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Learning orientations and learning dynamics: Understanding heterogeneous approaches and comparative success in nascent entrepreneurship

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ABSTRACT

Entrepreneurship is a learning process, yet the paths that entrepreneurs take to achieve success and the resources they assemble differ widely. To better understand when and for whom specific learning styles and new venture organizing activities are beneficial, this study develops a theoretical framework based on entrepreneurs' learning orientations. We compare the founding trajectories of concrete experience and abstract conceptualization learner/entrepreneurs, as defined in experiential learning theory (ELT). The study tests the predictions with multinomial logit models. The results, using longitudinal data from the Panel Study of Entrepreneurial Dynamics, show that entrepreneurs who learn through sensory information and action benefit most from informal sources of capital and from their social networks, while those who learn by analyzing and systematically planning benefit most from formal sources of capital and from following their developed plans. The different trajectories that emerged in terms of capital formation and social network involvement should be of considerable interest to those attempting to either teach or promote entrepreneurship, as students and entrepreneurs undoubtedly have different learning requirements as well as pedagogical needs.

1. Introduction

Entrepreneurs muster unique combinations of resources with the goal of creating something new – organizations, products and/or services. Only when converting their ideas into reality can entrepreneurs bring about a future state. Such realization involves judgments (Newbery, Lean, Moizer, & Haddoud, 2018), capital investments (O'Brien & Sasson, 2017), actions (Stroe, Parida, & Wincent, 2018), social networks (Shu, Ren, & Zheng, 2018) and learning experiences (Boso, Adeleye, Donbesuur, & Gyensare, 2018). Entrepreneurs can differ in degrees of sophistication, and organizing patterns may differ widely. Yet much of entrepreneurship research still treats the entrepreneur as a homogenous entity, or is anchored in computational exercises that examine decision-making, as though there were an ideal entrepreneurial path (Felin, Kauffman, Koppl, & Longo, 2014). The shortage of studies that examine heterogeneity within the process of entrepreneurship may lead to naïve generalizations (Delmar & Shane, 2003; Greene & Hopp, 2017; Honig & Samuelsson, 2015).

The present article's primary contribution is to develop and test a theoretical model of learning orientation that explains when, and for whom, specific learning styles and organizing activities can lead to new venture creation.

Learning orientations are an important and largely unexamined aspect of nascent entrepreneurial emergence. Recognizing different learning orientations is important to understanding entrepreneurial emergence, particularly because both individuals and firms continuously attempt to learn. By focusing on learning theory, the present study addresses individual preferences and individual differences in learning orientations to observe how and why heterogeneity emerges in entrepreneurs' business-founding trajectories. For example, some individuals prefer to learn through planning and engaging in explicit knowledge and conceptual development. This highly rational style of learning may facilitate legitimacy, inviting formal financial investment with all its related expectations, measures, and performance. In contrast, other business founders prefer to learn through trial and error, by experiencing the results of their experiments and incorporating experientially learned outcomes in their subsequent behavior.

Empirically, this study uses the Panel Study of Entrepreneurial Dynamics (PSED II) data to contrast two types of entrepreneurial learners: those who learn through sensory information and action, and those who learn by analyzing or systematically planning.

The results show that entrepreneurs who learn primarily through sensory information and action benefit most from involving social

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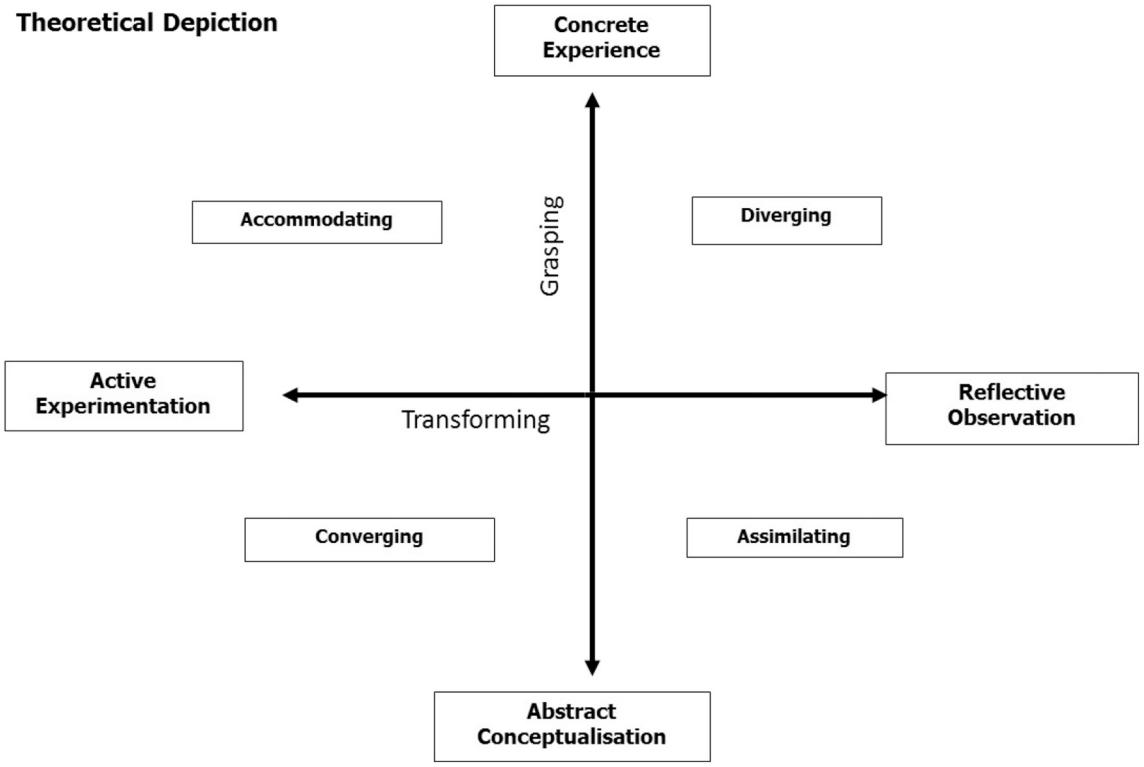

Fig. 1. Illustration of theoretical model.
Adapted from Fig. 3.1 Kolb and Kolb (2011).

networks and informal sources of capital, while entrepreneurs who learn primarily through analyzing or systematically planning benefit most from formal sources of capital and by following and adapting the plans they have developed. Because individuals tend to tackle problems with different innate approaches, entrepreneurs utilize their own particular learning orientations and preferences when beginning an entrepreneurial activity and this evolves as a path-dependent process influencing their relative strategies, resource opportunities, and organizational growth.

Such findings are of practical importance. The different trajectories that emerge in terms of capital formation and social network involvement should be of considerable interest to those attempting to teach and/or promote entrepreneurship, as students and entrepreneurs undoubtedly have different learning requirements as well as pedagogical needs.

This paper begins with observations regarding learning orientations, dynamic learning styles, and heterogeneity, and hypotheses regarding the corresponding performance implications. The paper then introduces the data and discusses the results. We conclude with implications for research and practice, as well as limitations.

2. Theoretical background and hypotheses

2.1. Entrepreneurial actions as learning

Entrepreneurial activity entails innovating by taking calculated risks (Schumpeter, 1965). Entrepreneurs perceive what they believe to be business opportunities. Their actions in relation to such perceptions either help or hinder the creation of new ventures (Klein, 2008). The entrepreneur envisions a product, a market, a need that customers have, and subsequently tries to create the product, enter the market, and/or fulfil the need. If the vision does not materialize, for example if the entrepreneur's calculations of prices, revenues, and cost are mistaken, losses may occur and the pursuit might be abandoned (Korsgaard, Berglund, Thrane, & Blenker, 2016). Or as Kirzner puts it (2009: 150): “What he [the entrepreneur] ‘sees’ is that, by assembling available resources in an innovative, hitherto undreamt of, fashion, and thus perhaps converting them into new, hitherto undreamt-of products, he may be able (in the future) to sell output at prices which exceed the cost of that output to himself.”

New knowledge modifies existing schemas when individuals proceed by trial and error, making mistakes and experiencing failure (Malmgren, 1961). This process requires them to iterate through a process of making sense of their experiences. While different learning orientations and preferences vary, they must all face dynamic changes that entail identifying opportunities from various learning events. Learning can occur through observing the behavior of others (Bandura, 1977) or through failure that forces the individual to adjust an existing schema (Sitkin, 1992). This adjustment is how an individual interprets the world and acquires new knowledge (Piaget, 1952).

Effective entrepreneurs learn from customers, suppliers, employees, associates, competitors, and other entrepreneurs, and from personal experience. Because they need to learn, entrepreneurs need to develop skills to re-evaluate, adapt, and revise activities in a resourceful manner to suit new environmental contingencies (Honig, 2004; Neck & Greene, 2011). These activities are informed by experiential learning processes, including preparation, incubation, insight, evaluation, and elaboration (Corbett, 2005; Lumpkin, Hills, & Shrader, 2004). The nature of environmental change strongly suggests the need for experiential learning strategies to reflect a dynamic environment.

The theoretical foundation of experiential learning is anchored in scholarship focusing on the process of learning, including work by Dewey (2005), Vygotsky (1980), Kolb and Kolb (2005), Corbett (2005, 2007), and Kolb (2014). Experiential learning theory (ELT) holds that individuals learn by doing; they create knowledge by transforming their experiences, including their failures, into new ways of seeing the world. Entrepreneurs in particular must carefully monitor their progress using feedback from others as well as self-reflection in order to advance

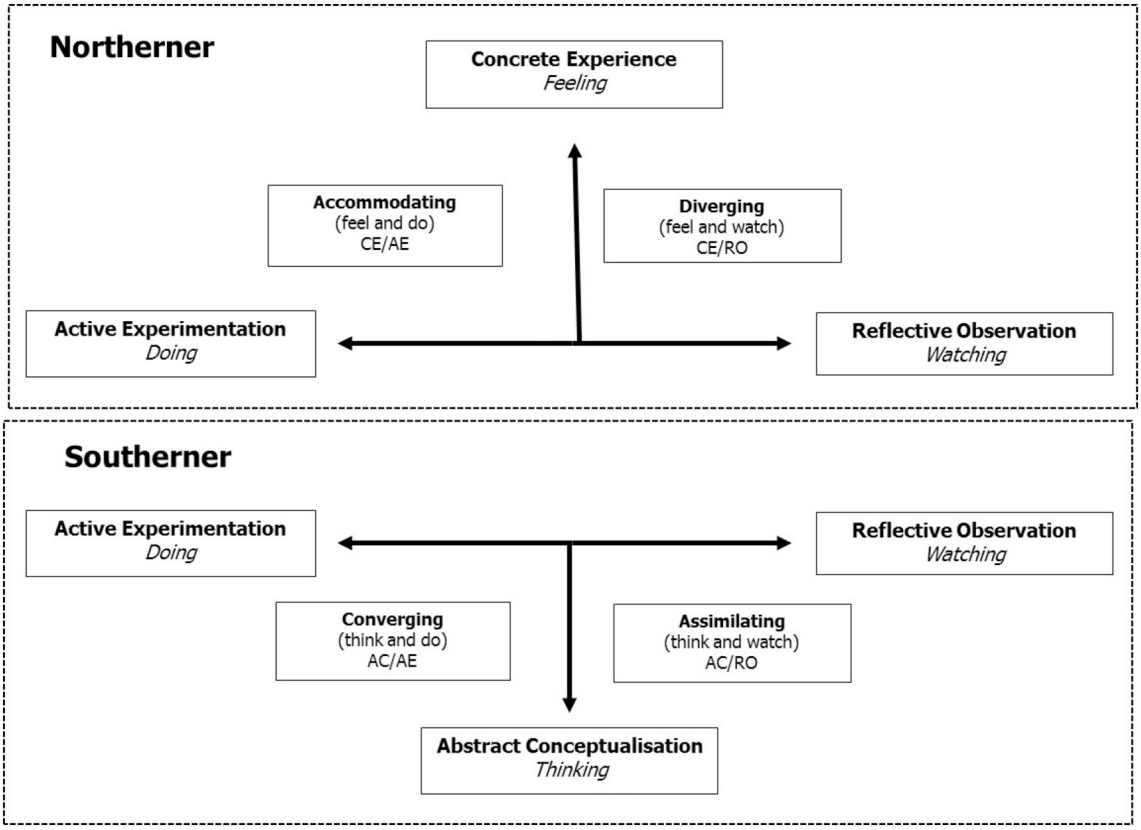

Fig. 2. Illustration of dynamic learning.
Own illustration adapted from Fig. 2 (Abbey et al., 1985:486).

through the entrepreneurial process (Jennings & Wargnier, 2010; Neck & Greene, 2011; Neck, Greene, & Brush, C. G. (Eds.)., 2014; Corbett, 2005). Hence, learning theories are an excellent framework with which to examine entrepreneurial activity.

2.2. Learning orientations of nascent entrepreneurs

David Kolb's experiential learning theory (ELT) model depicted in Fig. 1 portrays two different fundamental learning orientations – that of conceptualizing learning through logic, theory, and abstract ideas (abstract conceptualization; AC) versus learning primarily through experience and feeling (concrete experience; CE). These two orientations describe how individuals grasp knowledge. They exist on a continuum, as no one person remains entirely in either sphere.

From an entrepreneurial perspective, abstract conceptualization learners begin with formal plans, while concrete experiential learners begin with trial and error approaches. However, preferences on the grasping continuum can only partially explain how entrepreneurs transform their experiences into knowledge, as it entails a two-step process. Following Corbett (2005, 2007), once a particular set of learning activities is initiated, either through logic or experience, two opposing frameworks leverage the subsequent learning opportunities that result. Individuals may choose to either actively test the hypotheses they abducted in a dynamic environment, through active experimentation (AE), or they may choose to reflect on the learning opportunities and derive hypotheses, through reflective observation (RO).

Individual preferences determine the different modes of transforming experience into knowledge (Mainemelis, Boyatzis, & Kolb, 2002). The present paper refers to this preference as an "orientation," and to the methods of bringing a learning orientation into practice as "learning styles." "Orientation" is appropriate because while individuals may have one preference over another, everyone is capable of operating within different domains. Learning is an iterative process whereby individuals adapt to the world by resolving conflicts and disagreements. People may move between opposing modes as they reflect and act; gradually adapting and learning through the process.

Fig. 1 also shows the learning process that emerges when learning abilities are combined. Diverging learners view concrete situations from many perspectives. Assimilating learners are best at understanding a range of information and providing a concise logical outcome. For example, one study found that MBA students tended to be assimilators, more attuned to abstract conceptualization and reflection, while arts students, in whom concrete experience and feelings dominate, tended to be divergent, (Kolb & Kolb, 2005, 2011).

Nascent entrepreneurs have diverse innate preferred learning styles. Nascent entrepreneurs with concrete experience (CE) learning orientations are likely to benefit most from a diverging learning style. Those nascent entrepreneurs with abstract conceptualization (AC) learning orientations are more likely to benefit most from an assimilating learning style.

In terms of acquiring information, individuals who move quickly because of their CE orientation are likely to take only a glimpse at relevant information to make better sense of particular situations. Nascent entrepreneurs with a CE learning orientation therefore would benefit most from a diverging learning style that is well suited to the generation of new ideas. In fact, this style performs particularly well for brainstorming activities. Individuals with this learning style have been shown to be more imaginative and creative (Kolb & Kolb, 2005, 2011).

In contrast, nascent entrepreneurs who are assimilators will be best at understanding a wide range of information and putting it into concise, logical form. They are less focused on people and more interested in ideas and abstract concepts, emphasizing logical soundness over the practical application of ideas. This learning style has been reported in scientific careers and situations where people tend to read, lecture, and

explore analytic models (Kolb & Kolb, 2008). These considerations lead to the following set of hypotheses.

Hypothesis 1a. For entrepreneurs with an abstract conceptualization learning orientation, an assimilating learning style increases the likelihood of creating a new venture successfully.

Hypothesis 1b. For entrepreneurs with a concrete experience learning orientation, a diverging learning style increases the likelihood of creating a new venture successfully.

2.3. Learning orientation and dynamic learning

Fig. 2 documents the different predictions that emerge when the learning processes of abstract conceptualizing and concrete experiencing combine with different learning styles. It illustrates the relationships between learning processes and learning styles. For example, an individual might be required to follow a learning method consisting of abstract conceptualization by, say, sitting in a classroom, but may have an individual preference for transforming this new knowledge through active experimentation.

The converging learning style, to the left in the southern quadrants, reflects individuals dealing largely with technical tasks, solving problems and making decisions based on the practical application of theory or ideas. The converging learning style involves both abstract conceptualization and active experimentation. The nascent entrepreneurs following this learning style emphasize thinking (AC) while balancing acting (AE) and reflecting (RO). Strong conceptual and analytic abilities characterize this style of learning by. Passion and feelings may be limited, while the focus is on concepts and action. Individuals using this learning style are reputedly more successful in finding a practical use for their ideas and theories (Cope, 2005; Kolb & Kolb, 2011; Sheng & Chien, 2016). Yet these learners may "reflect on the mechanics of their actions without benefit of emotional feedback. The reflection may lead to reformulation of concepts but the revision is mechanical and sterile" (Hunt, 1987: 155). Thus, this learning style is most beneficial for nascent entrepreneurs who are, by and large, technical specialists who like to experiment with or simulate new ideas. Hence, entrepreneurs who prefer abstract conceptualization should be more likely to capitalize on their preference for structured information using the converging learning style to successfully create a new venture.

On the left in the northern quadrants, accommodating is a learning style focusing on hands-on experience where people follow their gut feelings rather than proceeding logically. Such a learner "bounces from experienced feelings to scattered reflections to feelings without any consolidation or planned actions" (Abbey, Hunt, & Weiser, 1985:487). This type of learner emphasizes feeling (CE) while balancing acting (AE) and reflecting (RO). Emotional involvement characterizes this learning style by, yet it comprises primarily by action and hands-on experience. This may result in actions taken promptly, but may be less systematic. (Hunt, 1987). The accommodating style is likely to be involved in action-oriented careers, such as marketing and sales (Kolb & Kolb, 2005, 2011). As such, entrepreneurs who prefer concrete experience should gravitate to an accommodating learning style to successfully create a new venture. These observations lead to the following set of hypotheses.

Hypothesis 2a. For entrepreneurs with an abstract conceptualization learning orientation, a converging learning style increases the likelihood of creating a new venture successfully.

Hypothesis 2b. For entrepreneurs with a concrete experience learning orientation, an accommodating learning style increases the likelihood of creating a new venture successfully.

2.4. Interaction of social networks and learning orientations

The entrepreneur's social capital – defined as resource support provided by social network structures – reportedly fosters new venture development (Brüderl & Preisendörfer, 1998; Elfring & Hulsink, 2003). Network ties provide access to required resources more readily and cheaply than comparable arm's-length relationships (Davidsson & Honig, 2003; Elfring & Hulsink, 2003). Considerable scholarly research examines the importance of social capital as a resource for entrepreneurship (Brüderl & Preisendörfer, 1998; Elfring & Hulsink, 2003; Stam, Arzlanian, & Elfring, 2014). This work often examines the quality, efficiency, embeddedness, and utility with which the resources are delivered (Elfring & Hulsink, 2003; Rooks, Klyver, & Sserwanga, 2016). Other scholarship focuses on the structural characteristics of networks (e.g. Burt, 2000; Granovetter, 2005). Variations of network structure offer specific advantages regarding nonredundant information that can be critical to a start-up (Burt, 2000; Granovetter, 2005; Jiang, Liu, Fey, & Jiang, 2018). Much of this work focuses on how entrepreneurs obtain resources, irrespective of whether they are virtual or real, tacit or explicit. The goal is to determine how knowledge, resources, and information are most effectively transferred to the entrepreneur.

The present research considers networks in a different sense, not as sources of information or resources, but rather as opportunities to enact particular learning orientations. Examining the role of social networks is critical to understanding how entrepreneurs make sense of their ideas and recognize problems, while their approach to social networks both shapes and constrains entrepreneurial action, determining the resources and extended capabilities of the nascent firm (Hoang & Antoncic, 2003; Newbert & Tornikoski, 2012). While networks are critical to entrepreneurs in terms of providing resources, their influence is likely to differ in scope and impact for individuals employing different learning styles.

Individuals who focus on concrete experience and those who focus on abstract conceptualization have contrasting strengths. Individuals with the concrete experience learning orientation have strong imaginations and an ability to read people and situations through an awareness of meaning and values. They envision concrete situations from many perspectives and organize the many resulting relationships into a meaningful gestalt. Individuals relying primarily on concrete experiences should be well equipped to perform during the evaluation phase of entrepreneurship. They engage in divergent learning and have what Kolb (1984) calls "people-orientation" skills to facilitate a valuable fit between the opportunity and the marketplace.

In contrast, entrepreneurs with the abstract conceptualization learning orientation gain knowledge by analyzing or systematically planning, rather than using their senses to guide them through actual practice. They perceive information abstractly, often following detailed sequential steps (Edelman & Yli-Renko, 2010).

In sum, these two preferences imply very different methods to facilitate how learning orientations might benefit from the utilization of social networks. Concrete learning-oriented managers are more effective at naming social contacts, while abstract learners typically focus on explicit reference material that support their analytical orientations (Kolb & Kolb, 2008). Further, concrete learning-oriented managers are more likely to solicit advice from their contacts, while abstract learners are more interested in sources of information they can analyze themselves. Being able to closely engage with social contacts may increase proximity and allow concrete learning-oriented individuals to leverage more intangible resources (Werker, Ooms, & Caniëls, 2016).

Concrete learning styles tend to focus on iterative learning activities such as examining how to solve various problems with existing resources. Those who follow an experiential and action-oriented learning

path probably focus on entrepreneurial perceptions developed in tandem with their social network. Hence:

Hypothesis 3. For entrepreneurs with a concrete experience learning orientation, the involvement of social capital increases the likelihood of creating a new venture successfully.

2.5. Interaction of financial capital and learning orientations

A theory of entrepreneurship without a theory of capital assets is, in Rothbard's words (1985: 283), "parlor games, until the money is obtained and committed." Entrepreneurs must organize assets, define and delegate decision rights, and raise capital (Foss & Ishikawa, 2007). As Klein (2008) points out, to understand how and why entrepreneurs bring their ideas to life, one needs to develop insight into how entrepreneurs arrange their capital assets. Lachmann (1956: 16) even considers the choice of capital structure and the organizing of capital assets as "the real function of the entrepreneur."

Obtaining access to outside financing is a significant challenge for nascent entrepreneurs. Entrepreneurs with the concrete experience learning orientation may be considered high-risk clients due to the vagueness of their activities and the absence of plans. Obtaining financing through formal investors such as banks is typically difficult due to a lack of tangible assets and the inherent limitations of emergent ideas (Kim, Aldrich, & Keister, 2006). Hence, entrepreneurs with the CE learning orientation, particularly those that rely on diverging "brainstorming" learning styles, are more likely to rely on social contacts. Research shows that when faced with resource constraints, these individuals may engage in bricolage, leveraging their available means, making do with what is at hand (Baker & Nelson, 2005; Sarasvathy, 2001). They are more likely to resort to informal types of financing that rely on trust-based relationships rather than formal capital that relies on formal governance mechanisms (Herz, Hutzinger, Seferagic, & Windsperger, 2016). In other words, CE entrepreneurs are more likely to rely on informal investors, such as family members or friends, to finance their fledgling businesses (Davidsson & Honig, 2003). These entrepreneurs will find it difficult to convince formal sector capital providers of their legitimacy.

For entrepreneurs with the abstract conceptualization learning orientation, business plans may act as important cues for external parties to legitimize the venture and signal feasibility of a business opportunity (Burke, Fraser, & Greene, 2010; Delmar & Shane, 2003). Although such screening may be largely symbolic (Honig & Karlsson, 2004), it could have considerable consequences for entrepreneurs who require resources to develop a specific opportunity. Parker and Praag (2006) have shown that banks prefer low-risk ventures and use mechanisms such as business plans to distinguish between high- and low-risk borrowers. Without this pressure, Honig and Karlsson (2004) argue that few nascent entrepreneurs would actively select into formal business plan activities. AC entrepreneurs thus make formal business plans in part because they want to signal to outside investors the likelihood that a nascent venture will overcome the liability of newness. Thus, concrete experience and abstract conceptualization learning orientations relate to and benefit from different sources of financial capital, leading to Hypotheses 4a and 4b.

Hypothesis 4a. For entrepreneurs with an abstract conceptualization learning orientation, formal financial capital has a positive effect on the likelihood of creating a new venture successfully.

Hypothesis 4b. For entrepreneurs with a concrete experience learning orientation, informal financial capital has a positive effect on the likelihood of creating a new venture successfully.

3. Data and methods

3.1. Sample description

To empirically test our hypotheses, the present research uses the Second Panel Study of Entrepreneurial Dynamics (PSED II). The PSED II is a representative survey of entrepreneurial activities in the United States that portrays individuals during their business creation process. The dataset describes the characteristics of nascent entrepreneurs, documents the sequences of the organizing activities, summarizes the types and quantities of resources committed, and characterizes the new ventures.

In late 2005 and early 2006, the PSED II identified individuals and invited them to five subsequent interviews. The last wave finished in January 2011. The sample of active nascent entrepreneurs came from an overall group of 31,845 individuals. Out of this probability group, 1214 active nascent entrepreneurs emerged. Interviewees answered screening questions about whether they were intending to start a new firm, had carried out at least one start-up activity in past years, expected to own part of the firm, and did not already run an operational business.

The respondents who ended up in the present study were those who gave affirmative responses to a suite of questions related to start-up activities, responses that revealed their progress in becoming operational. With re-interviewing over the course of five years, the resulting longitudinal structure gave monthly indications of activities started and finished that allowed for inferences on the process of organizing activities among dependent and independent variables.

Following earlier research (Newbert & Tornikoski, 2012), the present research constructs its dependent variable using information from the last wave of the data collection process, while relying on information obtained in previous waves to capture our predictors. Wave A identified 1214 nascent entrepreneurs who returned the questionnaire. The number dropped subsequently to 972 due to non-response and disbandment for Wave B and 746, 526, 435, and 375 for Waves C to F, respectively.

3.2. Dependent variable

To assess new venture creation, the research focuses on early stage profitability and uses the occurrence of the first positive cash flow – following recent literature that considers the entrepreneurial journey as concluded "once that venture definitively realizes a profit or loss from activities related to that product" (McMullen & Dimov, 2013: 1496; see also Kim, Longest, & Lippmann, 2015).

In response to Davidsson and Gordon (2012), who argue that the conceptualization and operationalization of venture start-up should be more finely grained and consider those "still trying," the present research compares nascent entrepreneurs who achieve early stage profitability against those who disband their venture or report ongoing activities as per wave F. Venture disbandment occurs when all those identified as working on the venture stop their entrepreneurial activities, including both the focal entrepreneur and any potential team member. This research uses a multinomial logit framework for a trichotomous dependent variable – venture creation, still trying, and disbandment – to assess the impact of learning orientations and styles on venture outcomes. The multinomial model makes no implicit assumption about the ordering of outcomes and is well suited for the analysis. In contrast, an ordered logit model would automatically impose a restriction on outcomes, such that the order implies that one outcome is necessarily better than the other is. For example, an ordering Failed/Active/Successful would always imply that being active is more desirable than disbanding. Yet finding out that a business

opportunity may not work could also be indicative of learning and might be more beneficial than sticking with a start-up that is nowhere near profitability (Davidsson & Gordon, 2012). The research further tests whether the proportional odds/parallel lines assumption in the multinomial model are met. The insignificant test statistic indicates that the final model does not violate this assumption and that the findings from the multinomial model are robust.

The present research follows the extant literature on comparing coefficients within discrete choice models (Hoetker, 2007) referring to the statistical significance of each coefficient in the different models, and draws conclusions with respect to the hypotheses. The research also provides effect size calculations following Aguinis et al. (2010) in making value judgements, depicting the practical relevance in terms of how likely effects are to alter the chances of reaching early-stage profitability. This makes it possible to compare the different hypotheses against each other while also providing the relative explanatory power of the theories invoked. Effect size calculations are based on Hegde's D, which removes biases in the Cohen's D calculations. Algina, Keselman, and Penfield (2006) have shown that bootstrapped confidence intervals for the d-family effect sizes are preferable.

3.3. Abstract conceptualization and concrete experience learning orientations

In testing the hypotheses, the present research mapped actual behavior and corresponding theoretical predictions. Bird & Schjoedt refer to entrepreneurial behavior as the "concrete enactment of individual or team tasks required to start and grow a new organization" (Bird & Schjoedt, 2009: 328). This research therefore focuses on the actions that entrepreneurs take to develop new combinations of means and ends.

The entrepreneurs who choose to begin with abstract conceptualizations start their process by predetermining goals and subsequently finding means to enact specific objectives. An abstract conceptualization (AC) learning orientation therefore involves intentionality (Katz & Gartner, 1988) and planning efforts (Delmar & Shane, 2003). The present research operationalizes entrepreneurs that are characterized by an AC learning orientation as those who began preparations for a business plan or made financial projections as their first start-up activity.

The PSED asks about activities undertaken as either monthly or quarterly indications. The present research takes a more inclusive approach and operationalizes the first quarter instead of the first month, alleviating problems associated with potential recall biases, as some ventures were already in process for about two years when the interviewing took place (Kim et al., 2015). For entrepreneurs with an AC learning orientation, initial efforts of planning and intentionality are precursors to all subsequent activities.

In contrast, entrepreneurs relying on concrete experience (CE) as their dominant learning orientation as a precursor to subsequent activities should eschew planning efforts and begin with experiential customer interaction, developing partnerships and exploring market opportunities. They do not start to write a business plan or make financial projections among their first start-up activities. These entrepreneurs do not begin by predicting what may happen and acting upon a plan; rather, they collect information to create possible business opportunities that do not yet exist. If one of these activities is among the first activities undertaken in months 1–3, this variable codes as one (conditional on no planning taking place simultaneously). It is important to note that though collecting information about competitors and seeking to define market opportunities may be attributed to an analytical and planning oriented approach, the focus here is only on those who do not engage in any planning efforts. Hence, while they collect information, their approach is more informal and ad-hoc, and thus more reflective of a concrete experience learning ability, in contrast to abstract conceptualizers who prefer to plan.

The variables are operationalized in a dichotomous form; thus a variable takes on the value of one if entrepreneurs rely on abstract conceptualization (QD1: Business Plan began = 1, or QD26: Financial Projections developed = 1) as the precursor to their activities and zero for those that rely on concrete experience (QD1 and QD26 = 0; and QD21 (Effort to Talk to customers), QD23 (Effort to collect information about competitors), or QD24 (Effort to define market opportunities) = 1). Hence, these two learning orientations juxtapose in the analysis. Using this distinction, 159 entrepreneurs have the AC learning orientation and 263 entrepreneurs have the CE. A reliance on concrete experience is more likely when environmental uncertainty/ambiguity is high. Entrepreneurs with more innovative ventures are more likely to rely on CE rather than on AC ($\beta = 0.109$; $p < 0.1$). Serial entrepreneurs are more likely to be CE ($\beta = 0.073$, $p < 0.1$). AC entrepreneurs tend to have higher education levels ($\beta = 0.359$, $p < 0.05$). In sum, these dichotomizations capture the theoretical predictions as to the prevalence of learning orientations fairly well.

3.4. Independent variables

3.4.1. Diverging and assimilating learning styles

An assimilating learning style is focused on ideas, and, more importantly, abstract concepts. The emphasis is on putting information into concise, logical form. This learning style thus goes in tandem with engaging in formalized business planning activities. Some entrepreneurs formally plan while others do not (Delmar & Shane, 2003; Karlsson & Honig, 2009). To also proxy for those with higher planning intensity, the present research investigates changes to business plans, as planners tend to place more emphasis on the logical soundness of their plans than on the practical application of ideas.

In contrast, individuals with diverging learning styles view concrete situations from many points of view. They are more likely to actually seize opportunities and engage less in structuring relevant information into some sort of logical form. The present research therefore operationalizes this factor as those who informally plan –"informal" planners (coded as 1 if D1 = 1, & D2 = 1|2; 0 = otherwise) – and those who do not plan at all. Individuals with a diverging learning style should benefit more from working with unstructured information, providing more opportunity for personal creativity and volition.

3.4.2. Accommodating and converging learning styles

A converging learning style emphasizes abstract conceptualization and active experimentation. Individuals with a converging learning style are best at the practical application of their theories and ideas. Hence, those with converging learning styles should move from thinking into action. The present research therefore operationalizes this learning style based on question AD11 ("Proprietary technology, processes, or procedures developed" = 1, 0 otherwise).

For an accommodating learning style, concrete experience and active experimentation are the dominant learning orientations. Rather than proceeding logically, individuals follow their gut feelings and combine concrete experience with active experimentation. The present research proxies this hands-on experience using ventures making deliberate changes to their business model, employing the changes to the primary business activity (QA12: nature of business activity has changed = 1, 0 otherwise.). This learning style involves orientation toward action.

3.4.3. Social and financial capital

To test the third hypothesis on the benefit of relational contacts, our research explores two aspects of nascent entrepreneurs' social capital. First, our study counts the number of supporters who made a distinctive contribution to the founding of the new business and second, the number of supporters who helped and assisted the venture. The testing of Hypotheses 4a and 4b employs the amount of total informal and formal financial support received for both concrete experience and abstract conceptualization learners. Based on Reynolds (2011), the

research uses information on whether or not the venture acquired outside financing (Q. E4) and the amount of total informal (Q4-Q14) and formal (R4-R20) financial support received as the explanatory variables.

3.5. Control variables

Several control variables come into play, such as highest level of *education* (*H6*: in years), *sectoral* experience (*H11*: in years, natural logarithm), and *full-time work experience* (*H20*: years, natural logarithm). *Entrepreneurial experience* is the number of other ventures previously founded (*H13*: number of other ventures, natural logarithm) and whether or not the venture comprises a *team* (G1).

The study controls for the nascent entrepreneur's *ability expectations* being reflective of self-efficacy and their *start-up commitment* (Cronbach's alpha 0.71, comparable to Dimov (2010)). To identify the *uncertain and ambiguous environment* in H1, we draw on Renko (2013), who utilizes two different three-point scales (*S1*: 3 = all, 2 = some, 1 = no customers are unfamiliar with the new product/service, and *S2*: 3 = there are many; 2 = there are some; 1 = there are no other businesses offering the same product/service). These components appear separately, labelled *innovative product/service* and *competitive pressures* respectively. Lastly, the present study controls for sector (*B1*: dummies of manufacturing, services and retail (base category)).

3.6. Sample composition

Some entrepreneurs might have started a long time prior to the interview and, consequently, had higher chances than others of reaching certain milestones sooner. Lichtenstein, Carter, Dooley, and Gartner (2007) suggest including only entrepreneurs who underwent their first activity within 24 months prior to interview time. The sample accordingly shrinks, excluding entrepreneurs who pursued their first activity > 24 months prior to the first interview. The sample comprises 422 observations for which a concrete experience or abstract conceptualization learning activity appears within the 24-month window prior to the first PSED interview. Controlling for differences in selection and nonresponse rates, the PSED correction weights apply here as per Wave A (Reynolds & Curtin, 2009).

4. Results

The results appear in five tables. Table 1 presents summary statistics and simple bivariate correlations of our key variables. Table 2a and 2b report the results from the multinomial logistic regression for AC and CE learners, respectively. Table 3 presents the effect size estimations. Table 4 presents the explanatory power of each hypothesis tested.

Turning first to Table 1, the results show 159 entrepreneurs who are characterized by an abstract conceptualization learning orientation (AC) and 263 entrepreneurs with a concrete experience learning orientation (CE). Concerning the dependent variable, 27% of the ventures reach early stage profitability, 55% in our sample disband their venture, and 18% report ongoing activities as per wave F.

As to the learning styles, 36% report an informal business plan, 26% report a formal business plan, while the remainder does not engage in planning activities. Subsequently, we find that 41% of those who plan continue their planning effort and make changes to their business plan.

In addition, for relational contacts, half of the ventures feature a supporter who provides advice while one-third have a supporter who provides a distinctive non-monetary contribution to the foundation process. As to the financing received, ventures receiving formal financing (N = 88) take in an average of roughly 164,000 USD, and those receiving informal financing (N = 91) take in an average of roughly 29,000 USD (mean = 6), though standard deviations are high.

About one-fifth of the ventures change their business model and one-third develop a prototype.

Table 1 also reports that nascent entrepreneurs typically have at least a high school education, that the average full-time work experience is 21.5 years, and that two-thirds have prior entrepreneurial experience. Nascent entrepreneurs also identify that – on average – competitive pressures are modest. Some of these entrepreneurs have innovative product and/or services. Two-thirds of the ventures are service businesses.

4.1. Diverging and assimilating learning styles

Tables 2a and 2b feature the impact, for AC and CE learners respectively, of new venture founding activities on either achieving early stage profitability, disbanding, or being still-trying. These tables reveal significant differences in the ways abstract and concrete learners benefit from subsequent activities. AC learners (Table 2a) who engage in informal ways of processing information (informal planning) are less likely to achieve early stage profitability (ß = −0.23, p = 0.03). The effect of informal planning is insignificant for CE learners (Table 2b). Appearing in Table 3, Hedge's d indicates that the average impact of informal planning for AC learners differs by approximately 0.38 standard deviations with 95% confidence intervals of (0.07, 0.69). Hence, informal planning severely impedes the chances to reach early stage profitability for AC learners.

As for the impact of formal planning, the formal planning coefficient is positive and significant (ß = 0.18, p = 0.04) for CE learners, and insignificant for AC learners. However, because formal planning is much more prevalent among AC learners, the effect size calculations paint a slightly different picture. Hedge's d shows that the average impact of formal planning for CE differ by approximately −0.45 standard deviations with 95% confidence intervals of (−0.84, −0.07), while for AC they differ by approximately −0.36 standard deviations with 95% confidence intervals of (−0.68, −0.04). Both effect sizes, appearing in Table 3, are significant when dispersion is accounted for. Hence, formal planning affects success similarly (and positively) for the two learning orientations. In sum, the data do not support H1a, yet only a smaller percentage of CE-oriented learners engage in early formal planning. Informal planning also shows negative consequences for AC learners, so, relatively speaking, CE learners do better with informal planning than AC learners, as theorized. Thus, H1b bears out.

Lastly, those CE learners who make changes to the business plan are not more likely to reach early stage profitability, while a positive effect appears for AC learners (ß = 0.16, p = 0.05). Effect size calculations reveal an average impact difference in plan changes for AC of −0.41 standard deviations with 95% confidence intervals of (−0.77, −0.06). This translates into a sizeable 20.1% higher likelihood of reaching early stage profitability. Hence, evidence in favor of H1a using formal planning is absent; evidence is present in favor of making changes to the business plan (supporting H1a).

Overall, an assimilating learning style, which comprises formal planning and changing plans, has positive performance implications for individuals with an AC learning orientation. However, a diverging learning style does not seem generally beneficial for CE learners. Rather, observed performance differences between learners are attributable to detrimental effects of AC when individuals engaging in informal activities. Informal activities do not benefit CE learners, but hurt AC learners. As to the overall impact of assimilating vs. diverging learning styles, the overall addition of these variables accounts for 17.7% of the overall success probability for AC learners and 16.2% for CE learners. Table 4 tabulates model fits for variable inclusions. Calculations derive from McFadden's R-Squared for multinomial models as provided by the Stata fitstat package (Long & Freese, 2006).

4.2. Accommodating and converging learning styles

As for learning style dynamics, firstly, the development of a proprietary technology has a positive impact on early stage profitability for

Table 1
Summary statistics and correlation matrix.

		Mean	SD	1	2	3	4	5	6	7	8	9	10
1	Successful foundation	0.27	0.44										
2	Disbandment	0.55	0.50	−0.66									
3	Still-trying	0.19	0.39	−0.29	−0.53								
4	Abstract conceptualization learning ability	0.38	0.49	0.09	−0.08	−0.01							
5	Informal business plan	0.36	0.48	−0.04	0.00	0.04	0.10						
6	Formal business plan	0.26	0.44	0.19	−0.22	0.06	0.28	−0.45					
7	Made changes to business plan	0.41	0.49	0.14	−0.29	0.21	0.24	0.13	0.30				
8	Change in business model	0.18	0.38	0.10	−0.27	0.24	−0.07	0.05	−0.02	0.19			
9	Developed proprietary technology	0.35	0.48	0.08	−0.23	0.19	0.02	0.00	0.13	0.31	0.10		
10	Supporters (critical responsibility)	0.35	0.75	0.08	−0.19	0.14	−0.09	−0.06	0.11	0.21	0.04	0.16	
11	Supporters (advice)	0.45	0.83	0.01	−0.13	0.16	−0.02	−0.01	0.13	0.23	0.01	0.11	0.32
12	Informal financing	6.34	37.91	0.06	−0.10	0.06	−0.01	−0.05	0.03	0.01	−0.02	−0.04	0.02
13	Formal financing	163.96	2228.23	−0.01	−0.08	0.12	−0.03	0.06	−0.01	0.07	0.10	0.07	0.01
14	Education	14.68	2.09	0.08	−0.16	0.11	0.07	0.10	0.07	0.14	0.01	0.20	0.10
15	Sectoral experience	8.04	8.98	0.14	−0.21	0.11	0.01	0.01	0.05	0.09	0.09	0.08	0.11
16	Work experience	21.47	11.23	0.01	−0.13	0.16	−0.03	0.03	−0.03	0.08	0.15	0.06	0.06
17	Entrepreneurial experience	0.20	0.35	−0.01	−0.06	0.08	−0.04	−0.03	0.01	0.06	0.15	0.10	0.12
18	Start-up commitment	4.00	0.86	0.08	−0.05	−0.03	0.03	−0.02	0.09	0.04	−0.02	0.08	−0.05
19	Ability expectation	4.34	0.51	0.13	−0.16	0.06	0.00	0.01	0.13	0.13	0.00	0.12	0.02
20	Competitive pressures	1.34	0.74	−0.01	0.03	−0.03	−0.01	−0.01	−0.07	−0.07	−0.07	−0.14	0.00
21	Innovative product/services	1.61	0.71	−0.08	0.08	−0.01	−0.08	−0.07	0.03	−0.02	−0.07	0.09	0.07
22	Team (d)	0.48	0.50	0.10	−0.07	−0.02	0.11	0.05	0.05	0.06	−0.04	−0.03	0.06
23	Manufacturing (d)	0.11	0.31	−0.03	−0.01	0.04	0.05	−0.05	0.00	0.00	−0.03	−0.01	−0.04
24	Services (d)	0.67	0.47	0.05	0.00	−0.06	−0.06	0.03	−0.04	−0.07	−0.06	0.02	0.05

	11	12	13	14	15	16	17	18	19	20	21	22	23
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12	0.04												
13	−0.02	0.02											
14	0.13	0.09	−0.05										
15	0.07	−0.01	−0.05	0.07									
16	0.03	0.02	−0.01	0.14	0.27								
17	−0.01	0.04	0.18	0.15	−0.03	0.15							
18	0.03	−0.04	0.01	−0.16	0.07	−0.01	0.00						
19	0.03	−0.06	−0.02	−0.09	0.25	0.01	0.00	0.40					
20	−0.04	0.05	−0.10	−0.02	0.05	−0.03	0.02	0.00	0.00				
21	−0.01	−0.02	−0.06	0.01	−0.20	−0.06	0.05	−0.13	−0.06	−0.20			
22	−0.03	0.08	0.07	−0.05	0.01	−0.01	0.10	−0.07	−0.12	−0.02	0.00		
23	−0.05	−0.02	−0.01	−0.08	0.07	0.04	0.02	0.00	0.03	−0.01	0.03	0.07	
24	0.04	0.06	−0.07	0.14	0.02	−0.06	−0.07	−0.08	0.04	0.04	−0.07	−0.02	−0.50

Summary statistics and correlation matrix are based on 422 observations. Variables marked (d) are dichotomous/dummy variables.

Table 2a
Performance regression – abstract conceptualization learning orientation.

	Dependent variable: process outcome		
Explanatory variables	(1) Early stage profitability	(2) Disbandment	(3) Still-trying
H1a: diverging/assimilating styles			
Informal business plan	−0.23*	0.15	0.08
	0.12	0.10	0.09
Formal business plan	−0.10	0.04	0.06
	0.11	0.09	0.09
Made changes to business plan	0.16**	−0.10	−0.06
	0.08	0.07	0.06
H2a: accomodating/converging styles			
Change in business model	0.15*	−0.25**	0.09
	0.09	0.09	0.06
Developed proprietary technology	0.15**	−0.26***	0.11*
	0.07	0.07	0.06
Social and financial capital			
H3: supporters (critical responsibility)	0.02	0.18**	−0.20***
	0.07	0.08	0.06
H3: supporters (advice)	−0.12**	0.03	0.09***
	0.05	0.05	0.03
H4a: formal financing	0.01***	−0.01**	0.00**
	0.00	0.00	0.00
H4b: informal financing	0.00	0.00	0.00*
	0.00	0.00	0.00
Control variables			
Education	0.05***	0.01	−0.07***
	0.02	0.02	0.02
Sectoral experience	0.11***	−0.10**	−0.01
	0.04	0.04	0.02
Work experience	−0.17***	0.02	0.15***
	0.05	0.05	0.04
Entrepreneurial experience	−0.20**	0.14	0.06
	0.09	0.11	0.07
Start-up commitment	0.01	0.02	−0.03
	0.04	0.04	0.02
Ability expectation	0.00	0.02	−0.01
	0.07	0.06	0.04
Competitive pressures	0.04	−0.02	−0.02
	0.05	0.05	0.03
Innovative product/services	−0.03	−0.03	0.06
	0.05	0.06	0.04
Manufacturing (d)	−0.02	0.01	0.01
	0.10	0.11	0.10
Services (d)	0.04	−0.02	−0.01
	0.08	0.06	0.05

For each variable, the first row depicts coefficients and the second row depicts the corresponding standard errors. Coefficients correspond to the marginal effects for the independent variables calculated at the mean levels of the remaining variables.
* $p < 0.1$.
** $p < 0.05$.
*** $p < 0.01$.

AC learners (β = 0.15, $p = 0.02$) but not for CE learners. This finding supports H2a. The average impact of developing a prototype for AC learners differ by approximately −0.37 standard deviations with 95% confidence intervals of (−0.74, −0.01). This corresponds to an increase in the probability to reach early stage profitability by around 27.3%.

Lastly, a change in the business model, indicative of an accommodating learning style, has a positive impact on a venture's reaching early stage profitability for CE (ß = 0.17, $p < 0.05$) and a slightly smaller effect for AC learners ($p = 0.1$) (Tables 2a and 2b, respectively). Interestingly, a change in the business model for CE learners affects disbandment (ß = −0.35, $p = 0.01$) and being still-trying simultaneously (ß = 0.18, $p = 0.00$). Hence, chances are that one may end up either successful or remain still-trying. Overall, the average impact of a change in the business model results in a 10.7% increase in the probability to reach early stage profitability for CE learners.

While evidence exists that an accommodating learning style involving experimentation with the business model benefits those with a CE learning orientation, performance differences to AC learners are not sizeable. Overall, conclusive evidence is lacking for Hypothesis 2b. For AC learners, an assimilating learning style and a converging learning style explain about 7 and 4% in outcome variations. For CE learners, both a diverging and accommodating learning style account for 6% in terms of explaining variability in outcomes.

4.3. Social and financial capital

Social capital has a differential effect on new venture performance. Table 2b reports that the number of supporters that make a distinctive contribution to the venture process is positive and significant for CE learners (0.06; $p = 0.04$), but not for AC learners (Table 2a). The average impact of supporters for CE differ by approximately −0.22

Table 2b
Performance regression – concrete experience learning orientation.

	Dependent variable: process outcome		
Explanatory variables	(1) Early stage profitability	(2) Disbandment	(3) Still-tTrying
H1b: diverging/assimilating styles			
Informal business plan	0.06	−0.06	0.00
	0.07	0.07	0.04
Formal business plan	0.18**	−0.15**	−0.03
	0.08	0.08	0.05
Made changes to business plan	−0.07	0.02	0.05
	0.08	0.07	0.04
H2b: accomodating/converging styles			
Change in business model	0.17**	−0.35***	0.18***
	0.07	0.07	0.04
Developed proprietary technology	−0.03	−0.07	0.09***
	0.06	0.06	0.03
Social and financial capital			
H3: supporters (critical responsibility)	0.06*	−0.09***	0.03
	0.03	0.03	0.02
H3: supporters (advice)	0.01	−0.04	0.03
	0.03	0.03	0.02
H4a: formal financing	0.00	0.00	0.00
	0.00	0.00	0.00
H4b: informal financing	0.00**	0.00	0.00
	0.00	0.00	0.00
Control variables			
Education	0.01	−0.04***	0.03***
	0.01	0.01	0.01
Sectoral experience	−0.02	0.05*	−0.03
	0.03	0.03	0.02
Work experience	0.02	−0.10**	0.07**
	0.03	0.04	0.03
Entrepreneurial experience	−0.10	0.14	−0.04
	0.11	0.10	0.06
Start-up commitment	0.02	−0.02	0.00
	0.04	0.04	0.03
Ability expectation	0.08	−0.14**	0.06
	0.06	0.06	0.05
Competitive pressures	0.03	−0.05	0.02
	0.04	0.04	0.03
Innovative product/services	−0.07	0.07*	0.00
	0.05	0.04	0.03
Manufacturing (d)	−0.08	0.03	0.05
	0.11	0.12	0.07
Services (d)	0.01	0.00	−0.01
	0.08	0.09	0.06

For each variable, the first row depicts coefficients and the second row depicts the corresponding standard errors. Coefficients correspond to the marginal effects for the independent variables calculated at the mean levels of the remaining variables.
* $p < 0.1$.
** $p < 0.05$.
*** $p < 0.01$.

standard deviations with 95% confidence intervals of (−0.54, 0.09), while for AC, the effect differs by approximately −0.15 standard deviations with 95% confidence intervals of (−0.57, 0.27). This results in an overall difference in successfully reaching early stage profitability for CE learners of 17.8% when relying on supporters who are responsible for critical components of the venture foundation process.

The presence of supporters who give advice returns a negative effect (ß = −0.12, $p = 0.03$) on a venture's reaching early stage profitability for AC learners. As far as effect sizes are concerned, the average impact of supporters for CE and AC differ by approximately −0.18, though confidence intervals differ slightly (−0.47, 0.11; −0.19, 0.48). Both would result in differences in success probabilities of 15.5 and 14.1 for CE and AC learners, respectively. Thus, Hypothesis 3 seems correct, with respect to the presence of supporters taking on a critical component of the foundation process, but not for those who give advice. Supporters that make a distinctive contribution to the venture foundation process help CE learners. The model, including social capital measures, explains 23.8 and 24.5% of the variability in performance outcomes for AC and CE learners, respectively.

Concerning the effects for financial capital, Table 2a reports a positive and significant effect of formal financial support for AC learners and a positive and significant coefficient for informal financial support for CE learners (Table 2b) but not vice versa. Thus, both H4a and 4b seem correct. As to the effect size, for formal financial support, Hedge's d indicates that the average impact differs by approximately −0.41 standard deviations with 95% confidence intervals of (−0.82, −0.01). This corresponds to an increase in the probability to reach early stage profitability by around 18.5%, upon receiving formal financial support for those with an AC orientation. For informal financial support, the average impact differs for CE by approximately −0.3 standard deviations with 95% confidence intervals of (−0.28, −0.01). This corresponds to an increase in the probability to reach early stage profitability by around 13%, if those with CE orientation receive informal financial support. These data support Hypotheses 4a and 4b. Overall, the model

Table 3
Effect size estimation.

	Concrete experience learning ability			Abstract conceptualization learning ability		
	Effect size - delta	Confidence interval (BS)		Effect size - delta	Confidence interval (BS)	
Diverging/assimilating styles						
Informal business plan	−0.11	−0.38	0.16	0.38	0.07	0.69
Formal business plan	−0.45	−0.84	−0.07	−0.36	−0.68	−0.04
Made changes to business plan	−0.14	−0.40	0.12	−0.41	−0.77	−0.06
Accommodating/converging styles						
Change in business model	−0.27	−0.61	0.07	−0.28	−0.77	0.20
Developed proprietary technology	−0.03	−0.30	0.24	−0.37	−0.74	−0.01
Social and financial capital						
Supporters (critical responsibility)	−0.22	−0.54	0.09	−0.15	−0.57	0.27
Supporters (advice)	−0.18	−0.47	0.11	−0.18	−0.19	0.48
Informal financing	−0.30	−0.62	0.01	−0.09	−0.52	0.34
Formal financing	−0.69	−1.13	−0.26	−0.41	−0.82	−0.01

Table 4
Model fit based on McFadden's R-squared.

Variables included	Abstract conceptualization	Concrete experience
Controls only	0.101	0.103
Diverging/assimilating styles	0.177	0.162
Accommodating/converging styles	0.213	0.226
Social capital	0.238	0.245
Financial capital	0.399	0.273

explains some 39.9 in success variability for AC learners and 27.3% for CE learners.

Overall, most of the variation in outcomes is explained by learning rather than by social or financial capital for those with CE orientation. However, formal financial support has a similarly-sized effect and accounts for around 15% in outcome variations for AC learners.

5. Discussion

Much entrepreneurship research is predicated on the belief that with careful intervention, the entrepreneurial process can be facilitated, resulting in greater economic growth and innovation. This work began with a focus on the assumption that significant heterogeneity exists among nascent entrepreneurs, an important factor that would clearly be of considerable relevance to supporters, advocates, and researchers of all stripes. Too little empirical work has been done to study antecedents and consequences of entrepreneurial heterogeneity – frequently resulting in a “one size fits all” model of research and of action. In particular, the relationships between heterogeneity, learning, social networks, and outcomes have rarely been discussed in the entrepreneurship literature until now. Thus, while previous studies have discussed the impact of network heterogeneity (Hoang & Antoncic, 2003; McEvily & Zaheer, 1999), they have overlooked the role of firm heterogeneity and network suitability. The present research finds that the learning orientation of a particular entrepreneur is likely to provide a path-dependent process incorporating differential network ingredients.

The present research longitudinally examines firm heterogeneity using the actual behavior of nascent entrepreneurs to provide robust indicators for differentiating between different learning orientations and different learning styles when navigating through the nascent phase. The research first analyzes the comparative impact of AC and CE on early stage profitability. The results find that AC learners benefit from an assimilating style, yet the effect size for the formal business plan is comparable to CE-oriented nascent entrepreneurs. The study finds that making changes to the business plan has the strongest impact in creating a new venture successfully.

Thus, while informal planning has negative consequences for AC-oriented entrepreneurs, the CE-oriented entrepreneurs did not actually benefit from informal planning. Relatively speaking, they were not harmed, but the expected positive hypothesized influence did not materialize. One possible reason for this finding rests with the PSED data, which reflects the broad overall population of de novo start-ups. The sample may be rich in both service businesses and relatively lower technologies with more modest ideas. A richer population of higher technology firms might yield more definitive data.

As well, we focus on the dynamic aspect of these relationships. The analysis supported the relationship between AC and converging learning styles, but failed to support that between CE and accommodating learning styles. However, this learning style clearly explains the most variation in outcomes for CE learners. While it is uncertain exactly why this relationship failed to materialize, the present operationalizations are limited to one question indicating a change in business model for the accommodating style, and a question indicating proprietary technology, processes, or procedures developed for the converging learning orientation. Perhaps a more nuanced set of questions would yield more definitive results.

Regarding the differential role of social capital, the need for social capital varies considerably according to both the dynamic nature of entrepreneurship and the learning orientation of the individual nascent entrepreneur. CE-oriented learners benefit more from having supporters that provide help in planning, development, financial resources, among others, as compared to AC learners, resulting in earlier profitability for the CE supported learners. Those who follow an experience and action-oriented learning path will focus on entrepreneurial perceptions developed in tandem with their social network, regardless of whether these are new or existing ties. Clearly, beyond a distinction between the strength of ties, the impact of social networks on entrepreneurial outcomes will differ depending on learning orientations. The efficiency of the learning must be determined by a person's orientation having a first order effect on outcomes, while the structure of their social network or the resources their network provides may have a second order effect. This suggests that different strategies are necessary for more analytical learners as compared to more experientially-oriented ones. Analytical learners may require more formality and expect to have their business model carefully proven before requiring formal resources. Experiential CE learners appear to focus on iterative processes that yield support, guiding their ideas to fruition.

Similarly, support exists for the hypotheses linking different learning styles to different preferences for capital. The expectations were that AC learners would have better-prepared formal financial and business plans that would attract outside investors such as banks. CE learners, on the other hand, make more use of informal contacts in both

developing their ideas and in exploiting social relationships that yielded informal finance. The findings highlight the importance of tailoring entrepreneurial support mechanisms to learning orientations.

6. Limitations

As with all research, this study is not without limitations. One important factor outside the study is the stability of entrepreneurial learning orientations. Uncertainty remains as to whether or not AC entrepreneurs change to CE at some point, or vice-versa. Unfortunately, the data were unable to systematically examine the possibility of such transitions; theory is not explicit regarding if, how, and when transitions occur.

In addition, the study's time horizon includes an economic crisis, which may affect disbandment decisions by entrepreneurs. Recent work in Davidsson and Gordon (2016) find that during a crisis, entrepreneurs neither disengage earlier nor delay their effort provision. Generally, they find that individuals very far into the process are less likely to disengage, and founders of more innovative ventures are more likely do to so. The present study addresses the prevalence of similar patterns in our data using Cox regression. We find no significant effect for our learning orientations on the time to disbandment, yet those who write a formal business plan and those who receive more informal financing are more successful in creating a new venture faster. Also, those who change their business plan, those who change their business model, and those who have developed a proprietary technology disband later. Hence, the analysis provides ample research opportunities to extend the efficiency of organizing activities employed along the time dimension.

This study is embedded in a domain where entrepreneurs may differ in terms of the long-term and short-term goals they envision and are likely to pursue. Goal setting theory draws a distinction between well-defined, concrete goals and "vague, abstract goals such as the exhortation to 'do one's best'" (Locke & Latham, 1990: 265). Some entrepreneurs may be striving for goals that seem more proximal, allowing them to quickly evaluate progress against key targets. This factor might be more common in less complex ventures. Other entrepreneurs may take a long-term focus where initial profitability is not the primary goal. As a case in point, the present results find that making changes to the plan is beneficial for service ventures. Similarly, having a formal plan is beneficial for non-service businesses. Linking learning orientations to the goals that individuals focus on would be a very fruitful area for further research.

Finally, further research will hopefully be able to more specifically identify accommodating versus converging learning styles through multiple measures. More extensive multiple-item measures would be helpful in further elaborating the implications of learning preferences and styles on entrepreneurial behavior and success. However, the specific measures in use here, such as business planning, positive cash flow, and the source of the entrepreneur's capital, have been useful as single item measures in multiple studies (Delmar & Shane, 2003). Further, the present study provides specific theoretical justifications for using these specific measures.

7. Conclusion

Longitudinally contrasting two groups with different approaches to entrepreneurial behavior shows that two different trajectories emerge in terms of capital formation and social network involvement. This should be of considerable interest to those attempting to either teach or promote entrepreneurship, as their students undoubtedly have different learning requirements as well as pedagogical needs. Scholars and advocates would do well to recognize and account for the type of heterogeneity this study examines when developing programs that promote entrepreneurship and network building capacity.

In sum, the present findings are important because of a practical need to provide guidance to nascent entrepreneurs on how best to structure their foundation processes and in which activities to invest their efforts. Given the general discussion about one-size-fits-all solutions in entrepreneurship, instructors and support institutions wishing to facilitate and accelerate entrepreneurial activities may also gain insight. Efforts to facilitate the entrepreneurial process and its pedagogy may be critically dependent on which processes entrepreneurs pursue.

Appendix A. Description of variables

Variable	Description	Reference
Process outcome (dep. variable)	Multinomial outcome variable: Coded as 1 if revenues were greater than all monthly expenses (including salaries for the owners active in managing the business); coded as 2 if disbandment has been reported up to and including Wave F; 3 otherwise.	Davidsson and Gordon (2012); Dimov (2010)
Informal business plan	Dichotomous variables based on PSED question D2: What is the current form of your business plan—is it unwritten or in your head, informally written, or formally prepared? Coded as 1 if D1 = 1, and D2 = 2.	Delmar and Shane (2003), Greene and Hopp (2017)
Formal business plan	Dichotomous variables based on PSED question D2: What is the current form of your business plan—is it unwritten or in your head, informally written, or formally prepared? Coded as 1 (D1 = Yes); D2 = 3 (formally prepared); 0 otherwise.	Delmar and Shane (2003), Hopp and Greene (2018)
Change in business model	Dichotomous variable based on QA12 (nature of business activity has changed = 1, 0 otherwise	Honig and Hopp (2016)
Developed proprietary technology	Dichotomous variable based on AD11 ("Proprietary technology, processes, or procedures developed" = 1, 0 otherwise).	Schenkel, Hechavarria, and Matthews (2009)
Made changes to business plan	Dichotomous variables based on PSED question D30: Since last year, (has/had) the business plan been modified or updated. Coded as 1 (D30 = Yes); 0 otherwise.	Honig and Hopp (2016), Delmar and Shane (2003)
Supporters (critical responsibility)	Number of people indicated in G13: How many additional people, who will not have an ownership share, have made a distinctive contribution to the founding of this new business, such as planning, development, financial resources, materials, training, or business services?	Davidsson and Honig (2003)
Supporters (advice)	Number of people in M13 with M13 = 3: What was the primary contribution to this new business – financial, making introductions, providing advice, providing training, physical resources, business services, or personal services?	Davidsson and Honig (2003)
Formal financing	Total amount of formal (PSED questions R4-R20) financial support	Reynolds (2011)

Informal financing	Amount of total informal (PSED questions Q4-Q14) financing provided.	Reynolds (2011)
Education	H6: What is the highest level of education you have completed? Coded: 8 (up to eighth grade), 10 (some high school), 12 (high school degree), 14 (some college), 16 (bachelor degree), 18 (Master's degree), 20 (PhD degree).	Davidsson and Honig (2003)
Sectoral experience	H 11: How many years of work experience have you had in the industry where this new business will compete? Coded as number of years.	Davidsson and Honig (2003)
Work experience	H20: How many years of full time, paid work experience have you had? Coded as number of years.	Davidsson and Honig (2003)
Start-up commitment	Composite measures: AY9: There is no limit as to how long I would give maximum effort to establish this new business. AY10: My personal philosophy is to "do whatever it takes" to establish my own business. Likert scale 1 (strongly agree), 2 (agree), 3 (neither), 4 (disagree), 5 (strongly disagree). Reverse coded for sake of easier interpretation.	Townsend, Busenitz, and Arthurs (2010)
Ability expectation	Composite measure: Y4 Starting this new business is much more desirable than other career opportunities I have. Y5: If I start this new business, it will help me achieve other important goals in my life. AY6: Overall, my skills and abilities will help me start this new business. AY7: My past experience will be very valuable in starting this new business. AY8: I am confident I can put in the effort needed to start a business. Likert scale 1 (strongly agree), 2 (agree), 3 (neither), 4 (disagree), 5 (strongly disagree). Reverse coded for sake of easier interpretation.	Dimov (2010)
Competitive pressures	S 2: Right now, are there many, few, or no other businesses offering the same products or services to your potential customers? Coded: 1 (many), 2 (few), 3 (no other).	Renko (2013)
Innovative product	S1: Will all, some, or none of your potential customers consider this product or service new and unfamiliar? Coded: 1 (all), 2 (some), 3 (none).	Renko (2013)
Industry	B 1: Which of the following best describes this new business? Would you say it is a retail store, a restaurant, tavern, bar, or nightclub, customer or consumer service, health, education or social service, manufacturing, construction, agriculture, mining, wholesale distribution, transportation, utilities, communications, finance, insurance, real estate, some type of business consulting or service, or something else? Manufacturing is coded as 1 if B1 = 5, services coded as 1 if B1 = 2/3/4/13/14/15/16;	Renko (2013), Honig and Karlsson (2004)

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