.012
F Change		4.788***		1.410		2.154		3.759**
N		451.000		451.000		304.000		304.000

***. p< 0.01 level; **p<0.05; *p<0.1 ;

Table 6. Business Planning and the Timing of Nascent Behaviors

	Model 1		Model 2		Model 3		Model 4	
	β	t	β	t	β	t	β	t
Education (Years)	-0.006	-0.126	-0.008	-0.175	-0.034	-0.745	-0.041	-0.908
Industry Experience (Years)	0.016	0.258	0.016	0.257	0.017	0.311	-0.003	-0.051
Managerial Experience (Years)	0.088	1.415	0.086	1.389	0.133	2.337**	0.143	2.511**
Tech vs Nontech	-0.050	-1.045	-0.052	-1.086	-0.097	-2.269**	-0.089	-2.088**
Startup Team	-0.007	-0.149	-0.019	-0.373	0.034	0.791	0.031	0.733
Opportunity Search	-0.012	-0.258	-0.017	-0.355	0.006	0.150	0.012	0.274
Opportunity Recognition	-0.013	-0.260	-0.014	-0.288	-0.004	-0.088	-0.010	-0.240
Business Plan Presence (Y/N)			0.042	0.837				
Business Plan Formality					0.033	0.760	-0.163	-1.670*
Business PlanTiming					0.678	16.003***	0.364	2.501**
Business Plan Timing X Formality							0.375	2.250**
R-Square		0.012		0.014		0.479		0.488
R-Square Change		0.012		0.002		0.453		0.009
F Change		0.798		0.701		128.053***		5.063**
N		452.000		452.000		304.000		304.000

***. p< 0.01 level; **p<0.05; *p<0.1 ;

Figure 1 -- Interaction Effects of Business Planning Formality and Timing

Figure 1a

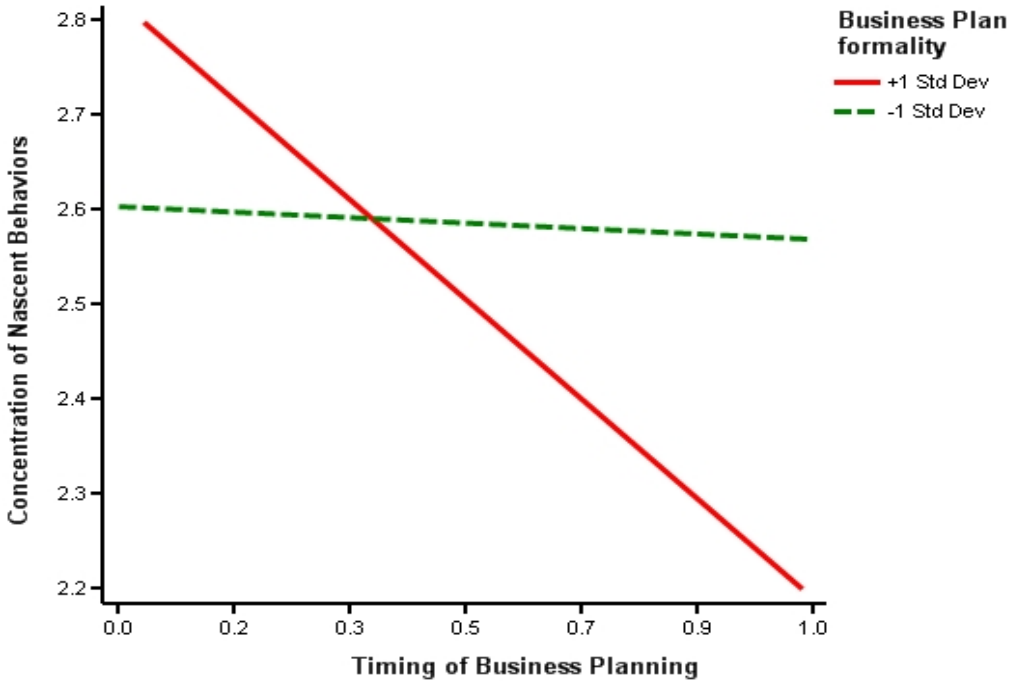

Figure 1b