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Of those who plan: A meta-analysis of the relationship between human capital and business planning

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ABSTRACT

Business planning is a popular managerial practice, especially in the SME context. Yet, literature presents diverging perspectives regarding business planning and the role it fulfills for the individuals leading these organizations. To advance research, we focus on evidence regarding factors that determine whether and how individuals engage in business planning. Drawing on human capital concepts and the theory of planned behavior, we scrutinize how education and different prominent work experience types influence business planning behaviors. We use meta-analysis to aggregate data on 8095 observations leading SMEs from 31 independent data sets. We find critical differences in planning behaviors relating to human capital types, as well as to whether individuals engage in substantive planning processes or the specific preparation of a formal business plan. Implications of our findings for research on business planning are discussed.

Introduction

Business planning has received devoted attention as a cornerstone activity that might offer sense of business environments and identify an appropriate course of action in light of uncertainty and missing information (Grant, 2003; Miller and Cardinal, 1994; Schwenk and Shrader, 1993; Shane & Delmar, 2004; Shrader et al., 1984). Especially for SMEs, the question of whether and how to engage in business planning is of considerable importance (Barry, 1998; Baker et al., 1993). On one hand, business planning holds the promise of optimizing the use of limited resources and avoiding missteps that could endanger the resource-scarce SME (Ackelsberg and Arlow, 1985; Baker et al., 1993). On the other hand, business planning consumes valuable time and could distract from tasks critical to survival such as generating sales, recruiting talent or assuring payments (Honig, 2004; Gilmore and Camillus, 1996). Reflecting this tension, SME leaders' decisions to plan or not stands out as a salient, essential choice in the management literature (e.g., Ansoff, 1965; Mintzberg, 1994a,b; Laamanen, 2017) and particularly in SME research (e.g., Delmar and Shane, 2003; Karlsson and Honig, 2009; Peel and Bridge, 1998).

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Given its importance, business planning has been extensively researched, especially with respect to the subsequent development of SMEs. Several empirical studies and theory advancements have focused on the business planning-firm performance relationship and have been subsequently aggregated in evidence-based research (e.g., Ackerlsberg and Arlow, 1985; Barry, 1998; Schwenk and Shrader, 1993; Brinckmann et al., 2010).

Antecedents to business planning, however, have received significantly less scholarly attention than its consequences (e.g., Dencker et al., 2009). Furthermore, research investigating the antecedents to business planning is fragmented and has frequently returned contradictory results (Carter et al., 1996; Richbell et al., 2006; van Gelder et al., 2007; Frese et al., 2007; Gibbons & O'Connor, 2005). Antecedents can be organized into two broad categories: those that address internal characteristics, such as human capital, firm size, firm age, ownership questions or strategic posture (Gibbons & O'Connor, 2005.); and those that address external factors, such as institutional variables (Honig and Karlsson, 2004) or for instance perceived environmental uncertainties and dynamism (Matthews and Scott, 1995). Recognizing that a range of antecedents of business planning have been investigated in prior research, in this paper we focus on human capital for three reasons. First, prior research has regularly identified the characteristics of CEOs and their top team crucial variables influencing business planning activities in SMEs (Dencker et al., 2009). Second, the choice to engage in business planning is a cognitive decision undertaken by individuals leading SMEs (Gibson & O'conner, 2005). Hence, their disposition to engage in business planning is likely notably influenced by their prior experiences and education that reflect their human capital investment (Mengel and Wouters, 2015). However, some studies suggest greater human capital investments facilitate business planning and in consequence more effective managerial action, while other research challenges this notion. For instance, literature on effectuation (Sarasvathy, 2001) suggests that in environments of uncertainty, individuals with greater entrepreneurial experience (Read and Sarasvathy, 2005) might avoid planning in favor of a control-oriented approach (Wiltbank et al., 2006). By introducing the theory of planned behavior (Ajzen, 1985, 1991, 2005) as an organizing framework, we can establish conceptual links connecting diverse human capital investments to diverging cognitive preferences and subsequently to diverging business planning behaviors in SMEs. Third, to date no systematic quantitative synthesis of the extant empirical evidence exists on the effects of human capital on planning behaviors in SMEs.

Given varying indications from theory and contradictory empirical findings, we conjecture a more nuanced understanding of human capital and its effects on planning behavior might be required; one which acknowledges different types of professional experiences and education, as well as subsequent divergent business planning approaches. We posit that whether and how leaders of SMEs engage in business planning behavior is determined by specific human capital investments and resulting cognitive effects (Etzkowitz, 1998; Becker, 1964; Ajzen, 1985, 1991, 2005). As individuals invest in their human capital, obtain education and work experience, they gain distinctive knowledge, skills, and abilities that likely affect their approaches when evaluating and pursuing business opportunities (Hayton, 2003). Since human capital experiences are heterogeneous (Mincer, 1974), it is important to distinguish the consequences of different human capital types on business planning. For example, different experience types such as education, general work experience or specific entrepreneurial experience are likely to differentially affect business planning behavior (Dencker et al., 2009). Similarly, business planning is also a heterogeneous activity (Gruber, 2007). The choice to engage in substantive business planning processes materially differs from the preparation of formal business plans to satisfy institutional requirements (Barry, 1998; Honig and Karlsson, 2004; Kirsch et al., 2009). Building on the theory of planned behavior, we anticipate that variations in business planning behaviors address distinct needs and preferences, shaped by prior specific experiences. Hence, our work sheds light on the role and function business planning fulfills for individuals leading SMEs and helps uncover reasons why individuals may plan or avoid business planning altogether.

We follow an evidence based research approach (Sackett et al., 1996; Hunter and Schmidt, 2004) to investigate the relationships between specific human capital dimensions and business planning behavior. Our meta-analysis is the first to scrutinize such relationships, empirically synthesizing findings from 31 independent quantitative studies of SMEs. Especially in recent years, evidence based research has gained increasing attention in the management literature as a method of aggregating fragmented and conflicting empirical findings (e.g., Rauch and Frese, 2007; Read et al., 2009; Rosenbusch et al., 2011). It addresses many of the shortcomings of individual studies and obtains insights that span the boundaries of any individual study (Hunter and Schmidt, 2004). Through our theory development and analyses, we provide two main contributions to the literature:

First, we follow prior work delineating aspects of human capital (Mincer, 1974) into forms of general education, work experience and specific entrepreneurial experience that are relevant to business planning. We develop theory explaining contingency in the relationship between these forms of human capital and business planning in SMEs that provides important insights about variation in cognitive scripts resulting from distinct human capital experiences. In the course of our conceptual development, we apply the theory of planned behavior (Ajzen, 1985, 1991, 2005) as an organizing framework to explain specific mechanisms linking human capital experience and business planning behavior. In so doing, we aim to develop a more profound understanding of phenomena which can stimulate a broad slate of further research into differences in human capital experiences and its consequences for managerial behavior (Johannisson, 2011; Keating et al., 2013).

Second, we separate the process of business planning from the outcome of having a plan, elucidating theoretical human capital drivers for each. Researchers have long argued that it matters what kind of business planning individuals engage in (e.g., Honig, 2004; Gilmore and Camillus, 1996) and we offer distinct antecedents explaining these differences.

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Theory and hypotheses

The decision to engage in business planning is a choice taken by individuals given their cognitive disposition. Theory offers factors expected to influence choice and subsequently observable behavior. Psychology-based concepts such as the theory of planned behavior (Ajzen, 1985, 1991, 2005), underline that individual behavior is shaped by prior experiences and learning. Ajzen's theory of planned behavior highlights that behavior is driven by intentions that in turn, are determined by attitudes of individuals, subjective norms, and perceived behavioral control. Following this theory, the degree of intention to engage in a behavior is an important predictor of the level of effort individuals exert carrying out the respective behavior, which in our case is business planning. Perceived behavioral control captures individual perception of the "ease or difficulty of performing the behavior of interest" (Ajzen, 1991, p. 183). It includes how individuals perceive the probability of successfully completing a behavior in a specific situation. The attitude towards a behavior refers to positive or negative evaluations an individual has about a behavior, while social norm captures perceived social pressure to carry out a behavior (Ajzen, 1991).

Applying the theory of planned behavior to the business planning phenomenon, we make specific inferences into how individuals' prior experience influences observed business planning behaviors. We apply the theory of planned behavior as an organizing framework to link prior human capital experience of individuals to subsequent business planning behavior in the SME context and to facilitate respective hypothesis development.

Attitude regarding planning-based behavior

As individuals obtain human capital through work and education, their attitude towards planning-based behavior changes (e.g., Bourgeois, 1984; Honig and Karlsson, 2004; Mintzberg, 1981, 1991; Tsoukas, 1996). As this happens, prior work points to a distinction between whether they choose up-front planning or whether they follow an action-oriented approach that does not necessarily require planning, such as effectuation (Sarasvathy, 2001), bricolage (Baker and Nelson, 2005), improvisation (Miner, Bassof & Moorman, 2001) or bootstrapping (Bhide, 1991). Given much managerial scholarship stresses planning-based approaches (Ansoff, 1965; Mintzberg, 1991), the decision not to plan characterizes a unique approach to managerial action.

In the education domain encompassing diverse areas such as social sciences, natural sciences and even art studies, students are trained to gather information, analyze information and develop solutions based on analysis (Boyatzis et al., 2002). Students are commonly trained in scientific approaches which include quantitative as well as qualitative analytical techniques. This form of education is generally conceptual in nature with a focus on directed transfer of knowledge, desk research and library work in the different domains, while action-focused and non-planned, intuitive behaviors are commonly less highlighted (Kolb and Kolb, 2005). The dominant form in which education occurs shapes students' identities as academically trained individuals (Akerlof and Kranton, 2002; Eliot and Turns, 2011). This scientific and analytical approach likely shapes individuals to prefer conceptual analysis compared to those with less education.

Furthermore, in the work domain a planning-based approach is generally also advocated (Cummings and Daellenbach, 2009). Large corporations, midsize companies and even smaller firms commonly require planning-based approaches to develop, for example, forecasts, budgets or incentives (Chen et al., 2009). Even in NGOs or governmental organizations, forms of planning are commonplace. The pursuit of organizational goals is normally specified in plans consisting of targets, milestones and resource planning (Ketokivi and Castaner, 2004). Though individuals might not appreciate planning-based approaches, we conjecture that, nonetheless, they will develop planning-based preference structures and positive attitudes towards planning as "professional behavior" given the immersion and exposure in the workplace (Honig and Karlsson, 2004).

Perceived behavior control regarding planning-based behavior

Perceived behavior control captures the perceived level of difficulty of carrying out a task such as business planning. As individuals develop abilities in the business planning domain, they are more likely to increase levels of perceived behavior control over planning activities (Ajzen, 1985). Business planning is a special, domain specific task that can be perceived as challenging and demands requisite knowledge, skills and abilities in order to pursue and complete (Oakes et al., 1998). While information about business planning is codified in a multitude of books, online resources or courses (Timmons and Spinelli, 1999; Hisrich et al., 2006) and hence represents a knowledge stock that can be acquired, skills and abilities are needed to engage and learn the task (Dean and Sharfman, 1996). Individuals with higher skills and abilities are predicted to engage more in business planning for several reasons. First, business planning can be demanding work that consumes resources and therefore creates costs (Carter et al., 1996; Brinckmann and Kim, 2015). As a result, individuals with greater skills and abilities may find business planning easier (Burke et al., 2010). Second, business planning can be a cognitively challenging task requiring special knowledge (Frese et al., 2007). Acumen for working with documents and financial literacy in working with numbers is a part of much general education and general work experience, and therefore people with these skills are likely more able to engage in business planning (Brinckmann and Kim, 2015; Kickul et al., 2009). Work experience also builds competences in "skilled action" (Fligstein, 1997) such as organizing groups and processes, which are useful for business planning (Kaplan and Orlikowski, 2013). Third, prior planning experiences provide individuals with reusable knowledge such as a structure for how to plan. Individuals obtain practice with the cognitive mechanics involved in business planning and gain a framework for identifying and utilizing information (Gruber, 2007). Fourth, as a result of greater knowledge, skills and abilities, individuals with more human capital may have a more refined understanding of how to effectively plan their

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prospective business (Dencker et al., 2009). As a result of these factors, the perceived behavior control regarding business planning is likely to increase with education and business experience. Following the theory of planned behavior, these individuals will more likely demonstrate business planning behavior.

Social norms regarding planning-based behavior

Attitude and perceived behavior control regarding business planning are both important drivers of the decision to engage in business planning, but the choice of whether and how to plan is also affected by whether individuals perceive social norms to follow a planning-based approach (Honig and Karlsson, 2004). Desirability perceptions have both an evaluative and a normative component determined by the social surrounding and especially by perceived social pressures (Koropp et al., 2014). Overtly or not, education and business experiences have a normative dimension driven by socialization processes that occur in the course of obtaining such education and business experience (Alvarez, 1993; Bigley and Wiersema, 2002; Heckman, 2000; Meyer et al., 1992). In many of these environments the socialization process places normative approval on approaches that favor analysis and upfront planning; i.e. explicitly planned actuation vis-a-vis more spontaneous or improvisational forms of action (Castrogiovanni, 1996). Thus, through work and education experiences, a planning-based approach is frequently explicitly or implicitly endorsed. Hence, individuals with more human capital are more likely perceive social norms favoring planning, and in consequence engage in business planning as they lead their SMEs.

In sum, a general positive link between specific human capital dimensions and business planning behavior can be established as attitudes, behavioral control and social norms are affected (Ajzen, 1985, 1991, 2005; Baum et al., 2001). However, advancing theorizing on the human capital-business planning relationship, the *strength* of the effects of specific human capital dimensions is likely to diverge.

Divergent effects of specific human capital investments

A key point of departure in our paper is the examination of discrete aspects of human capital that may differentially affect planning behaviors (Dencker et al., 2009; Hatch and Dyer, 2004). Human capital is formed through investments into education and experience. Moreover, education and experience can further be differentiated by scope—whether general in nature (i.e., high-school education or general work experience) or more specific to a domain (i.e., entrepreneurial or industry-specific education). Consequently, we develop theory around how specific human capital dimensions affect business planning behavior differently. We present two comparative hypotheses.

Effects of education vs. general work experience

We have argued that human capital investments may generally encourage business planning via attitudes, perceived behavior control and social norms (Ajzen, 1985, 1999, 2005; Baum et al., 2001). However, effect strength may vary (Crook et al., 2011; Mayer-Haug et al., 2013). Given the common focus on modeling, prediction and analysis and preparing reports in higher education in diverse areas of study we conjecture that in the education domain there is an implicit emphasis on a planned managerial approach in the education domain (Akerlof and Kranton, 2002; Boyatzis et al., 2002; Eliot and Turns, 2011). Alternative approaches focusing on actuation without planning receive limited attention (Kolb and Kolb, 2005). In comparison, in the SME work domain, the advocacy of business planning might be lower than in the education domain resulting in different behaviors. Though generally a planned approach may be portrayed as beneficial, in many instances an action orientation is also promoted in SMEs (Mintzberg, 1991, 1994a,b). Further, given various factors that determine successful action, individuals in the work space might experience success without business planning or even attribute success to avoiding prior planning (Read and Sarasvathy, 2005). For instance, a peer or superior may advocate or dismiss the importance of business planning in practice (Bhide, 2000). In consequence, diverging messages may result regarding the value of business planning. Taken together, we conjecture that though both education and work experience generally encourage business planning, education has a stronger effect on the proclivity to undertake business planning than work experience, given the dominant and consistent focus on a planning–based approach in educational environments. This leads us to propose:

H1. *The positive link between education and business planning is stronger than the link between general work experience and business planning.*

Effects of general work experience vs. entrepreneurial experience

The above arguments further lead us to expect a difference in effect strengths between general work experience and entrepreneurial experience. In established organizations managerial work is informed by insights from past operations and information that can facilitate planning efforts (Barry, 1998; Brinckmann et al., 2010). Further, business operations are commonly of greater size and complexity compared to organizations in entrepreneurial contexts, which would suggest greater need for business planning (Boyd, 1991). In contrast, in entrepreneurial settings information is often quite limited and ambiguous (Carter et al., 1997). Also, operations are likely smaller and less complex. Furthermore, resources – including managerial attention – are generally scarce (Bhide, 2000; Duchesneau and Gartner, 1990; Upton et al., 2001). This may lead entrepreneurs to undertake

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more action-focused behavior and less up-front planning. Comparing the effects of general managerial experience and entrepreneurial experience, we conjecture that in the managerial domain, there is greater, more frequent and more consistent support for and application of business planning than in the entrepreneurial domain. Hence, we posit:

H2. *The positive link between general work experience and business planning is stronger than the link between entrepreneurship experience and business planning.*

Following prior arguments, the greater, more frequent and more consistent exposure to planning based approaches obtained in diverse education settings through a scientific focus on research, analysis and preparing reports will affect individuals' attitudes, perceived behavioral control and social norms (Ajzen, 1985, 1999, 2005; Baum et al., 2001) toward favoring planning based approaches more than in work environments. In contrast, we expect the consistency and frequency of the exposure to planning to be less prominent in entrepreneurial environments where individuals might experience substantial actuation without prior analysis or planning (Sarasvathy, 2001). Contrasting both background types, education is much more focused on desk-research and analysis in controlled environments like classrooms or labs and to a lesser extent focused on actual implementation and doing in the "real-world" (Kolb and Kolb, 2005). Meanwhile, entrepreneurship experiences typically encompass interactions in the so-called "real-world" often void of upfront planning and analysis. We believe these divergent experiences will shape the attitudes, behavior control and social norms (Ajzen, 1985, 1999, 2005; Baum et al., 2001) regarding planning based approaches differently. While students will have a preference and greater abilities in planning, individuals with a practical background will be action focused with less preference for upfront analysis and business planning.

Employing a logical deduction approach (e.g. Miller, 1983), it follows if (a) education has a stronger theorized relationship with business planning than general work experience and, (b) entrepreneurship experience has a relatively weak expected effect on business planning compared to more general work experiences, then (c) it can be expected the relationship between education and business planning will be stronger than the relationship between entrepreneurial experience and business planning.

Taken together the theoretical and empirical considerations lead us to the subsequent hypothesis:

H3. *The positive link between education and business planning is stronger than the link between entrepreneurship experience and business planning.*

Distinguishing business planning phenomena: formal plan vs. planning process

Business planning is an "extremely rich, multifaceted phenomenon" (Gruber, 2007, p. 784). One key and long-standing distinction between business planning approaches is the creation of a formal written business plan where the plan is the outcome, in contrast to a substantive business planning activity where learning is the ultimate outcome (Ackelsberg and Arlow, 1985; Blank, 2013; Brinckmann et al., 2010; Delmar and Shane, 2003; Honig, 2004; Honig and Karlsson, 2004; Shane and Delmar, 2004). This difference is one of form versus function which is highlighted as salient and important by research in the strategy domain (Kirsch et al., 2009). Business planning can be conceptualized on a matrix with two axes. One axis measures the formality of planning, for instance in compliance with institutional pressures (Honig, 2004), while the other measures the degree of substantive planning behavior to gain actionable insights and be better prepared (Shane and Delmar, 2004). On the far end of the "formal" axis, consider the SME leader who downloads a business plan template, spends a few hours populating the variable fields and prints out 50 pages of meaningless but nicely formatted text, then goes back to work. On the far end of the "substantive" axis, consider the entrepreneur who is constantly assessing, planning, strategizing, reviewing, discussing, acting and extracting data from those actions right back into the next iteration of the process and cycles again. At this substantive endpoint, the entrepreneur never generates a written business plan. The difference between these approaches is significant. At one extreme the SME leader may only want to achieve a formal business plan outcome without seeing a substantive value in the activity. At the other, the SME leader may engage in substantive planning activities without developing a formal business plan (Frese et al., 2007). Though these are independent dimensions, individuals may produce both a formal business plan and engage in substantive business planning processes, or neither. Thus, the distinction between formal business planning behavior and substantive business planning behavior contributes to a more nuanced understanding of which mechanisms explain the link between human capital types and business planning behaviors (Brinckmann et al., 2010).

With respect to behavioral decision-making in a SME business context, attitudes regarding both substantive planning processes and formal business planning activities are likely to be positive because education and practice place a value on both activities. Yet, given the operational needs of an SME, the primary focus of individuals may be on the substantive business planning activities that reflect a planning-based preference structure and a positive attitude towards planning as a substantive activity (Brinckman et al., 2010). Further, individuals may have comparative experience, observing the general operational benefits of substantive planning, in contrast to the value associated with creating formal written plans, which may be ineffective or counterproductive in the absence of institutional forces that demand a formal business plan (Bhide, 1991). As business planning relates to perceived behavior control, individuals with greater human capital likely gain training regarding skills that facilitate substantive business planning behavior and frequently - although likely to a lesser extent - obtain exposure to formal business planning (Dencker et al., 2009). The subjective social norms consideration suggests individuals with greater human capital have been more strongly exposed to pressures to use both substantive and formal business planning in professional contexts (Castrogiovanni, 1996). However, following the above arguments,

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individuals with greater human capital may also perceive opportunities to avoid such pressures where possible. While these individuals may comply with institutional forces expecting substantive planning, they likely will avoid pressures for formal documents without a substantive nature (Read and Sarasvathy, 2005).

Based on the prior considerations, we conjecture a divergent dynamic exists in the relationship between human capital effects and having a formal business plan vs. substantive business planning. We anticipate:

H4. *The positive link between human capital and substantive business planning is stronger than the link between human capital and having a formal business plan.*

Method

This study follows an evidence-based research approach (Rosenberg and Donald, 1995) and applies meta-analysis to test our hypotheses. Meta-analysis has been used to explore conflicting results across a single line of inquiry as well as extract constructs from the literature for application to specific theoretical questions (Combs et al., 2011; Read et al., 2009). As our research integrates management, organizational, strategy, entrepreneurship and institutional literature, meta-analysis offers a powerful means of reviewing relevant aspects of each literature stream against a common frame and consolidating empirical results to form a quantitative synthesis of the focal relationships.

Sample

Guided by our theoretical development, we began our literature search in the leading academic outlets at the intersection of the topic areas of inquiry. As a first step of our literature search, we conducted an extensive database query of EBSCO to identify all relevant studies from 1990 to the beginning of 2014 in multiple target journals (*Academy of Management Journal*, *Administrative Science Quarterly*, *Entrepreneurship Theory and Practice*, *IEEE Transactions on Engineering Management*, *Journal of Applied Psychology*, *Journal of Business Venturing*, *Journal of Management*, *Journal of Management Studies*, *Journal of Small Business Management*, *Long Range Planning, Management Science*, *Organization Science*, *Research Policy*, *Small Business Economics*, *Strategic Management Journal*, and *Technovation*). In a second step, we manually searched two entrepreneurship publications not included in the EBSCO database: *Frontiers of Entrepreneurship Research* and *Strategic Entrepreneurship Journal*. In a third step, we added cross-referenced studies identified from previous meta-analyses investigating human capital (Crook et al., 2011; Unger et al., 2011) and business planning (Brinckmann et al., 2010). In a fourth step, we searched the Social Sciences Research Network (SSRN) and the Proquest dissertations database against our keyword criteria to identify unpublished dissertations, papers from conference proceedings, or unpublished working papers. In order to capture relevant studies, we searched with the following broad keywords in the abstracts: *human capital, experience, or education, in combination with planning, plan, business plan, or business planning*. We then reviewed every abstract returned from our keyword search, selecting studies for our meta-analysis based on the following two eligibility criteria:

Context

Our data collection focused on prior work investigating SMEs. We selected this context due to the theoretical considerations presented earlier in this work, and; (a) owing to the salience of the planning decision for SMEs, (b) needing observations which exhibit variance in, and measure the level of entrepreneurial experience, (c) identifying a setting where the human capital of the individuals leading the organization connects with organizational actions in a minimally diluted way, and (d) wanting not to introduce unaccounted for variance from different organizational forms and sizes into our model. The definition of SMEs varies across countries. Typically, the upper limit for SMEs in terms of size ranges between 100 and 500 employees (Ayyagari et al., 2007). As a universal SME definition does not exist, we used 500 employees as the cut-off criteria. This categorizes small versus large firms in the majority of sectors in the US (Small Business Association (SBA), 2012) and has been used by other researchers in the past as the upper size limit for SMEs (e.g. Beck et al., 2005; Clear and Dickson, 2005; Rosenbusch et al., 2011).

Necessary descriptive data

We included studies containing a correlation matrix (Song et al., 2008) with at least one measure of business planning and at least one measure of human capital.

After applying the selection criteria, our sample included 21 papers. We further identified 17 additional works containing relevant variables (human capital and planning), but without a correlation table. Except for two papers, published more than 30 years ago and where we could not locate the email addresses, we contacted all corresponding authors. Five authors responded and supplied relevant correlations, which enabled us to include those studies. One author even supplied three additional relevant independent datasets (two from unpublished work).[1] We screened all papers in order to ensure they did not duplicate the data set and identified one case (Delmar and Shane, 2003, 2004) in which the same

[1] In operationalizing both the education and experience elements of human capital, and business. planning as well, we include both team and individual measures in order to capture and reflect the importance of (any) team human capital and/or business planning activities in the time, resource and human capital constrained SME context.

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sample or sub-sample was used. However, as the two studies contained different variable relationships of interest, we included both, aggregating data where necessary to avoid inappropriately increasing the weight of those studies in the meta-analysis. In total, our meta-analytic sample included 31 independent data sets described in 29 papers. See Appendix 1 for details.

Measures

We defined human capital as the accumulation of experience and education.[1] We operationalized experience and education independently and later combined them to analyze relationships with the aggregate construct of human capital. Measures for each human capital dimension as well as the business planning dimensions (planning process and having a plan) are inventoried in Table 1.

Table 1
Definitions of study measures.[2]

Human capital				Planning[3]	
Experience			Education	Plan	Planning process
General work experience	Entrepreneurial experience	Industry experience			
Board of Director experience finance (4)/ internationalization (4)/ legal and regulatory (4)/ management of growth companies (4)/ marketing (4)/ networking (4)/ product development (4)/ strategy (4)/technology (4) Breadth of management experience (3) Business expertise (1) Business skills index (1) International experience (1) Management experience (5) Managerial experience (4) Experience of the owner (2) Managerial skill (1) Pre-entry knowledge (1) Prior work experience (2) Operations skills (2) Work experience (3) Years full-time paid work experience (2)	Business owner experience (1) CEO experience (1) Entrepreneurial experience (1) Startup experience (7) Venture experience (2) Experience index (multiple entrepreneurial experience measures) (1) Portfolio entrepreneur (1) Previous entrepreneurial experience (1) Previous start-up experience (2) Prior entrepreneurial experience (2) Prior self-employment (1) Serial entrepreneur (1)	Business experience (industry) (1) Industry experience (11) Industry experience of the owner (1) Prior industry experience (1) Team industry experience (1)	Academic education (1) Average highest education level of managerial employees (1) Degree (1) Education (13) Education bachelors (4) Education high school (2) Education masters and above (2) Education masters (2) Education MBA (2) Education vocational school (2) Education level (1) Educational background (2) Formal education (1) Highest education high school (1) Highest education university (1) Human capital (assessed with two education items) (3)	Business plan (6) Business plan complete (6) Business plan formalization (1) Business plan preparation (3) Business plan prior to start-up (3) Complete plan (2) Formal business planning (6) Formal/written plan (4) Having a business plan (9) Having a strategic plan (9) Plan (3) Status business plan preparation (4) With/without planning (4) Written business plan before start-up (3)	Business plan revision (9) Business planning (6) Complete planning (3) Early planning process (4) Elaborative and proactive planning (3) Extent company makes plans (4) Informal business planning (6) Market research (1) Planning index (3) Planning time (1) Pre-planning (4) Strategic plan revision (9) Strategic planning (2) Strategy formation process (1) Timing business planning implementation (4) Use of long range operations planning (2) Use of long range resource planning (2)

Experience

Following Ferrante (2005), executive experience offers an element of human capital identified in numerous empirical studies as a distinct correlate with performance (e.g. Song et al., 2008). Since the variety of tasks involved in creating and/or operating an SME includes everything from generating sufficient funding for the business to hiring employees, we include any experience relevant to the variety of tasks, including managerial experience, industry experience, previous entrepreneurial experience, etc., as well as knowledge and skills that can be considered an outcome of the human capital associated with experience (Becker, 1964; Unger et al., 2011). In order to investigate the hypotheses specific to the domain of experience, wherever possible we classified experience measures into categories of general work experience and entrepreneurial experience, or a category of industry experience (for the post-hoc analysis).

[2] Frequency of operationalizations/number of relevant correlations coded in parentheses.

[3] Two operationalizations (a) planning breadth (1 correlation coded/was used in 1 study) and b) level of specificity of business plan (12 correlations coded/was used in 4 studies) the variables could not clearly be categorized into plan or planning process. Therefore, we only included the studies in the analyses related to planning overall.

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Education

Our operationalization of education is consistent with that of experience. It is broadly based, ranging from general education level (Burke et al., 2010) to the type of education (e.g., Davidsson and Honig, 2003).

Business planning

Following prior work on business planning (Brinckmann et al., 2010), we included a variety of planning related measures. Wherever possible, we categorized business planning measures into categories of either "business plan" or "planning process". These breakout categories, detailed in the rightmost 2 columns of Table 1, organize aspects such as (a) having a written, (b) formal business plan, or (c) complete business plan into one group of "business plan". We distinguish the first category from measures related to the process of planning or the time spent planning such as (a) informal business planning, (b) market research, (c) strategic planning which were classified in the category "planning process".

Meta-analysis method

After collecting correlations from the data sets in our sample, we applied meta-analytic procedures according to Hunter and Schmidt (2004). Following suggestions of researchers previously employing meta-analysis in management (Geyskens et al., 2009; Lipsey and Wilson, 2001), where available we recorded the Cronbach's alpha for perceived measured variables and corrected for variable measurement error according to the Hunter and Schmidt (2004) formula. We further identified variables measured dichotomously, and corrected them according to the assumption that a real correlation coefficient is reduced by at least 0.8 as a consequence of dichotomization, assuming a conservative split of 50–50 on the dichotomous measure (Hunter and Schmidt, 2004; Lipsey and Wilson, 2001). Thus, we followed Hunter and Schmidt's (2004) formula:

$$r = \frac{r_0}{a_d}$$

where: r denotes corrected correlation; r_0 denotes the raw Pearson correlation between variable 1 and variable 2; and a_d has the value 0.8 if either one of the two variables is measured dichotomously, 0.64 if both variables are measured dichotomously, and 1 if both are measured continuously.

After correcting for artifacts and obtaining the average effect size per study, we used the Comprehensive Meta-Analysis software (Borenstein et al., 2005) to compute a mean effect size using a random effects model (Hunter and Schmidt, 2004; Lipsey and Wilson, 2001).

Analyses and results

Main effects

We present the results of our meta-analysis in Table 2. Our review of the literature anticipates a positive relationship between human capital and planning. Table 2 shows a positive and significant effect for that relationship (effect size = 0.122, p-value < .001).

Our theoretical development exposed the heterogeneous nature of constructs examined in the human capital literature. Meta-analysis offers an empirical opportunity to unpack the human capital construct and explore sub-relationships. We therefore performed several analyses to examine differences between elements of human capital (education, general work experience, entrepreneurial experience) and business planning. Table 2 shows a positive significant main effect for education and planning (effect size = 0.144, p-value = .001) as well as general work experience (effect size = 0.157, p-value = .002).

Table 2
Main effects.

	Number of studies	Number of firms[a]	Point estimate (random effects)	95% confidence interval		z-value	p-value
				Lower limit	Upper limit		
Hypotheses 1–3: Break-out of human capital into education, general experience, and entrepreneurial experience with planning (which includes planning process and having a plan)							
Main effect: Human capital – Business Planning	31	8095	0.122	0.056	0.186	3.632	.000
H1 & H3: Education – Business Planning	24	6580	0.144	0.060	0.225	3.359	.001
H1 & H2: General work experience – Business Planning	20	5416	0.157	0.056	0.254	3.039	.002
H2 & H3: Entrepreneurial experience – Business Planning	14	4625	−0.013	−0.071	0.044	−0.448	.654
Hypothesis 4: Break-out of planning into formal plan and planning process							
H4: Human capital – Formal Business Plan	12	4188	0.059	−0.046	0.164	1.099	.272
H4: Human capital – Business Planning process	19	3871	0.154	0.069	0.237	3.544	.000

[a] These results were also validated at the individual unit of analysis. Significance levels improved when analyzing at the individual level, but the results remained stable.

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Strikingly, our analyses reveal a negative but non-significant relationship of entrepreneurial experience and business planning (effect size = −0.013, p-value = .654).

As a means of examining hypotheses H1–3, we compare effect sizes for overlapping confidence intervals. Non-overlapping 95% confidence intervals necessarily describe effects significantly different at the ($p < .05$) level. Full confidence interval data are reported in Table 2. Observing the confidence intervals of education and business planning (CI Low: 0.060, CI High: 0.225) against work experience and business planning (CI Low: 0.056, CI High: 0.254), we find nearly complete overlap. A *t*-test comparing the means returns a non-significant result ($p = .420$) so we reject hypothesis 1. The confidence interval around the effect size of general work experience and business planning in SMEs (CI Low: 0.056, CI High: 0.254) is higher than, and non-overlapping with the confidence interval around the mean effect of entrepreneurship experience and business planning (CI Low: −0.071, CI High: 0.044). A *t*-test comparing means reveals a significant difference ($p = .003$) in support of hypothesis 2. Hypothesis 3 is also supported, as *t*-test between the mean effect of education and business planning is significantly ($p = .002$) higher than the effect between entrepreneurship experience and business planning.

Turning our attention to hypothesis 4, the different aspects of planning, compare the mean effect size of the relationship between human capital and the planning outcome (i.e. creating a business plan) (effect size = 0.059) against the relationship between human capital and the planning process (effect size = 0.154). A *t*-test of the difference is non-significant ($p = .164$), reflecting overlapping confidence intervals for business planning (CI Low: 0.069, CI High: 0.237) and having a formal business plan (CI Low: −0.046, CI High: 0.164), so we reject hypothesis 4.

Robustness tests

Bias in the institutional diffusion of business planning

Institutional theorists argue that a variety of processes have institutionalized business planning and driven its diffusion among SMEs (Honig and Karlsson, 2004). Hence, over time business planning may have become socially accepted as a standard practice, becoming a norm expected by stakeholders and associated with venture legitimacy. The diffusion of business planning books, growth of online resources, competitions and classes specific to business planning increase the legitimacy of business planning. Specific to our research question, the proliferation of business planning is likely advanced by institutions that endow human capital (Honig, 2004). If so, such a bias might be reflected in the relationship between human capital investments and business planning strengthening over time. We tested for this effect, entering the year in which each study was published into a meta-regression of the main effect of human capital on business planning, adding year as a continuous moderating variable. Our results indicate no significance of publishing year as a moderator in our data (z-value = −0.672, p-value = .502).

Reliability

Scholars with significant experience in meta-analytic methods have suggested that observed variables (not latent constructs) might not be 100% reliable. In order to conduct a test that assumes there is a measurement error in our observed variables, we recalculated all correlations between observed dependent and independent variables using an assumed average accuracy of 0.80 (Dalton et al., 2003) and ran all our analyses again. Our results did not change significantly, giving us some assurance that accuracy of observed variable measurement did not generate a systematic bias in our meta-analyses.

Publication bias

One of the benefits of meta-analysis is the possibility of assessing whether publication bias may be present. We addressed publication bias in different ways. First, our search process explicitly included sources such as SSRN and conference proceedings to include unpublished work in our sample. We further searched the Proquest database for dissertations. Of the 31 studies included in the meta-analyses, 7 are unpublished studies (conference papers, working papers). We utilized a bivariate moderator analysis and found neither in the fixed nor in the mixed-effects model a significant difference (Q-value mixed-effects model = 0.067; p-value = .796) of the published (effect size mixed-effects model = 0.126; p-value = .001) compared to the unpublished (effect size mixed-effects model = 0.103; p-value = .210) studies. Second, we used a funnel plot to assess possible publication bias (see Fig. 1). Following Borenstein et al. (2005), publication bias can be observed from the funnel plot if the studies at the bottom (where studies with a smaller sample size are located) are clustered on one side of the mean or the other. Studies with a smaller sample size at the bottom of the plot suggest greater statistical significance and hence an increased likelihood of being published. However, this is not the case in our funnel plot, which reassures us that publication bias is limited at most. Moreover, we applied the file-drawer technique (Hunter and Schmidt, 2004; Rosenthal, 1979), and our analysis revealed that 622 studies with a null-effect are needed to generate insignificant results, which significantly exceeds the tolerance of 165 studies suggested by Rosenthal (1979).[4] Overall, we conclude that publication bias is limited.

Posthoc analyses

Our investigation is closely theory-driven. Unlike meta-analyses which seek to synthesize a broad set of independent and dependent variables (Mayer-Haug et al., 2013), we analyze conceptually founded relationships specific to the relationship

[4] Rosenthal (1979)'s tolerance is calculated according to the formula ((5 x (number of studies in the current meta-analysis)) +10), which in our work resulted in ((5 × 31) +10) = 165, much smaller than 622 data sets with null findings needed to reduce our findings to non-significance.

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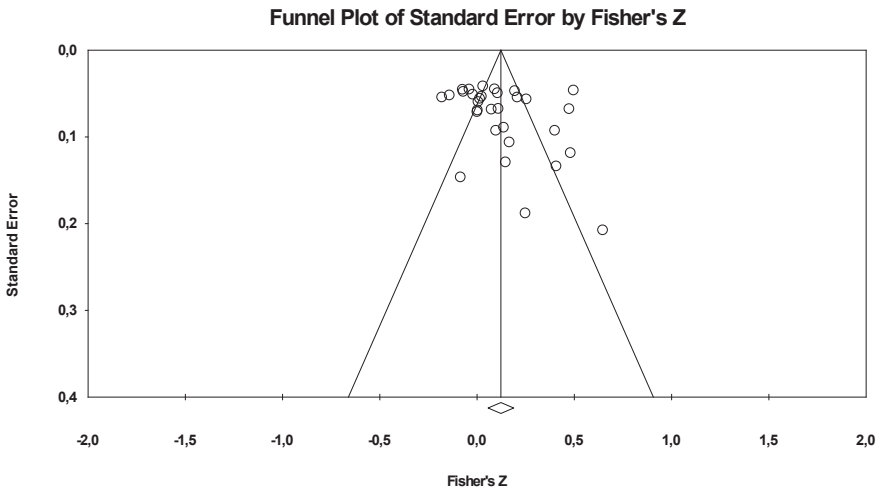

Fig. 1. Examination of possible publication bias – funnel plot.

between human capital and planning. In the interest of exploiting our rich data, however, we include posthoc analyses which existing theory do not speak to directly, but which offer nuanced insight into the conceptual results of our study. Exhaustively analyzing the 8 combinations of our measures (4 aspect of human capital times 2 aspects of business planning), we offer the results in Table 3.

Table 3
Posthoc examination of discrete effects.

	Number of studies	Number of firms[5]	Point estimate (random effects)	95% confidence interval		z-value	p-value
				Lower limit	Upper limit		
Education –>Formal Business Plan	9	3479	0.095	−0.062	0.247	1.188	.235
General work experience –>Formal Business Plan	7	2412	0.122	−0.026	0.264	1.616	.106
Entrepreneurial experience –>Formal Business Plan	9	3240	−0.053	−0.114	0.009	−1.684	.092
Industry experience –>Formal Business Plan	5	1739	0.137	−0.067	0.331	1.320	.187
Education –>Business Planning process	13	2823	0.155	0.049	0.257	2.853	.004
General work experience –>Business Planning process	12	2757	0.191	0.037	0.335	2.425	.015
Entrepreneurial experience –>Business Planning process	8	2185	0.029	−0.052	0.109	0.705	.481
Industry experience –>Business Planning process	5	1449	0.037	−0.015	0.088	1.392	.164

Discussion

Prior evidence on antecedents of business planning in SMEs has provided various conflicting and fragmented findings. At the same time, prior empirical evidence illustrated that business planning can have positive performance effects for SMEs (e.g., Brinckmann et al., 2010; Schwenk and Schrader, 1993) yet much prior research treated business planning as an independent and randomly occurring phenomenon. In this research, we use Ajzen's theory of planned behavior as an organizing framework to develop hypotheses anticipating how the background of individuals leading SMEs affects their likelihood to engage in business planning.

Theoretical contributions

Our results offer various contributions to business planning, human capital and cognition literature. We address each in turn, highlighting future research opportunities.

Strikingly, we find individuals with entrepreneurial experience less likely to exhibit business planning behavior than individuals lacking entrepreneurial experience. This result is important for debates about the nature of entrepreneurial experience (Baron and Ensley, 2006; Mitchell et al., 2002; Westhead et al., 2009). Our theorizing points to behavioral factors

[5] We appreciate the input of two anonymous reviewers for highlighting the many ways the issues of education and unit of analysis present both limitations as well as possible future research directions.

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derived from cognitive dispositions acquired in prior experiences that may explain this result. Following the theory of planned behavior, cognitive dispositions may explain the divergent behavior we observe. Regarding the personal attitude to engage in business planning, it may be that individuals with prior entrepreneurial experience perceive business planning as a squandering of valuable time that could be used for alternative activities they believe more value creating. However, other individuals with prior entrepreneurial experience may perceive business planning as useful. Hence, the resulting effects are mixed, overall not significant, and smaller than results regarding the education and general managerial experience effects.

Regarding perceived behavior control, it could be that though promoted prominently in the entrepreneurship domain, relatively few entrepreneurs actually practice business planning. Research conducted by Amar Bhidé (2000) found 41% of founders had no business plan at all, 26% had some sort of rudimentary plan and only 28% had a formal business plan. These data are consistent with research on firm founders in the Inc. 500 which showed only 40% of with a business plan, and of those, 65% reported the form doing something significantly different from the original plan. Only 12% of respondents reported conducting formal market research before launching their ventures (Bartlett, 2002). Given little exposure to business planning, individuals with prior entrepreneurial experience might not develop skills in business planning which would increase their perceived behavioral control. An additional explanation is that entrepreneurial experience might act as a substitute for business planning (Bhide, 1991; Read and Sarasvathy, 2005). As individuals gain entrepreneurial experience they might feel they control the overall entrepreneurial venture outcome through alternative activities, and do not consequently engage in formal business planning activities.

With respect to the social norm aspect of the theory of planned behavior, it may be that individuals with prior entrepreneurial experience obtain signals that developing business plans may depend on firm type and context. As a more contingent understanding is developed, a clear and general preference for business planning and subsequent business planning behavior may not substantiate for the overall SME context.

The conceptual development initiated in this work sets the stage for more fine-grained investigation of the theory of planned behavior. Each of the three aspects of the theory of planned behavior presents an opportunity for empirical operationalization. By exposing the conceptual connections between human capital constructs and business planning we have set the stage for specific hypotheses development and analyses of the mediating aspects of the theory of planned behavior in this context. Such an investigation might fruitfully employ survey or experimental methods to focus on individual decision-making and cognition.

Another striking result of this study is that the effect of human capital on business planning is non-significant for formal business planning in SMEs. This indicates that rather than following institutional pressures for formal business plans, the effects of human capital investments (primarily education and general work experience) may result in altered cognitive preference structures and respective behavior favoring substantive planning processes but not favoring the creation of formal business plans. Taken together, these findings facilitate a refined understanding of which specific business planning type is fostered by human capital experiences.

Our findings further add to theorizing that sees formal business planning as primarily a response to institutional pressures (Honig, 2004). The link between human capital and business planning together with the missing link to formal business planning suggest individuals with higher education and general work experience change their disposition towards a planning approach, yet this approach is not more likely to result in a formal business plan in SMEs. It could be that institutional pressures suggest formal business plan outcomes, while at the same time individual attitudes and preferences as well as skills and perceived behavioral control do not lead to this behavior. Another explanation is the variation that exists in the SME context. For a fast growing venture, the creation of a formal business plan might be of utmost value to obtain professional financing while only some individuals leading many other SMEs might experience the need to prepare a formal business plan.

Practical implications

The findings of our study suggest direct practical implications for two specific audiences. Our findings caution individuals that their background may bias them towards specific business planning behavior in the SME context. First, background may affect which venture type they choose and the respective actions needed. As this can be a conscious or subconscious choice, further reflection on this choice can be helpful. Second, there might be further cognitive biases in place. Individuals with prior entrepreneurial experience might underappreciate business planning while individuals with prior general experience or education might be overly biased toward a business planning approach in SMEs. In turn, our findings suggest if individuals want to learn business planning, they should enroll in school or take a non-entrepreneurial job. The striking finding that entrepreneurs are less likely to engage in business planning vs. other experience types further suggests these individuals develop other resources and skills such as reputation, network contacts, and knowledge about how to successfully run a SME that reduce the perceived need for business planning. Further, at the team level, a mix of backgrounds might help in offsetting individual biases or in obtaining the respective alternative skill set. Since this study did not focus on the performance effects of business planning, we direct interested readers to the extensive literature in this domain for a further discussion (Brinckmann et al., 2010).

Moreover, our findings caution educators. Our study uncovers clear preference structures for behavioral approaches based on an individual's educational background. This may be a conscious or subconscious choice and may or may not be warranted. Hence, we believe educating students, managers and entrepreneurs about the various legitimate applications of planning behaviors and developing a more contextual understanding of applying different approaches rather than advocating only

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planning irrespective of context might be beneficial. In fact, individuals who self-select for educational offerings or managerial experience might be more prone to engage in planning-based approaches in the first place. Hence, further stressing these specific approaches without the consideration of alternatives might create even stronger biases. For instance, in business planning courses educators could encourage reflection on planning predispositions resulting from education and general experience, discuss venture typologies and respective planning needs, the institutional environment, and alternative approaches to entrepreneurship that do not necessarily involve business plans (e.g. effectuation, bricolage, improvisation, bootstrapping). Other results furthermore suggest that entrepreneurship instructors might do well to focus students on the value derived from the processes involved in business planning and reduce emphasis on the delivery of the business plan itself. We already see movement in this direction with courses focusing on "Lean start-up" methods, in which a process framework guides students, with less emphasis on crafting business plan documents in order to fulfill course requirements (Ries, 2011). However, the above suggestions extend beyond the business school domain, as we find that in general obtaining higher education leads to preferences to engage in business planning behavior.

Limitations

From a methods perspective, meta-analysis offers substantial explanatory power and synthesis of fragmented findings (Hunter and Schmidt, 2004). We carried out our meta-analysis following recent recommendations (Geyskens et al., 2009). However, we cannot rule out the possible impact of other intervening variables. Further, as statistical models abstract a more complex reality, we also need be aware of limitations that unobserved third variables might influence relationships. Moreover, if primary research suffers from common-method or other systematic bias, those studies may report overestimated relationships. To the extent such effects exist in our underlying data (which is a possibility since our meta-analytic sample contains a large proportion of cross-sectional studies), the effects we estimate at the meta-analysis level will be similarly biased. Moreover, while we exerted significant effort to address publication biases and conducted specific searches for unpublished work, the evidence present in our community of scholars nonetheless likely suffers from the file-drawer problem since non-significant relationships are frequently not reported; hence the strengths of the relationships could be lower than observed in this study.

Beyond general methods limitations, we highlight the data limitations specific to our study. The first relates to education. Meta-analyses are constrained by the granularity at which the underlying data were collected. As much as we would like to investigate how different levels (ex: highest level of education attained, years of experience, hours spent business planning, number of pages in the business plan) of our variables relate to and impact each other, we found that the underlying data do not permit such nuance. As this relates to education, the nature of education is an important component of human capital. Furthermore, meaningful variance exists as a function of the country where the education was obtained, the quality of the institution, and the nature or course of study. Second, human capital is predominatly measured drawing on human capital investments. Unger et al. (2011) take up this measurement issue to show that when studies measure human capital more directly they find stronger relationships with outcome variables than when they use investments as their proxy for human capital. This finding has a reassuring implication for our study: it means that our results are likely a conservative tests of the relationships as they also are more likely to draw on human capital investment measurements. Third, we highlight the issue of unit of analysis. Consistent with prior meta-analyses considering human capital (ex: Unger et al., 2011), our dataset includes underlying studies conducted at the individual, team and firm units of analysis. We validate our data by conducting analysis at both the firm and individual units of analysis (please see footnote[2]). But outstanding questions remain regarding differences between individual and team human capital, particularly when the different aspects of human capital exposed in this study are considered. Unfortunately, our data do not permit investigation of these differences at such a granular level. But these limitations present interesting avenues of future study, for these differences may represent differential human capital experiences that future researchers may instrument and analyze to determine how human capital impacts subsequent behaviors.

Future research

Our work uncovered new evidence regarding contingency in the relationship between specific human capital types and business planning approaches. This finding has implications for a number of conversations in the academic literature, encouraging future research that might more precisely model the endogeneity of business planning behavior. Such work may be of relevance to several streams of literature. Effectuation, for example, argues strongly for the importance of individual means (which encompass human capital) and researchers in the area have called for more detail on the mechanisms associated with effectuation (Perry et al., 2012). Our work provides a basis for examining effectual means with different aspects of business planning, drawing attention to specific questions such as whether business planning skills are a means, and whether this means is substitutable or complementary with other means in the entrepreneur's portfolio. Previous research did not find performance differences between business planning activities and the existence of formal business plans (Brinckmann et al., 2010). Our meta-analysis depicts human capital endowments affecting business planning behavior but not the creation of formal business plans. The combination of these results suggests that further research into factors that determine formal business planning is warranted. In this respect, further cognition research (Mitchell et al., 2002; Shepherd, 2015) appears promising to address which specific cognitive triggers initiate business planning behavior and which cognitive attributes are associated with more planned or unplanned behaviors. Possible directions might include investigating business planning

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activities depending on whether the individual is a novice, more experienced or even serial or portfolio entrepreneur (Toft-Kehler et al., 2014), whether the current venture is in the same industry as the previous one, the specific funding needs of the venture, as well as the perceived downside risks associated with the venture. In this respect, future research could further uncover whether and how business planning efforts affect emotional states of individuals who venture out to pursue the uncertain (Shepherd, 2015). Moreover, there might be substantial differences between effects found in nascent firms and long-established SMEs which can draw on better information for their planning efforts.

In closing, our analytical framework suggests behavioral effects based on the theory of planned behavior may help in guiding several aspects of future research. The modeling of the endogeneity of the business planning approach, as suggested in this paper, may contribute to uncovering further insights into how individuals' backgrounds may determine other aspects of managerial behavior that subsequently affect various performance dimensions of SMEs.

Moreover, while our paper focused on the SME context in theorizing and empirical analysis, we believe that much of the above arguments and empirical findings may have relevance in the large firm setting. Hence, we hope that our work inspires further research on the business planning phenomenon beyond the SME context.

Appendix 1. Overview of studies included in meta-analysis.

Name (year) with multiple datasets in one study listed by a, b, …	N (firms)	Publication status	Conceptualization of human capital	Conceptualization of business planning	Country of origin
Bradley et al. (2011)	557	Unpublished	Education General experience Industry experience	Planning process	Kenya, Burundi, Indonesia
Brannback et al. (2010)	31	Unpublished	General experience	Planning process, plan	Finland
Brinckmann and Kim (2015)	479	Unpublished	Education General experience, Ent. Experience	Plan	United States
Burke et al. (2010)	422	Published	Education, Ent. experience	Plan	United Kingdom
Chaganti and Schneer (1994)	372	Published	General experience Industry experience	Planning process	United States
Davidsson (2011)	472	Unpublished	Education Ent. experience Industry experience	Plan	Australia
Delmar and Shane (2003)	211	Published	Ent. experience Industry experience	Planning process	Sweden
Delmar and Shane (2004)	211	Published	Ent. experience	Plan	Sweden
Dencker et al. (2009)	436	Published	Education General experience Ent. experience	Planning process	Germany
Dimov (2010)	195	Published	Education General experience Ent. experience Industry experience	Planning process	United States
Duchesneau and Gartner (1990)	26	Published	General experience	Planning, Planning process	United States
Frese et al. (2007)	117	Published	Education	Planning process	South Africa
Frese et al. (2007)	215	Published	Education	Planning process	Zimbabwe
Frese et al. (2007)	73	Published	Education	Planning process	Namibia
Gibbons & O'Connor (2005)	359	Published	Ent. Experience	Planning process	Ireland
Haber and Reichel (2007)	305	Published	Education General experience, Ent. experience	Planning process	Israel
Honig and Karlsson (2004)	396	Published	Education General experience Ent. experience	Plan	Sweden
Kirsch et al. (2009)	341	Published	Education Ent. experience	Plan	United States
Lange et al. (2007)	330	Published	Education Ent. experience Industry experience	Plan	United States
Liao and Gartner (2006)	276	Published	Education General experience, Ent. experience Industry experience	Planning process	United States
Lussier (1995)	216	Published	Education General experience Industry experience	Planning	United States

(*continued on next page*)

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(*continued*)

Name (year) with multiple datasets in one study listed by a, b, …	N (firms)	Publication status	Conceptualization of human capital	Conceptualization of business planning	Country of origin
Lussier (2014)	450	Unpublished	Education General experience	Plan	Sri Lanka
Lussier and Halabi (2010)	329	Published	Education General experience Industry experience	Planning	Chile
Lussier and Pfeifer (2001)	117	Published	Education General experience Industry experience	Planning	Croatia
Marom and Lussier (2014)	205	Unpublished	Education General experience Industry experience	Planning	Israel
Matthews et al. (2001)	467	Unpublished	General experience	Plan	
Park (2010)	126	Published	Education General experience	Planning process	South Korea
Unni (1981)	62	Published	Education General experience	Planning process	United States
Unni (1981)	58	Published	Education General experience	Planning process	United States
Van Gelder et al. (2007)	90	Published	Education Ent. experience	Planning process	Fiji
Van Gelderen et al. (2000)	49	Published	Industry experience	Planning process	Netherlands
Zhang et al. (2013)	313	Published	Education General experience Industry experience	Planning process, plan	China

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[6] References marked with an asterisk indicate studies included in the meta-analysis.

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