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Abstract

Business planning is a popular phenomenon. Yet, literature presents diverging perspectives regarding business planning and the role it fulfills for the individuals leading SMEs. To advance research, we focus on providing evidence regarding factors that determine business planning. We scrutinize how education and different work experience types affect the disposition of an individual to engage in business planning. Using aggregated data on 8,095 individuals leading SMEs from 31 independent data sets we examine our hypotheses. In so doing, we expose a critical difference in the relationship between human capital and the process of planning versus those activities directed at creating a formal business plan outcome. Various implications of our findings for research on business planning are discussed.

Taxonomy	Business Planning, Human Capital, Entrepreneurship, Statistical Analysis, Small to Medium Enterprise
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Letter to the editor

Dear Professor Laamanen,

We are very happy to submit to you our paper titled “Of those who plan: A meta-analysis of the relationship between human capital and business planning”.

Building on human capital theorizing and following an evidence based research approach, the paper investigates the antecedents of business planning.

We believe that this paper is especially insightful, as it adds an analysis of the antecedents of business planning which is a popular theoretical and empirical phenomenon especially in Long Range Planning. It further adds to our very popular article “Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning–performance relationship in small firms” which is among the most cited in the Journal of Business Venturing.

We have encountered striking evidence enhancing our understanding theory on human capital and the business planning phenomenon:

- Entrepreneurship experience has no effect on business planning while managerial experience and education positively affect business planning
- When further distinguishing the planning activities and the formal business plan outcome, we observe that the effects only concern the business planning activities yet do not affect the formal business plan outcome
- We observe that the link between human capital and business planning is stronger in cultures with high uncertainty avoidance

We believe that these are important findings which enrich our understanding of the business planning phenomenon, add to human capital theorizing and also offer insights for recent cognition research.

We like to disclose that Andreas Rauch, Michael Frese, Nina Rosenbusch and Michael Frese saw a previous version of this paper at the Babson Entrepreneurship Research Conference. Further, asking for data, Steven Bradley, Malin Brannback, Per Davidsson, Robert Lussier, and Jean-Louis van Gelder kindly provided data for our research and hence also know about the authors.

We hope you share our views about our paper and are looking forward to hearing from you.

The Authors

OF THOSE WHO PLAN:

A META-ANALYSIS OF THE RELATIONSHIP BETWEEN HUMAN CAPITAL AND BUSINESS PLANNING

ABSTRACT

Business planning is a popular phenomenon. Yet, literature presents diverging perspectives regarding business planning and the role it fulfills for the individuals leading SMEs. To advance research, we focus on providing evidence regarding factors that determine business planning. We scrutinize how education and different work experience types affect the disposition of an individual to engage in business planning. Using aggregated data on 8,095 individuals leading SMEs from 31 independent data sets we examine our hypotheses. In so doing, we expose a critical difference in the relationship between human capital and the process of planning versus those activities directed at creating a formal business plan outcome. Various implications of our findings for research on business planning are discussed.

Keywords: Business Planning, Human Capital, Meta-Analysis, Entrepreneur, SMEs

INTRODUCTION

Business planning has received devoted attention as a cornerstone activity that might be employed to make sense of business environments and identify an appropriate course of action in light of extensive uncertainty and missing information (Grant, 2003; Miller & Cardinal, 1994; Schwenk & Shrader, 1993; Shane & Delmar, 2004; Shrader et al., 1984). Especially in resource scarce SMEs, the question of whether 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 fragile resource scarce organization (Ackelsberg & Arlow, 1985; Baker et al., 1993). On the other hand,

business planning consumes valuable time and could distract from essential tasks like generating sales, recruiting talent or assuring payments (Honig, 2004). Reflecting this tension, individual SME leaders' decision to plan or to avoid business planning altogether stands out as one of salient and frequently essential conscious or subconscious choices in management literature (e.g., Ansoff, 1965; Delmar & Shane, 2003; Karlsson and Honig, 2009; Peel & Bridge, 1998).

Given its importance, business planning has been extensively researched. Empirical studies and theory development relating to the phenomenon have focused mainly on the business planning-firm performance relationship (e.g., Ackerlsberg, R. & Arlow, P., 1985; Barry, 1998; Brinckmann et al., 2010; Schwenk & Shrader, 1993). Antecedents of business planning, however, have received significantly less scholarly attention than its consequences (Dencker et al., 2009). Research investigating antecedents of business planning is fragmented and has returned frequently contradictory results (Carter et al, 1996; Dencker et al, 2009; van Gelder et al.; 2007). While different studies suggest that greater human capital investments build capabilities that facilitate business planning and in consequence more effective managerial actuation, other prominent research challenges this notion. For instance, literature on effectuation suggests that in environments of uncertainty, individuals with greater entrepreneurial experience might avoid planning in favor of a control-oriented approach (Sarasvathy, 2001). Further, diverse human capital investments might lead to diverging cognitive preferences and subsequent behavior (e.g., Gruber, Kim & Brinckmann, 2015). Given the contradictory empirical findings, we conjecture that a more differentiated understanding of human capital investments might be required, one which examines the divergent effects that different types of experience and education have on business planning.

In this paper we posit that the propensity to engage in planning activities is determined by

specific human capital investments and resulting cognitive effects (Etzkowitz, 1998, Becker, 1964; Becker, 1975). As individuals invest in their human capital, obtain education and work experience, they gain distinctive knowledge, skills, and abilities which likely affect their approaches when evaluating and pursuing business opportunities in the SME context (Hayton, 2003). Since human capital investments are heterogeneous, it is important to distinguish consequences of the different human capital investment types on business planning. For example, education, general work experience or entrepreneurship experience are likely to affect the propensity to engage in business planning for different reasons. Similarly, business planning is also a heterogeneous phenomenon. The choice to engage in substantive business planning processes, whether formal or informal, materially differs from the preparation of formal business plans to satisfy institutional requirements (Barry, 1998; Honig, 2004). Such various behaviors address distinct needs and preferences which, following our theorizing, can be predicted by specific human capital investments. Hence, our subsequent work can shed light on the role and function business planning fulfills for individuals leading SMEs and help uncover reasons why individuals may plan or avoid business planning altogether. This in consequence, can contribute to important debates in management research (Delmar & Shane, 2003, 2004; Mintzberg, 1981; Mintzberg, 1991; Shane & Delmar, 2004). Moreover, empirical evidence regarding salient antecedents of business planning can facilitate an improved model of the business planning and performance effects, enabling salient endogeneities to be taken into consideration (Heckman, 2000).

In this study we follow an evidence based research approach (Sackett et al, 1996; Hunter & Schmid, 2004) to investigate the relationships between specific human capital investments and business planning. Our meta-analysis is the first to scrutinize such relationships, empirically

synthesizing findings from 31 independent quantitative studies. Especially in recent years, evidence based research has gained increasing attention in the management literature as a method of synthesizing fragmented and conflicting empirical findings (e.g., Rauch & Frese, 2007; Read et al, 2009; Rosenbusch et al., 2011). It addresses many of the shortcomings of individual studies and obtains insights that span boundaries specific to any individual study (Hunter & Schmidt, 2004). Through our theory development and analyses, we provide three main contributions to the literature:

First, we develop a conceptual model designed to explain which specific types of human capital predict business planning behavior in the SME context. Our model incorporates specific human capital forms of general education, work experience and specific entrepreneurship experience. Such conceptual advancement provides important insights about the cognitive scripts that may result from respective human capital investments. It allows scholars to better understand the normative preference structures that develop from the distinct human capital experiences (Johannisson, 2011; Keating, Geiger & McLoughlin, 2013).

Second, we unpack theory related to business planning and apply it to the SME context to better connect it with the different conceptual human capital dimensions. We specifically contrast between the planning process and written plans as distinctive elements of business planning, elucidating different theoretical drivers. Researchers have long argued that it matters what kind of business planning individuals engage in (e.g., Honig, 2004). For instance, the preparation of a formal business plan could result from institutional forces, while engagement in business planning processes without the output of a formal business plan could indicate more of a planning orientation (Kirsch, Goldfarb & Gera, 2009). Hence, our analyses facilitate important inferences about the role of business planning for individuals leading SMEs.

Third, we integrate theoretical research relating to culture into our model to scrutinize how context may affect the human capital-business planning relationship. Subsequent empirical analyses allow us to examine this important moderator of the effects of human capital on business planning. In this regard, we draw attention to the level of uncertainty avoidance in a culture in an effort to develop a better understanding for national differences in the use and application of business planning (Davidsson & Honig, 2003; Honig & Karlsson, 2004).

THEORY AND HYPOTHESES

Human capital investments and business planning: Motivation, capability and predispositions

The decision to engage in business planning is a choice taken by individuals and their cognitive disposition. Given this cognitive nature, theory offers factors that are expected to influence the choice and subsequent observable behavior. As summed-up by Baum, Locke & Smith (2001, p. 294): “[P]eople choose plans in part on the basis of (1) what they are predisposed to do, (2) what they are motivated to do, and (3) what they think they can do.” We address each of these three major drivers of choice as critical elements that together combine to predict a relationship between human capital and business planning.

Motivation: Opportunity costs

Human capital theory predicts that individuals who have invested more in their human capital will strive for faster growing and higher potential businesses than those that have invested less, in order to realize a return on their human capital investments (Cassar, 2006; Unger et al., 2011). Absent these higher returns to venturing, individuals with higher human capital will end

their entrepreneurial behaviors in favor of exploiting their knowledge, skills and abilities in the job market (Arora & Nandkumar, 2011; Gimeno et al., 1997). Following this logic, we expect human capital will therefore be related to business planning in SMEs, for two fundamental reasons. First, SMEs with faster growth plans and higher potential are more likely to need planning as part of more complex resource management processes (Bhide, 2000; Burke et al., 2010). Fast growing, high potential SMEs must plan ahead for future financing needs, analyzing cash flow and investment requirements, as well working ahead on other resource acquisition issues such as finding and locating sufficient employees, facilities and equipment to support growth. Second, SMEs with faster growth and potential will be more likely to need and seek outside financing as part of their development process, either in the form of bank loans or equity investments. In both cases investors traditionally require a business plan as part of their information gathering and due diligence processes (Kirsch, Goldfarb & Gera 2009). As a result, the propensity to engage in business planning in the SME context is predicted to vary positively with increases in human capital.

Capability: Planning know-how

Business planning is a special, domain specific task that can be perceived as challenging and demands requisite knowledge, skills and abilities in order to engage in it and complete it (Oakes et al, 1998). While information about business planning is codified in a multitude of books, online resources or courses (Timmons & Spinelli, 1999; Hisrich et al, 2006) and hence represents a fairly tacit knowledge stock that can be acquired, respective capabilities are needed to engage and learn about this task. Individuals that have higher knowledge, skills and abilities are predicted to have greater capabilities to engage in business planning for their SMEs. First, the notion that business planning can be a demanding kind of work, as developed in the strategy-as-

practice and related entrepreneurship literature (Johannisson, 2011; Keating et al., 2013; Whittington, 2006, Brinckmann & Kim, 2015), highlights that business planning consumes resources and therefore implies substantial costs, especially for SMEs. As a result, individuals with greater capabilities may find business planning easier to do, resulting in lower relative costs in terms of time and external support (Burke et al., 2010). Second, business planning can be a cognitively challenging task requiring special knowledge, skills and abilities (Frese et al., 2007). A general 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 & 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 & 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 the prospective business of their SMEs (Dencker et al., 2009). As a result of these factors, the propensity to engage in business planning is predicted to positively vary with the human capital of individuals.

Predispositions: Perceived desirability of business planning

Motivation and capability for planning are both important drivers of the decision to engage in business planning behaviors, but the choice is also affected by whether individuals perceive planning as a desirable course of action. Desirability perceptions have both an evaluative and a normative component. As individuals gain knowledge, skills, and abilities

through business experience and education, it is likely that their educational and business experiences shape their fundamental approaches to acting and organizing their work (e.g., Bourgeois 1984; Honig & Karlsson, 2004; Mintzberg, 1981; Mintzberg, 1991). These predispositions to acting in particular ways, using particular kinds of intellectual tools, etc. (Tsoukas, 1996) influence how individuals evaluate the appropriateness of business planning for a particular situation. A fundamental distinction is whether they choose upfront planning or whether they follow an action-oriented approach that does not require planning, such as effectuation (Sarasvathy, 2001), bricolage (Baker & Nelson, 2004), improvisation (Miner, Bassof & Moorman, 2001) or bootstrapping (Bhide, 1991). Given that much managerial scholarship stresses planning-based approaches (Ansoff, 1965; Mintzberg, 1991), the conscious or unconscious decision not to plan characterizes a fundamentally different approach to managerial action. Second, overtly or not, education and business experiences have a normative dimension that is driven by socialization processes that occur in the course of building these types of human capital (Bigley & Wiersema, 2002; Heckman, 2000). In many of these environments the socialization process puts normative approval on causal approaches, analyses and upfront planning i.e. explicitly planned actuation vis-a-vis more spontaneous or improvisational forms of actuation (Feldman & March, 1981; Joas, 1996). Thus, through work and education experiences a planning based approach is frequently explicitly or implicitly endorsed. In other words, the institutional forces affect the normative perception of the individuals about business planning. Hence, individuals with more human capital are more likely to 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 (Baum, Locke & Smith, 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 of our paper is the acknowledgment that human capital is not a monolithic construct. Human capital forms through investments into education and experience. Moreover, education and experience can further be differentiated by scope—whether general in nature (e.g., high-school education or general work experience) or more specific pertaining to a domain (e.g., 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

Although human capital investments may generally encourage business planning via motivation, capability and predisposition (Baum, Locke & Smith, 2001), the strength of the effects may vary (Crook et al., 2011; Mayer-Haug et al., 2013). Given the preponderance of business planning courses in universities and the general focus on modeling, prediction and analysis, we conjecture that in the education domain there is a distinct emphasis on a planned managerial approach. Alternative approaches focusing on actuation without planning receive limited attention. In comparison, in the 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 actuation is promoted even if plans are not existent. Further, given the various effects that determine successful actuation, individuals in the work space might experience that they can be successful even without business planning or might even attribute success to avoiding prior planning. For instance, a peer or

superior may advocate or dismiss the importance of business planning in practice. In consequence diverging messages may result about the value of business planning. Taken together, we conjecture that though both education and work experience generally lead to more business planning, education should have a stronger effect on business planning than work experience given the conjectured more dominant and consistent focus on a planning based actuation approach. 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 focusing on the preponderance of advocacy of a specific type of actuation further lead us to expect a difference in the effect strengths between general work experience and entrepreneurial experience. In established organizations managerial work is characterized by insights about the past operations and the availability of information that can facilitate planning efforts (Berry, 1998; Brinckmann et al., 2010). Further, business operations are commonly of greater size and greater complexity compared to organizations in entrepreneurial contexts which would suggest greater emphasis on business planning. In contrast, in the entrepreneurial setting information is often quite limited and ambiguous (Carter et al., 1995). Also, initially operations are likely small and not very complex. Further, there is generally an urgent need to advance the setting up of the company that competes for limited managerial attention (Bhide, 2000; Duchesneau & Gartner, 1990; Upton et al., 2001). This may lead entrepreneurs to advocate immediate actuation instead of planning. Comparing the effects of general managerial experience and entrepreneurial experience, we conjecture that in the managerial domain of established companies there is a greater, more frequent and more

consistent advocacy and application of business planning compared to the entrepreneurial domain. Hence, we posit:

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

In turn, from H1 and H2 it follows that:

H3: The 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 distinction between business planning approaches is the creation of a formal written business plan and the activity or process of planning (Ackelsberg & Arlow, 1985; Brinckmann et al., 2010). The distinction between formal written business plans and the business planning process contributes to a more nuanced understanding of which theoretical mechanisms explain the link between human capital and SME performance because the underlying theories make different predictions about the presence of written plans and/or the planning process.

Opportunity costs logic predicts written plans and planning process are likely to occur together because higher human capital individuals will aspire to higher growth, higher performing firms, and these are likely to use planning processes for their internal purposes as well as using written plans for external funding purposes (Colombo & Grilli, 2006).

Predispositions gained from the process of accumulating human capital generally predict a positive relationship with planning. Because the theoretical basis of predisposition is based on

the notion of generalized tendencies (Baum et al., 2001), predispositions may drive individuals to engage in both a planning process and the creation of written plans together (or neither), depending on the level of human capital investments.

By contrast, capabilities theory predicts a different relationship between human capital and written plans compared to the planning process. Whereas planning processes in SMEs are likely to be the work of founding entrepreneurs as the prime movers in these organizations (Spender & Grant, 1996; Whittington, 2006) less sophisticated written business plans can be externally sourced from outside on a pro-forma basis in order to satisfy institutional requirements (Honig and Karlsson, 2004). Therefore internal capability in writing plans can be substituted by an external capability to some extent (Powell et al., 1996). This relatively easy substitution by outsourcing undermines the expected relationship from human capital to written plans. Overall, based on the prior arguments from the three theoretical perspectives and underscoring the pragmatic and divergent prediction of capability theory, we anticipate:

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

Cultural moderation of the human capital – business planning relationship

Institutional literature analyzing cultural contexts points to an important theoretical factor which may affect the relationship between human capital and business planning - the degree of uncertainty avoidance exhibited in a culture (Hofstede & Hofstede, 2005). In cultures characterized by greater uncertainty avoidance, business planning is likely perceived as a desirable action because business planning can serve as an instrument to prepare for an uncertain future - to identify, avoid and mitigate risks and show the viability and attractiveness of a prospective venture. In consequence, business planning can alleviate some of the anxiety and

stress caused by perceived uncertainties (Brinckmann et al., 2010). Because uncertainty based stresses can cause cognitive interference resulting in suboptimal decision-making (Pelled et al., 1999; Hinds & Baily, 2003), especially in uncertainty avoidance cultures business planning becomes a strongly attractive method for lowering anxiety and stress.

Following the institutional perspective and arguments put forth in prior hypotheses, human capital conferring institutions will be primary players to accentuate cultural differences and magnify behavioral differences of individuals obtaining the human capital versus individuals that do not obtain human capital. Thus, we predict:

H5: The human capital-business planning relationship is stronger in cultures characterized by greater uncertainty avoidance cultures.

METHOD

This study follows an evidence-based research approach (Rosenberg & 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 to extract constructs from the literature for application to new theoretical questions (Combs et al, 2011; Read, Song & Smit, 2009). As our research integrates management, organizational, entrepreneurship, strategy and institutional literatures, meta-analysis offers a powerful means of reviewing relevant aspects of each literature against a common frame and consolidating empirical results to form a quantitative synthesis to analyze focal relationships and hypothesized moderators.

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 until 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:

- 1) Studies investigating SMEs. The definition of SMEs varies across countries. Typically the upper limit for SMEs in terms of size ranges between 100 and 500 employees (Ayyagari, Beck & Demirguc-Kunt, 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, Demircuc-Kunt & Levine, 2005; Clear & Dickson, 2005; Rosenbusch et al., 2011).

2) Studies including a correlation matrix (Song, Podoyntsyna, Bij & Halman, 2008) that contain 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 papers that contained the relevant variables (human capital and planning), but did not contain 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 to us and supplied relevant correlations, which enabled us to include those studies. One author even supplied us with three additional relevant independent datasets (two from unpublished work).¹ We screened all papers in order to ensure that they did not use the same data set and identified one case (Delmar & Shane, 2003 and 2004) in which the same sample or sub-sample was used. However, as the two studies contained different variable relationships of interest, we included both, but aggregated the 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 executive experience and education.¹ We operationalized experience and education independently and later combined them to analyze relationships with the aggregate construct of human capital. The included measures for each human capital dimension as well as the business planning dimensions (planning process and having a plan) are inventoried in Table 1.

----- Insert Table 1 about here -----

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).

Education. Our operationalization of education is consistent with that of experience. It is broadly based and includes education measures from general education level (Burke, Fraser & Greene, 2010) to the type of education (e.g., Davidsson & Honig, 2003).

Business Planning. Following prior work on business planning (Brinckmann et al., 2010), we included a variety of planning related measures and wherever possible categorized them into “business plan” or “planning process”. The category “business plan” includes aspects of having a written or formal business plan, whereas measures related to the process of planning or the time spent planning were classified in the category “planning process”.

Moderating Culture Variable. When coding the studies, we recorded the geography in which the study was conducted. Where available, we assigned the uncertainty avoidance values of Hofstede and Hofstede (2005) according to the geography.

Meta-analysis method

After collecting correlations from the data sets in our sample, we applied meta-analytic procedures following Hunter and Schmidt (2004). Following suggestions for the application of meta-analyses in the management field (Geyskens et al., 2009; Lipsey & 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 & Schmidt, 2004; Lipsey & 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, Hedges, Higgins & Rothstein, 2005) to compute a mean effect size using a random effects model (Hunter & Schmidt, 2004; Lipsey & 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 < 0.001).

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 in order to explore sub-relationships. We therefore performed several analyses to examine the differences between various elements of human capital (education, general work experience, entrepreneurial experience) and business planning in an SME context. Table 2 shows a positive significant main effect for education and planning (effect size = 0.144, p-value = 0.001) as well as general work experience (effect size = 0.157, p-value = 0.002). Strikingly, our analyses reveal a negative, but non-significant relationship of entrepreneurial experience and business planning (effect size = -0.013, p-value = 0.654).

----- Insert Table 2 about here -----

As a means of examining hypotheses H1-3, we compare effect sizes for overlapping confidence intervals. Non-overlapping 95% confidence intervals necessarily describe effects that are significantly different at the ($p < 0.05$) level. Full confidence interval data are reported in Table 2. Comparing the effect size between education and business planning (CI Low: 0.060, CI High: 0.225) with that between work experience and business planning (CI Low: 0.056, CI High: 0.254), we find nearly complete overlap and reject hypothesis H1. 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), in support of hypothesis H2. Hypothesis H3 is also supported, as the confidence interval around the mean effect of education and business planning (CI Low: 0.060, CI High: 0.225) is higher than, and non-overlapping with the effect between entrepreneurship experience and business planning (CI Low: -0.071, CI High: 0.044).

Turning our attention to Hypotheses H4, the different aspects of planning, we perform the same analysis that we describe in the first three hypotheses. We compare the confidence intervals of the relationship between human capital and the planning outcome (i.e. creating a business plan) (effect size = 0.059, p-value = 0.272 with the relationship between human capital and the planning process (effect size = 0.154, p-value = 0.000). As we find that the 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) overlap, we reject hypothesis H4.

With regard to the cultural variable of uncertainty avoidance, we conducted a meta-regression, including the continuous uncertainty avoidance data in a model of the main effects between human capital and business planning. Our analyses identified a significant positive difference (z-value = 1.926, p-value = 0.054) indicating that the human capital-planning relationship is stronger in high uncertainty avoiding cultures, lending support to hypothesis H5.

----- Insert Table 3 about here -----

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 & 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 legitimization 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, reported in Table 3, indicate no significance of publishing year as a moderator in our data (z -value = -0.672, p -value = 0.502).

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, Daily, Certo & Roengpitya, 2003) and ran all our analyses again. Our results did not change significantly, giving us some assurance that the 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. 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 = 0.796) of the published (effect size mixed-effects model = 0.126; p-value = 0.001) compared to the unpublished (effect size mixed-effects model = 0.103; p-value = 0.210) studies. Second, we used a funnel plot to assess possible publication bias (see Figure 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).² Overall, we conclude that publication bias is limited.

----- Insert Figure 1 about here -----

DISCUSSION

Prior evidence on antecedents of business planning has provided various conflicting and fragmented findings. At the same time, prior empirical evidence showed that business planning can have positive performance effects (e.g., Brinckmann et al., 2010, Schwenk & Schrader, 1993) yet much prior research treated business planning as an independent and randomly occurring phenomenon. In this research, we build on human capital theory to explain how the background of individuals affects their likelihood to engage in business planning. We tested our

predictions following the evidence based research tradition and synthesized the extant empirical evidence about the existence, strength and context dependence of the human capital-business planning relationship.

Theoretical contributions

Our work brings together theory regarding human capital with pressing questions regarding antecedents of business planning. We offer specific mechanisms following human capital theory relating to opportunity costs, business planning capability and a changed normative perception of business planning. Our results offer contributions to the business planning stream in the entrepreneurship domain and further offer novel insights regarding human capital research.

Strikingly, we find that individuals with entrepreneurial experience are not more likely to exhibit business planning behavior than people lacking entrepreneurial experience. This result is important for debates about the nature of entrepreneurial experience (Baron & Ensley, 2006; Mitchell et al., 2002; Westhead et al., 2009) because it suggests that business planning behaviors are not systematically related to entrepreneurial experience. It could be that such individuals generally do not aim for more challenging ventures, but rather opt for ventures that offer more freedom, autonomy or personal self-fulfillment (van Gelderen & Jansen, 2006). An alternative explanation develops capability-related human capital theorizing. It could be that though promoted prominently in the entrepreneurship domain, relatively few entrepreneurs actually engage in business planning. In consequence, those individuals that have entrepreneurial experience might not have substantially more capabilities in business planning than those that gained experience in other domains. A third explanation relates to the perceived importance of business planning. Though prominently advocated, those individuals in the entrepreneurship

domain that engage in business planning might experience that it does not help their entrepreneurial endeavors or that alternative activities offer greater rewards. Hence, they are not more likely than the average person to engage in business planning. A final explanation is that entrepreneurial experience might act as a substitute for business planning (Bhide, 1991; Sarasvathy, 2001). Following this interpretation, it is interesting to note that human capital investments like education or general work experience do not appear to have similar substitution effects.

Another striking piece of evidence resulting from this meta-analysis is that the effect of human capital on business planning does not substantiate for formal business planning but only exists for the business planning activity per se. This indicates that rather than following institutional pressures for formal business plans, the effects of human capital investments, i.e. primarily education and general work experience, results in altered cognitive preference structures and respective behavior favoring planning processes over more intuitive ad-hoc actuation. Notably, such human capital investments do not result in formal business plan preferences. Taken together, these findings facilitate a refined understanding of which specific business planning type is fostered by human capital investments. Our findings further add to theorizing that sees business planning as a primary response to institutional pressures (Honig, 2004). The link between human capital and business planning together with the missing link to formal business planning suggest that individuals with higher education and general work experience change their disposition towards a planned approach, yet this approach is not more likely to result in a formal business plan. It could be that institutional pressures suggest formal business plan outcomes, while at the same time individual preferences and experience backgrounds of individuals do not lead to such a suggested systematic divergent behavior.

Expanding the contextual considerations, we find that in contexts characterized by greater uncertainty avoidance, individuals are more likely to engage in business planning as they obtain human capital than in areas where uncertainty is less pronounced. It might be that especially the education and work institutions in the high uncertainty avoidance cultures equip individuals with capabilities to engage in business planning or that prominent societal forces disseminate the normative call for greater business planning efforts to address perceived uncertainty (Karlsson & Honig, 2009). A further possible explanation is that individuals in high uncertainty avoidance cultures opt for more complex ventures to compensate for greater perceived risks and associated opportunity costs; these more complex ventures in turn may then demand greater business planning efforts. In consequence, these findings suggest that the business planning phenomenon might be a culturally sensitive phenomenon.

Practical implications

The findings from our study suggest several practical implications. One implication flows from the contingent relationships we uncover in our findings. While prior studies point to numerous contingency effects considered in the use of business planning (e.g., Brinckmann et al., 2010; Gruber, 2007) our study finds that human capital antecedents are another important factor. This means that the efficacy of business planning always has to be considered in light of who recommendations are being offered to. Our findings suggest different approaches depending on the specific background of the SME executive. For example, our findings encourage executives who, based on their background experience and/or education, are less prone to business planning, to consider engaging in business planning especially if the business context indicates that planning might be advantageous. If they recognize that a greater degree of business planning might be beneficial but simultaneously perceive that they lack the ability to do so,

external help might prove valuable. Further, executives may purposefully create a management team to account for the different planning dispositions. For executives with a high degree of prior entrepreneurial experience, our findings show that business planning is not a universally preferred approach. We conjecture that this result might be because executives with greater entrepreneurial experience have a set of resources such as reputation, network contacts, and other types of knowledge about how to successfully run a SME that reduce the perceived need for business planning. However, this perception can be accurate or biased. Considering that a bias could exist, we like to caution executives with entrepreneurship experience to consider the value of business planning, the various planning approaches and the specific venturing context (see also: Gruber, 2007). For other individuals with general business experience or academic training, we simultaneously caution that they could suffer from a planning bias and hence should consider alternative approaches. Educators we caution regarding presenting business planning as a universally beneficial approach. Rather students might benefit if the advantages and disadvantages of business planning and their context dependence are discussed. Educators could encourage reflection on the predisposition resulting from education and 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). Our 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).

Limitations

Meta-analysis offers substantial explicatory power and allows synthesizing fragmented findings (Hunter & 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 in this link. 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 that 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.

While we aimed to address publications 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.

Future research

Our work uncovered new evidence about the relationship between specific human capital types and business planning approaches. Moreover, we examined cultural factors that might affect the relationship. As we show that business planning activities are generally not randomly occurring phenomena, we call for future research to model the endogeneity of business planning behavior, for instance as performance effects are analyzed. We show there is a greater likelihood of an individual with higher education and general work experience to engage in business

planning. At the same time, these higher qualifications might drive performance increases while business planning behavior itself may have more limited unique effects than frequently observed.

Further, 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 that human capital endowments affect business planning behavior but not the creation of formal business plans. Our nuanced results suggest that further research into factors that determine formal business planning is warranted. Moreover, we need to better understand specific consequences of individuals with high human capital that engage in business planning. Also, questions arise about which specific business planning practices are especially beneficial and which contextual considerations have to be taken into consideration. In this respect, further cognition research appears promising to address which specific cognitive triggers initiate business planning behavior and investigate cognitive attributes associated with more planned actuation vis-a-vis unplanned behavior.

Further, the striking evidence that entrepreneurial experience does not drive business planning activities warrants further research. In support of the questions we pose above, we see potential for cognition research to depict triggers and associations of business planning which are likely of diverse nature and might vary depending on the specific type and duration of entrepreneurial experience. Possible directions might include investigating business planning activities depending on whether the individual is a novice, more experienced or even serial or portfolio entrepreneur, 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.

While this research provided substantial empirical evidence on the link between human capital and business planning, various questions arose that prove the promising future of business planning focused research as an instrument for decision-making and the management of firms.

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FOOTNOTES

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.

² Rosenthal (1979)'s tolerance is calculated according to the formula $((5 \times (\text{number of studies in the current meta-analysis})) + 10)$, which in our work resulted in $((5 \times 31) + 10) = 165$, much smaller than 622 data sets with null findings needed to reduce our findings to non-significance.

³ References marked with an asterisk indicate studies included in the meta-analysis.

⁴ Frequency of operationalizations/number of relevant correlations coded in parentheses.

⁵ 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.

TABLE 1: DEFINITIONS OF STUDY MEASURES⁴

Human capital			Planning⁵		
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)	Business owner experience (1) CEO experience (1) Entrepreneurial experience (1) Startup experience (7) Venture experience (2)	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)	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)	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)
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)	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			Educational background (2)	Plan (3) Status business plan

Prior work experience (2)	(1)		Formal education (1)	preparation (4)	(1)
Operations skills (2)	Serial entrepreneur (1)		Highest education high school (1)	With/without planning (4)	Timing business planning implementation (4)
Work experience (3)			Highest education university (1)	Written business plan before start-up (3)	Use of long range operations planning (2)
Years full-time paid work experience (2)			Human capital (assessed with two education items) (3)		Use of long range resource planning (2)

TABLE 2: MAIN EFFECTS

	Number of studies	Number of firms	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	8,095	0.122	0.056	0.186	3.632	0.000
H1 & H3: Education – Business Planning	24	6,580	0.144	0.060	0.225	3.359	0.001
H1 & H2: General work experience – Business Planning	20	5,416	0.157	0.056	0.254	3.039	0.002
H2 & H3: Entrepreneurial experience – Business Planning	14	4,625	-0.013	-0.071	0.044	-0.448	0.654
Hypothesis 4: Break-out of planning into formal plan and planning process							
H4: Human capital – Formal Business Plan	12	4,188	0.059	-0.046	0.164	1.099	0.272
H4: Human capital – Business Planning process	19	3,871	0.154	0.069	0.237	3.544	0.000

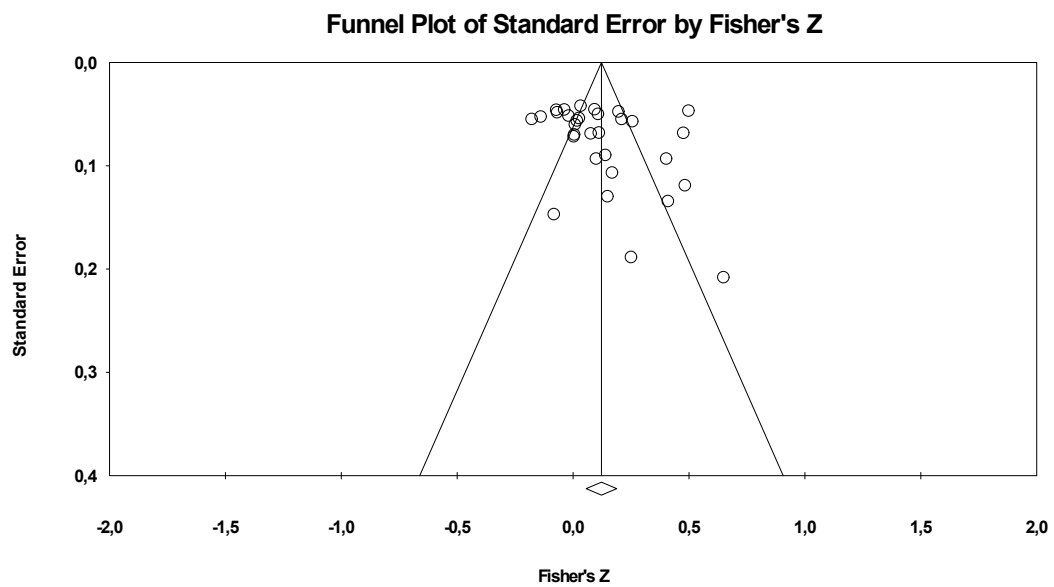
† p < 0.1, *p < 0.05, **p < 0.01, ***p < 0.001

TABLE 3: MODERATOR AND POST-HOC META REGRESSION ANALYSES

	Point estimate (mixed effects)	Standard error	Lower limit 95% CI	Upper limit 95% CI	z-value	p-value
H4: Uncertainty avoidance moderating human capital and business planning relationship						
Intercept	-0.075	0.084	-0.239	0.090	-0.890	0.374
Uncertainty avoidance	0.003	0.002	0.000	0.006	1.926	0.054*
Robustness: Time moderating human capital and business planning relationship						
Intercept	6.005	8.753	-11.150	23.161	0.686	0.493
Study year	-0.003	0.004	-0.011	0.006	-0.672	0.502

† p < 0.1, *p < 0.05, **p < 0.01, ***p < 0.001

FIGURE 1: EXAMINATION OF POSSIBLE PUBLICATION BIAS – FUNNEL PLOT



APPENDIX 1: OVERVIEW OF STUDIES INCLUDED IN META-ANALYSIS

Authors name (year) Note: several cites contain multiple studies, indicated with a, b, ...	Sample size N firms	Publication status	Conceptualization of human capital	Conceptualization of business planning.	Country of origin	Uncertainty avoidance index
Bradley et al. (2011)	557	Unpublished	Education General experience Industry experience	Planning process	Kenya, Burundi, Indonesia	N/A
Brannback et al. (2010)	31	Unpublished	General experience	Planning process, plan	Finland	59
Brinckmann & Kim (2014)	479	Unpublished	Education General experience, Ent. Experience	Plan	United States	46
Burke et al. (2010)	422	Published	Education, Ent. experience	Plan	United Kingdom	35
Chaganti & Schneer (1994)	372	Published	General experience Industry experience	Planning process	United States	46
Davidsson (2011)	472	Unpublished	Education Ent. experience Industry experience	Plan	Australia	51
Delmar & Shane (2003)	211	Published	Ent. experience Industry experience	Planning process	Sweden	29
Delmar & Shane (2004)	211	Published	Ent. experience	Plan	Sweden	29
Dencker et al. (2009)	436	Published	Education General experience Ent. experience	Planning process	Germany	65
Dimov (2010)	195	Published	Education General experience	Planning process	United States	46

			Ent. experience Industry experience			
Duchesneau & Gartner (1990)	26	Published	General experience	Planning, Planning process	United States	46
Frese et al. (2007a)	117	Published	Education	Planning process	South Africa	49
Frese et al. (2007b)	215	Published	Education	Planning process	Zimbabwe	N/A
Frese et al. (2007c)	73	Published	Education	Planning process	Namibia	N/A
Gibbons & O'Connor (2005)	359	Published	Ent. Experience	Planning process	Ireland	35
Haber & Reichel (2007)	305	Published	Education General experience, Ent. experience	Planning process	Israel	81

Honig & Karlsson (2004)	396	Published	Education General experience Ent. experience	Plan	Sweden	29
Kirsch et al. (2009)	341	Published	Education Ent. experience	Plan	United States	46
Lange et al. (2007)	330	Published	Education Ent. experience Industry experience	Plan	United States	46
Liao & Gartner (2006)	276	Published	Education General experience, Ent. experience Industry experience	Planning process	United States	46
Lussier (1995)	216	Published	Education General experience Industry experience	Planning	United States	46
Lussier (2014)	450	Unpublished	Education General experience	Plan	Sri Lanka	N/A
Lussier & Halabi (2010)	329	Published	Education General experience Industry experience	Planning	Chile	86
Lussier & Pfeifer (2001)	117	Published	Education General experience Industry experience	Planning	Croatia	N/A
Marom & Lussier (2014)	205	Unpublished	Education General experience Industry experience	Planning	Israel	81

Matthews et al. (2001)	467	Unpublished	General experience	Plan		N/A
Park (2010)	126	Published	Education General experience	Planning process	South Korea	85
Unni (1981a)	62	Published	Education General experience	Planning process	United States	46
Unni (1981b)	58	Published	Education General experience	Planning process	United States	46
Van Gelder et al. (2007)	90	Published	Education Ent. experience	Planning process	Fiji	N/A
Van Gelderen et al. (2000)	49	Published	Industry experience	Planning process	Netherlands	53
Zhang et al. (2013)	313	Published	Education General experience Industry experience	Planning process, plan	China	30

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OF THOSE WHO PLAN:

**A META-ANALYSIS OF THE RELATIONSHIP BETWEEN HUMAN CAPITAL
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