ENGAGEMENT, PERSISTENCE, PROGRESS AND SUCCESS AS THEORETICALLY DISTINCT ASPECTS OF BUSINESS CREATION PROCESSES

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ENGAGEMENT, PERSISTENCE, PROGRESS AND SUCCESS AS THEORETICALLY DISTINCT ASPECTS OF BUSINESS CREATION PROCESSES

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ABSTRACT
Starting from the vantage point that explaining success at creating a venture should be the unique contribution—or at least one unique contribution—of entrepreneurship research, we argue that this success construct has not yet been adequately defined and operationalized. We thus offer suggestions for more precise conceptualization and measurement of this central construct. Rather than regarding various success proxies used in prior research as poor operationalizations of success we argue that they represent other important aspects of the venture creation process: engagement, persistence and progress. We hold that in order to attain a better understanding of venture creation these constructs also need to be theoretically defined. Further, their respective drivers need to be theorized and tested separately. We suggest theoretical definitions of each. We then develop and test hypotheses concerning how human capital, venture idea novelty and business planning has different impact on the different assessments of the process represented by engagement, persistence, progress and success. The results largely confirm the stated hypotheses, suggesting that the conceptual and empirical approach we are suggesting is a path towards improved understanding of the central entrepreneurship phenomenon of new venture creation.

INTRODUCTION
Arguably, explanations of success at creating a venture should be the unique contribution—or at least one unique contribution—of entrepreneurship research. In relation to “traditional” business/management research, this is an entirely new question. While being at the very core of the entrepreneurship domain we argue that for decades of entrepreneurship research this question has not been pursued with sufficient conceptual and empirical precision. For example, much of early entrepreneurship research contrasted the characteristics of entrepreneurs (samples of business founders or business owners) with those of other groups (samples of managers or of the general population). As observed by Davidsson (2004), if in such a contrast the “entrepreneurs” prove to be different on some characteristic we would not know whether that characteristic contributed to making them engage in a business start-up in the first place or, alternatively, individuals with that characteristic are over represented in the entrepreneur sample because they are more persistent (regardless of the performance of the business) or more successful at starting a viable business (therefore remaining in the “entrepreneur” category at the time of the research). Thus, apart from the cross-sectional design peril of reverse causation such contrasts confound factors associated with the propensities to engage, persist and succeed in entrepreneurial behavior, respectively.

Process oriented research following business start-ups as they happen (e.g., the Panel Study of Entrepreneurial Dynamics, PSED, and similar projects; see Davidsson & Gordon, in press;
Reynolds & Curtin, 2011) is better positioned to disentangle the drivers of different outcomes. However, there is no consensus in the literature as regards the dependent variables. In most instances the researchers explicitly or implicitly interpret their DVs as operationalizations of success; however, as observed by Davidsson and Gordon (in press) the operationalization is often better regarded as persistence – evidence that the start-up effort has not yet been abandoned. The PSED-type line of research has also introduced another outcome criterion for early stage business creation processed, namely making progress, operationalized either as the achieving of particular milestones or the accumulation of completed gestation activities in a time period. Like measures of persistence, this criterion is usually interpreted as reflecting success. In other instances closer proxies to a theoretical definition of success are used, such as evidence of an extended period of having sales or positive cash flow on a regular basis. Some papers demonstrate interesting differences in results with respect to different outcome variables (e.g., Davidsson & Honig, 2003; Honig & Karlsson, 2004; Rotefoss, 2005) but they typically do not theorize differential impact.

The use of varying and sometimes rather distant proxies for success in business creation research leads not only to conflicting results, but also to confusion regarding the influence of certain predictors. We argue that in order to progress further, business creation research needs theoretical development. This starts with theoretically defining what “success” means in research on new venture creation processes. Theoretically defining business creation success is a necessary condition for assessing the validity of extant measures and for developing new and better operationalizations. However, business creation processes are heterogeneous and complex (Liao & Welsch, 2003; Lichtenstein, Carter, Dooley, & Gartner, 2007; Reynolds & Miller, 1992) and theorizing and testing of direct drivers of success without consideration of the factors that influence the steps on the way may as a consequence not be successful. Therefore, rather than discarding operationalizations more closely reflecting engagement, persistence or progress as distant and therefore questionable indicators of success, these constructs should be regarded important theoretical building blocks in their own right, and better theory should be developed regarding their respective drivers as well as regarding how they differ from one another and from drivers of success. Although partial examples exist (e.g., DeTienne, Shepherd, & De Castro, 2008; Gimeno, Folta, Cooper, & Woo, 1997), such theorizing is rare in the entrepreneurship literature.

On the theoretical side this paper offers more precise definitions of engagement, persistence, progress, and success, respectively. Importantly, we also theorize how human capital, venture idea novelty, and business planning differentially influence these different markers of the entrepreneurial process. Empirically, we suggest operationalizations of these core outcome constructs and test hypotheses about the differential effects on engagement, persistence, progress, and success.

THEORETICAL DEVELOPMENT AND HYPOTHESES

Theoretical definitions

Engagement in venture creation processes is clearly something quite different from entrepreneurial success. It is a concept that can be defined either on the individual level or the level of the (emerging) venture. The former largely coincides with the second of Shane and Venkataraman’s (2000) three major questions for entrepreneurship research: “Why do some people and not others discover and exploit (…) opportunities?” Individuals may engage in venture creation processes for a multitude of different reasons and it is important to understand these reasons as well as their implications for performance down the track. The corresponding venture level question, while overlooked by Shane and Venkataraman (2000), is also theoretically and practically interesting:
What characteristics of “opportunities” make it likely that people identify and act upon them? However, due to space and empirical limitations we will here concentrate on the individual level. The individual level question can be asked within different time frames. Taking a life history or career perspective the question becomes what makes people engage in entrepreneurial activity at any point in time. This may be the better choice if the interest is strictly in person-related factors or variance in “degrees” of engagement is of interest (cf. Ucbasaran, Westhead, & Wright, 2006). Alternatively, engagement can be defined with reference to a particular time—typically the time when the empirical study is undertaken. This may be preferable when situational variables are also of interest and it may also present less daunting challenges from the perspective of empirical design. It is the choice that has been made by the (inter-related) GEM and PSED research programs (Gartner, Shaver, Carter, & Reynolds, 2004; Reynolds et al., 2005; Davidsson & Gordon, in press). This is also the perspective we focus on here. From this perspective engagement is about an individual taking active, “inside” part as founder in a venture creation attempt at a particular point in time. This may be the first time the individual shows such engagement or they may be an experienced business founder. They may do it on their own or as part of a team. The “active” criterion demands that there is more than an intention—tangible activity towards the realization is required. Further, the definition excludes passive investors and occasional helpers. These criteria largely coincide with the screening procedure developed in the GEM/PSED research stream (Reynolds, 2009). Based on the above reasoning, for the purpose of this paper we define entrepreneurial engagement as follows:

**Engagement:** An individual’s active, behavioral involvement as founder-owner in a business start-up attempt at a particular point in time.

This definition implies that a study of engagement should contrast individuals fulfilling the definitional criteria with those who do not.

**Persistence** in venture creation can likewise be defined on the individual level or on the venture level. The two differ, for example, when one member of an entrepreneurial team abandons a continuing business start-up effort. We choose here to put the main emphasis on the individual level: What is it that makes some people more likely than others to keep trying in entrepreneurial endeavors? An ideal examination of this question would hold characteristics of the venture and the environment constant (Shugan, 2007). In studies of real-world entrepreneurship this is not possible, and such characteristics instead become part of the explanation for the individual’s persistence. As was the case for engagement, even if restricted to venture creation (rather than including keeping established businesses alive) persistence can be defined and studied within different time frames. With a longer time frame it would include consideration of what individuals are more likely to bounce back and re-enter venture creation processes after previous efforts have been terminated one way or the other. With the shorter time perspective employed here, persistence refers to staying on and continuing the attempt to get a particular venture creation process to a successful outcome. Persistence is demonstrated by the individual’s continued investment of time and (possibly/probably) other resources in the emerging new venture. Conceptually this is quite far removed from any meaningful definition of success. It is also a theoretically complex (or even ambiguous) notion with connotation to the supposedly positive quality of tenacity (Baum & Locke, 2004; Khan, 1986) as well as to the psychological traps of escalation-of-commitment (McCarthy, Schoorman, & Cooper, 1993) or “foolish consistency” (Cialdini, 1988) that would make founders stay too long and invest too much in “doomed” ventures. Based on the above reasoning, for the purpose of this paper we define entrepreneurial persistence as follows:
Persistence: An individual's continued active, behavioral involvement as founder-owner in a business start-up attempt at a particular point in time.

This definition implies that a study of persistence follow individuals who were engaged in business start-up efforts at a given previous point in time and compare their status.

Progress in the entrepreneurial process is best conceived of as a venture level construct. It consists of behavioral steps or actions that presumably reduce the gap between the current state and the goal state of a successfully established venture. Such steps may include necessary or near-necessary milestones like completing the development of a marketable product or service; registering a legal entity, and raising some kind of funding, as well as supplementary or facilitating actions like the creation of a website and applying for intellectual property protection. Progress does not require individual level persistence—the baton can be picked up by new owners—but often partly overlaps the notion of persistence since presumably individuals fulfilling the minimum requirement of continuing to invest time in the venture do something tangible during that time. However, the notion of progress is more sensitive to the intensity and effectiveness of the effort. Consisting of concrete steps aiming to bring the venture to realization progress is arguably somewhat more proximal to success – without in any way guaranteeing success as defined below. Progress is a requirement for success; unless it reaches a certain level of progress a venture cannot be successful as defined below. This said, given the enormous heterogeneity of business creation processes there is little to build on in suggesting exactly which actions are critical. The empirical literature has focused on 4-30+ manifest activities, conceptually grouped into different theoretical schemas (Brush, Manolova, & Edelman, 2008; Davidsson & Klofsten, 2003; Delmar & Shane, 2004; Gatewood, Shaver, & Gartner, 1995; Klofsten, 1994; Reynolds, 2007). Further theoretical precision is desirable (Davidsson & Gordon, in press), but beyond the scope of the current paper. Based on the above reasoning, for the purpose of this paper we define progress in the venture creation process as follows:

Progress: the completion of necessary and facilitating actions aimed at reducing the gap between the venture's current state and the desired end state of success as defined below.

This definition implies that a study of venture creation progress should follow emerging ventures over time and compare among continuing start-up efforts their degree of progress between two points in time.

Success. It is important to distinguish success at creating a venture from success at running a business. As noted in our Introduction section it is arguably explanations of success at creating a venture that should be the unique contribution of entrepreneurship research. Thus, success for our purposes does not consist in comparing the relative performance of young businesses in terms of growth and profitability long after they become established. At least, it should be recognized that studies aiming at explaining the financial performance of young firms may confound drivers of successful business creation with drivers of successful management of young firms, so they ought to try to disentangle these two phenomena. Success at venture creation can be assessed at different levels and the distinctions are hugely important. An individual level definition would require that the entrepreneurially engaged individual came out of the process with positive net utility, whether derived from financial gains or otherwise. Even if restricted to financial gain, the difference between individual and venture level success is important to uphold. For example, when the founders of the (entirely hypothetical) venture Superhype.com sold their not-yet-trading venture
to Fearless & Clueless Investors Inc. for $1 billion, it was an example of huge venture creation success for the founders. Not so for the buyers.

We will focus here on the venture level, but before doing so we should also note the distinction between venture- and societal level success. As pointed out by Davidsson (2004) innovative ventures that are unsuccessful at the micro level—dubbed Catalyst Ventures—may still have considerable positive societal value due to what they trigger among more successful followers. On the venture level, we would argue for defining success as the proven ability of the venture to recover all its start-up costs from proceeds of market transactions other than the sale of the venture itself. With a less demanding criterion—such as having regular sales—is not known whether the continued operations of the start-up represents gainful activity or resource destruction. A period of positive cash flow is then arguably a better criterion but may lead to prematurely calling a front end R&D intensive start-up “successful”. Conversely, spectacular profit or loss (or even termination) after the break-even point is arguably no longer a matter of venture creation performance but represents effects of strategy (or luck) in managing an established business. Further, albeit a positive financial outcome through sale of the venture is a valid indicator of individual founder success it does not distinguish between investor ignorance (or bad luck) on the one hand, and ventures that have become viable market-trading entities on the other. We argue that venture creation success assessed at the level of the venture itself requires that the venture has demonstrated itself as a viable economic entity that can sustain itself and satisfy its stakeholders through its own retained earnings. Based on the above reasoning we define venture creation success as follows:

Success: the achieving of a point when the venture has recovered all its start-up costs from profitable operations in its product/service market(s).

This definition implies that an ideal study of venture creation success should follow emerging ventures over time and examine which continuing business start-up efforts ever fulfill this criterion of success. The characteristics of such ventures will reveal the drivers of success, given continuation.

Hypothesis development

Below we develop our hypotheses concerning the influence of human capital, venture idea novelty, and business planning on the outcome variables as defined above. Influences on engagement will only be developed for human capital. Due to space limitations our development of hypotheses will be brief.

Human capital. The arguments regarding the effects of human capital on engagement have been developed previously by, e.g., Davidsson and Honig (2003) and Kim, Aldrich, and Keister (2006). In short, general human capital provides individuals with a knowledge base that make them more likely to be able to see entrepreneurial opportunities and have the confidence to pursue them. Human capital is also a resource that can have secondary effects by facilitating the access to other resources (Brush, Greene, & Hart, 2001; Kim et al., 2006). This is even more true for specific human capital, and there is already much evidence in the literature that those who already run their own business or are close to this phenomenon by working for an entrepreneur or by having self-employed parents are over represented among business founders. However, individuals with higher general human capital also have more attractive other opportunities. Therefore, the relationship between general human capital and persistence should be indeterminate (Gimeno et al., 1997). The same goes for specific human capital, but for a different reason: being domain
experts, individuals with high specific human capital should be better at exploring the viability of venture ideas at low cost and to terminate earlier rather than later their involvement in those that on closer look do not appear particularly attractive. This would counterbalance any positive effect on persistence deriving from higher expected gain from venture creation (relative to other people and relative to paid employment). Thus, it is only when the domain-specific knowledge continues to support the initial belief in the opportunity—that Dimov (2010) calls “opportunity confidence”—that it should boost persistence. With regards to later stages in the process the predictions for the two forms of human capital diverge. There are both theoretical and empirical reasons to question whether general human capital prepares very well for the uncertain and sometimes messy context of new venture creation. For example, Davidsson and Honig (2003) notes that as the process progresses, human capital and less specific forms of capital become increasingly important. Based on this reasoning, we hypothesize that:

**H1:** General human capital is positively related to a) engagement but has no systematic effect on b) persistence, c) progress, or d) success.

**H2:** Specific human capital is positively related to a) engagement but has no systematic effect on b) persistence. Given persistence, specific human capital should facilitate c) making progress and d) attaining success.

**Venture idea novelty.** Great success stories are likely to be found primarily among ventures building on innovative venture ideas, i.e., those having a high degree of novelty. However, this does not mean that novelty facilitates performance in the venture creation process itself. The lure of a possible high reward in the end may make founders of novel ventures more willing to persist. However, this may be counterbalanced by the arguably worse problems of liability of newness (Aldrich & Auster, 1986) and lack of legitimacy (Delmar & Shane, 2004) facing innovative ventures compared to their imitative counterparts. We therefore argue that the effect of novelty on persistence is indeterminate. We also argue that among continuing ventures it should be harder for those representing high degrees of novelty to make progress and to reach the success threshold (although those who do so may be more likely to enjoy higher levels of success later on (cf. Audretsch, 1995).

**Business planning.** Despite its stronghold in entrepreneurship education, the empirical evidence concerning the effect of planning in early stages of venture development is weak or mixed (Brinckmann, Grichnik, & Kapsa, 2010; Davidsson & Gordon, in press). Theoretical predictions are also seemingly contradictory. Theories focusing on action and goal setting emphasize the positive effects of planning (Ajzen, 1991; Delmar & Shane, 2003; Frese, 2009). However, other psychological theories imply planning can lead to “foolish consistency” or escalation of commitment, i.e., persistence for the wrong reasons (Cialdini, 1988; McCarthy et al., 1993). On the other hand, one of the potential positive effects of planning is that it may help founders reach the conclusion to terminate “doomed” efforts earlier rather than later. Due to these conflicting influences we argue that the relationship between planning and persistence is indeterminate. Given persistence, the action-theoretic argument would apply: planning facilitates action and thus progress. However, due to the risk that this progress represents unsound continuation down an unfruitful path of escalating commitment the effect on success is again indeterminate. Based on the above reasoning we hypothesize that:
**H3.** While the influence of venture idea novelty on a) persistence will be indeterminate, its effect on b) progress and c) success will be negative.

**H4.** While effect of business planning on a) persistence and c) success will be indeterminate, its effect on b) progress will be positive.

Table 1 summarizes the stated hypotheses. The displayed pattern of predictions highlights that if our theoretical reasoning has some validity there is certainly reason to make better distinctions conceptually and empirically among these outcome variables. Further, the table suggests that it is considerably easier to make theoretical predictions about progress than about persistence, at least based on the predictor constructs used here.

**Method**

**Sample and Data**

The data used for testing our hypotheses are from the Comprehensive Australian Study of Entrepreneurial Emergence (CAUSEE). CAUSEE is a longitudinal panel study of nascent and young firms. Adult members of 30,105 Australian households, selected through random digit dialing, were screened for status as nascent entrepreneurs (NE) using techniques that have been carefully refined through prior projects (Reynolds, 2009). A total of 1,010 individuals qualified as NEs, meaning they were currently engaged in an emerging business venture. Of the 1,010 identified NEs, 997 completed the remainder of the short screening interview, which means rudimentary indicators of general and specific human capital are available. The same is true for 499 control respondents, who were randomly selected among those who did not qualify as NEs or founders of young firms. We will contrast these two samples in order to test our hypotheses regarding the effects of human capital on entrepreneurial engagement. Qualified NEs are regarded informants on behalf of the venture start-up they were involved in and were directed to a comprehensive, 40-60 minutes long telephone interview (W1) about the emerging venture, either directly or by later appointment. Thus, much richer data about the founders and their ventures are available for our tests of persistence, progress and success. The W1 was completed by 625 cases (61.9% of those eligible). As close as possible to 12 and 24 months after the first interview, respondents were re-contacted for equally comprehensive follow-up interviews (W2 and W3) including information on outcomes as well as capturing many other aspects of the ventures’ development. W2 was completed by 488 respondents (78.1% of eligible cases). This is the sample size for our test of persistence. Of the W2 respondents, 337 were still actively involved in the start-up. This is the sample size for our tests of hypotheses pertaining to progress and success. See (Davidsson & Steffens, 2011; Davidsson, Steffens, & Gordon, 2011) for further details on CAUSEE and its sample.

**Operationalization: Dependent Variables**

**Engagement.** As mentioned above, the operationalization of engagement coincides with the sampling definition of “nascent entrepreneur”. Thus, it is a dichotomous variable where a score of 1 was given to respondents who at the time of the interview affirmed they were actively involved in a business start-up in which they were going to be an owner; where concrete steps towards firm formation had been undertaken within the past 12 months, but where the business did not as yet have sales that covered all costs on a regular basis. The comparison group, scoring 0 failed to fulfill at least one of these criteria. In addition, they were not classified as founder-owners of a young business, either. Thus, the variable contrasts individuals who are currently involved in a start-up attempt with individuals who are not.
Persistence. In W2 (12 month follow-up) a combination of objective and (if needed) subjective criteria were used to determine the status of the venture and the respondent. Persistence is a dichotomous variable where 1 is recorded for cases where the venture is not yet abandoned and the respondent has both sustained an active involvement in it and plans to continue to do so for at least another six months. All cases where the venture has been terminated (138 out of the 488) get the score zero. In addition, 13 cases where the respondent has terminated their involvement in a continuing start-up also score zero.

Progress. In each wave of data collection the CAUSEE data collection assesses which of 30+ “Gestation Activities” – such as preparing a business plan; buying equipment; organizing premises; hiring employees; creating a website, and the like (Gartner, Carter, & Reynolds, 2004) – have been initiated or completed. Our measure of progress in the venture creation process is the number of gestation activities completed between the first and the second interview. This measure has been used in several previous articles on new venture creation (see Davidsson & Gordon, in press). We dichotomized the count measure at the median so the same type of analysis technique (logistic regression) could be used for all dependent variables. Note that only respondents who had not disengaged by W2 are included in the analysis. Hence, the test concerns “progress, given persistence” for a purer test of progress per se.

Success. In W3 we included a question specifically aimed at success in venture creation (as distinct from success in subsequent management). The verbatim question, which was asked only in case earlier questions had indicated some extended period of positive cash flow, reads as follows:

Let’s assume I posed the following question to your accountant or some other person with good insights into the history and financials of this business. Question: As of today, would it be possible to sell or walk away from this business, and it would have covered all the costs incurred for developing it to what it currently is?” What do you think that knowledgeable person would answer – “Yes, definitely”, “Yes, Probably”, “No, probably not” or “No, definitely not”?

Respondents who did not choose one of the “yes” alternatives were asked whether—after the venture started trading in the market on a regular basis—there had ever been a point in time when it had been possible to sell or walk away from the business, and it would have covered the venture’s costs. Importantly, this same question was also asked to respondents of discontinued start-ups on the grounds that these cases also fulfilled the criterion of venture creation success, even if they later on— for whatever reason—became unsustainable. Cases where the respondent answered affirmatively were coded 1 if they also fulfilled the additional criterion that the underlying cost calculation included “reasonable remuneration to the owners for their work, at least similar to the salary they could have earned doing some work as an employee?” This was the case for 51 cases. All other cases were considered not (yet) successful and coded 0. The operationalization does not exclude the possibility of profitable sale of a business that will never recoup its start-up costs. Neither does it exclude the possibility of inflated valuation on the part of the respondent. However, it is important to note that a score of 1 includes also the second best available indicator of venture creation success, namely that the venture has experienced an extended period of positive cash flow. Further, in order to assess the robustness of the results we have undertaken analyses with this DV as well.
Operationalization: Independent Variables

General human capital was operationalized as education, which is a frequently used indicator of this theoretical construct (e.g., Cooper, Gimeno-Gascon, & Woo, 1994). For the test of engagement hypotheses, using only information from the screener interview, a dummy indicating whether or not the respondent had a university degree. For the other tests more information was available; we use a level of education variable reflecting the respondent’s level of education on a six-point scale. In addition, we use respondent age as indicator of general human capital, based on experience increasing with age. However, as many abilities decay at higher age we assume any positive effect of general human capital to produce a curvilinear effect of age, reflecting the most positive effect when individuals are at their prime (cf. Bosma, Van Praag, Thurik, & De Wit, 2004).

For Specific Human Capital only proxies are available for testing the engagement hypotheses. Aldrich, Renzulli and Langton (1998) discuss different reasons for effects of having self-employed parent(s). Arguing that transfer of domain-specific knowledge is one important reason we use this as one of our indicators of specific human capital. Cases were the respondent had at least one parent who was or had been running their own firm were coded 1 and other cases 0. We include (female) biological sex as a second (negative) indicator of specific human capital on the basis that entrepreneurship is male gendered (Ahl, 2006) and that many female-dominated vocations present limited opportunities for independent start-up activity (Verheul & Thurik, 2003). For the tests of progress, persistence and success stronger indicators are available. We use (same) industry experience in years and start-up experience as number of previous start-ups. Both variables are logarithmized based on an assumption of decreasing marginal utility of additional experience. We do not include biological sex as indicator of specific human capital in analyses where these more direct indicators are available.

Venture idea Novelty was assessed across four dimensions: product; method for producing or sourcing; method or promotion and selling, and selection of target market/customers. For each dimension a sequence of questions was asked and coded so that 0 means “imitative” whereas the highest score (3) reflects “new to the world”. Intermediate levels correspond to a substantial improvement to what is currently offered by others in the market served (1) or to something “entirely new” in that specific market (2). The wording was slightly different for the market newness dimension. The four dimensions were aggregated into a formative index with scores in the 0-12 range. We treat this variable as continuous in the analysis. The scale is a refinement of the novelty scale developed by Dahlqvist and Wiklund (2011).

Business Planning was operationalized as a dichotomous variable where code 1 indicates an affirmative answer at W1 to “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. Have you already begun preparation of a business plan for this new business, will you prepare one in the future, or is a business plan not relevant for this new business?”. About 2/3 of all respondents claimed the existence of some form of business plan. The remaining cases were coded 0.

Operationalization: Control variables

We use a carefully selected set of control variables in order to reduce the problem of unmeasured heterogeneity. First, the DVs are likely to be highly sensitive to the W1 Stage of Development.
We operationalize this as the number of gestation activities already completed at W1. To better separate the effects of our IVs from effects of mere effort we also control for W1-W2 Hours Invested, i.e., the (approximate) total number of hours invested in the venture by all team members between the first two interviews. We control for type of venture in several ways. Dummies were included for three industry categories as well as for Product Focus (as opposed to mainly selling services). Based on comprehensive preparatory work reported in Davidsson, Steffens, Gordon, Garonne and Senyard (2009) we also introduced the dummies Brick-And-Mortar-Only for ventures intending 0% online sales, and for Venture Ambition, where 1 indicates a preference for maximum growth over a small, manageable size. We also control for team ventures. Based on the findings by Ruef, Aldrich and Carter (2003) we include separate dummies for Spouse Team and Other Team, respectively.

RESULTS AND IMPLICATIONS

Table 2 shows that all our indicators of human capital have positive and highly significant relationships with entrepreneurial engagement (intermediate age is assumed to reflect the peak of general human capital; female sex is assumed to reflect—on average—less domain-specific human capital). While mixed evidence can be found in the empirical literature this is certainly not the first time these relationships have been demonstrated. However, what is important about our analysis is that the relationships are theorized as specified influences on entrepreneurial engagement and not as atheoretical “characteristics of entrepreneurs”, and that they are tested in an empirical setting that can reveal effects on engagement without too much confounding with persistence or success. Even more importantly, the results are presented alongside analyses where differential impact on variables further into the venture creation process are theorized and demonstrated. This is what we turn to next.

Table 3 displays our main analyses, which relate human capital, venture idea novelty and business planning to different outcome variables. By and large we would argue these analyses support the idea of differential influences on different outcomes and therefore the importance of studying these different outcomes as separate theoretical constructs. As predicted, while general human capital is strongly related to engagement it is ascribed no consistent influence on persistence, progress, or success. Interestingly, the hypothesis of indeterminate effect of specific human capital on persistence is “supported” for the “wrong reason”—while the effect of industry experience is positive the effect of previous start-up experience comes out negative. This indicates these relationships need to be theorized on an even finer level of (dis)aggregation. As predicted, specific human capital is ascribed positive effects on both progress and success, although the coefficient is not significant for industry experience in the latter instance. The opposite effects of prior start-up experience on persistence and success help explain why the estimated effect of this variable sometimes comes out as weak or non-existent (Davidsson & Gordon, in press) and highlights the importance of performing the type of analyses displayed in Table 2.

Also as predicted, venture idea novelty is ascribed no systematic effect on persistence, while its effect on both progress and success is significantly negative. Thus, founders of ventures representing greater novelty are up for a relatively tougher task. The results for business planning are interesting and highly suggestive. In the analysis of persistence business planning is ascribed a marginally significant negative effect. This suggests that planning may facilitate the abandonment of (supposedly) less promising ventures at an earlier stage (unless it indicates planning induces unwarranted pessimism). At any rate, there is indication that leading to “foolish consistency” is not
a dominant effect of planning—and that earlier findings suggesting negative effects of planning on success may have been driven by effects on persistence rather than on success as such. As predicted by goal- and action theories, planning has a positive effect on subsequent action. However, the effect on success is statistically non-significant and negative in sign, keeping alive doubts about the general benefits of business planning as actually used by business founders.

Conclusions and Limitations

Table 4 summarizes the results in relation to the hypotheses. As it is not really correct to talk about “support” where an indeterminate relationship was suggested we use the label “consistent” (with the hypothesis) if the empirical outcome is a statistically non-significant relationship. As can be seen most of the results are clearly in support of our directional hypotheses or at least in line with our suggestions of indeterminate relationships. Overall, we would suggest the results support the notion that greater theoretical and empirical precision regarding the drivers of different aspects of the venture creation process facilitates the understanding of what otherwise might appear and overwhelmingly complex phenomenon to disentangle.

Our conceptual and empirical analyses highlight a particular problem with using persistence (continuance; survival) as the sole outcome variable venture creation research. First, its conceptual duality—the fact that it may reflect laudable and fruitful tenacity as well as stubborn clinging to unproductive ideas made it difficult to derive directional hypotheses—in fact, all our predictions regarding persistence were for indeterminate relationships—and suggests the concept may require further theoretical and empirical development beyond what we attempt here, so that these opposing forces can be disentangled. Thus, not only is persistence problematic when used as surrogate indicator of success, it may also be problematic as a theoretical dependent variable in its own right. This is somewhat serious as it has been a frequently used outcome criterion in venture creation research (Davidsson & Gordon, in press). Our theoretical analysis suggests few clear predictions can be made and our empirical results suggest that the only really strong predictor of persistence is previous persistence—for good or bad, those who have already got further in the process and invested more time in it are less likely to give up; an effect curtailed only by prior start-up experience.

We claim as a contribution steps toward greater precision both in the conceptual definition of venture creation success and regarding its operationalization. However, limitations should be admitted concerning the suggested operationalization. First, including reference to the potential sale of the venture it admittedly represents a mix of our definitions of individual- and venture level success, respectively. Second, it relies to a considerable degree on respondents’ subjective assessments. Third, it is subject to a practical problem that will affect most research in practice, namely that the research does not follow the ventures long enough to get a definitive answer in all cases as to whether they are successful or not. This creates a potential for confounding process success and process duration, which is yet another aspect of the venture creation process that needs its own development, both conceptually and in terms of design and operationalization.

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NOTES

i. Admittedly, this creates a definitional problem when a venture is bought at an overly high price by new owners. While under the old owners the venture may have become classified as successful at a given level of profitability over a given period of time (sufficient for covering all start-up costs) it will under the new owners require a much higher level of profitability and/or more time to recoup also their disproportionately high investment in the venture.

REFERENCES


### Table 1. Summary of hypotheses

<table>
<thead>
<tr>
<th></th>
<th>Engagement</th>
<th>Persistence</th>
<th>Progress (given persistence)</th>
<th>Success (given persistence)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Human Capital</strong></td>
<td>+</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td><strong>Specific Human Capital</strong></td>
<td>+</td>
<td>?</td>
<td>+</td>
<td>?</td>
</tr>
<tr>
<td><strong>Venture Idea Novelty</strong></td>
<td>N/A</td>
<td>?</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Business Planning</strong></td>
<td>N/A</td>
<td>?</td>
<td>+</td>
<td>?</td>
</tr>
</tbody>
</table>

### Table 2. Effects of Human Capital on Engagement

<table>
<thead>
<tr>
<th></th>
<th>Entrepreneurial Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Human Capital:</strong></td>
<td></td>
</tr>
<tr>
<td>University education</td>
<td>.308 ***</td>
</tr>
<tr>
<td>Founder Age</td>
<td>.325 ***</td>
</tr>
<tr>
<td>Founder Age Squared</td>
<td>-.002 ***</td>
</tr>
<tr>
<td><strong>Specific Human Capital:</strong></td>
<td></td>
</tr>
<tr>
<td>Self-Employed Parent(s)</td>
<td>.386 ***</td>
</tr>
<tr>
<td>Sex (1 = female)</td>
<td>-.413 ***</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.301 *</td>
</tr>
<tr>
<td>N</td>
<td>1496</td>
</tr>
<tr>
<td>Nagelkerke R²</td>
<td>.131</td>
</tr>
</tbody>
</table>
Table 3. Effects of Human Capital, Novelty and Business Planning on Different Outcomes

<table>
<thead>
<tr>
<th>Controls</th>
<th>Persistence</th>
<th>Progress (given persistence)</th>
<th>Success (given persistence)</th>
</tr>
</thead>
<tbody>
<tr>
<td>W1 Stage of Development</td>
<td>.069 ***</td>
<td>-.048 #</td>
<td>.060 #</td>
</tr>
<tr>
<td>W1-W2 Hours invested</td>
<td>1.282 ***</td>
<td>729 **</td>
<td>.093 n.s.</td>
</tr>
<tr>
<td>Industry: Retailing</td>
<td>.569 #</td>
<td>.262 n.s.</td>
<td>.280 n.s.</td>
</tr>
<tr>
<td>Industry: Construction</td>
<td>-.283 n.s.</td>
<td>-.189 n.s.</td>
<td>-.571 n.s.</td>
</tr>
<tr>
<td>Industry: CEH Services</td>
<td>.182 n.s.</td>
<td>.913 **</td>
<td>.177 n.s.</td>
</tr>
<tr>
<td>Industry: Construction</td>
<td>-.283 n.s.</td>
<td>-.189 n.s.</td>
<td>-.571 n.s.</td>
</tr>
<tr>
<td>Venture Type: Product based</td>
<td>-.522 #</td>
<td>-.122 n.s.</td>
<td>-.501 n.s.</td>
</tr>
<tr>
<td>Venture Type: Brick_and_Mortar Only</td>
<td>.085 n.s.</td>
<td>.051 n.s.</td>
<td>.808 *</td>
</tr>
<tr>
<td>Venture Type: Growth Focus</td>
<td>.505 #</td>
<td>.815 **</td>
<td>-1.108 *</td>
</tr>
<tr>
<td>Founder category: Spouse team</td>
<td>-.323 n.s.</td>
<td>.448 n.s.</td>
<td>-.218 n.s.</td>
</tr>
<tr>
<td>Founder category: Other team</td>
<td>-.548 #</td>
<td>.268 n.s.</td>
<td>-1.099 *</td>
</tr>
</tbody>
</table>

General Human Capital:

| Education Level                                  | .115 n.s.   | -.042 n.s.                   | -.244 #                     |
| Founder Age                                     | .031 n.s.   | .027 n.s.                    | .095 n.s.                   |
| Founder Age Squared                             | .000 n.s.   | .000 n.s.                    | -.001 n.s.                  |

Specific Human Capital:

| Industry experience (log years)                  | .492 *      | .696 **                      | .405 n.s.                   |
| Start-up experience (log count)                  | -.989 *     | 1.214 **                     | 1.535 ***                   |

Venture Idea Novelty:

| W1 Overall Novelty Score                         | .040 n.s.   | -.112 *                      | -.174 *                     |

Business Planning:

| W1 Existence of Business Plan of Any Kind        | -.449 #     | .646 *                       | -.382 n.s.                  |

Constant: -4.705 **

N: 488
Nagelkerke R²: .358

Table 4. Summary of results in relation to the stated hypotheses.

<table>
<thead>
<tr>
<th></th>
<th>Engagement</th>
<th>Persistence</th>
<th>Progress (given persistence)</th>
<th>Success (given persistence)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Human Capital</td>
<td>Supported (+)</td>
<td>Consistent (?)</td>
<td>Consistent (?)</td>
<td>Consistent (?)</td>
</tr>
<tr>
<td>Specific Human Capital</td>
<td>Supported (+)</td>
<td>Consistent [cont. on oper.] (?)</td>
<td>Supported (+)</td>
<td>Supported [cont. on oper.] (+)</td>
</tr>
<tr>
<td>Venture Idea Novelty</td>
<td>N/A</td>
<td>Consistent (?)</td>
<td>Supported (-)</td>
<td>Supported (-)</td>
</tr>
<tr>
<td>Business Planning</td>
<td>N/A</td>
<td>&quot;Marginally Consistent&quot; (?)</td>
<td>Supported (+)</td>
<td>Consistent (?)</td>
</tr>
</tbody>
</table>