HOW ENTREPRENEURS DEVELOP AND INFLUENCE THEIR EMPLOYEES

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ABBREVIATIONS

AVE Average Variance Extracted

CFI Comparative Fit Index

CMB Common Method Bias

df Degrees of Freedom

GEE Generalized Estimating Equation

HRD Human Resources Development

HRM Human Resources Management

ICC Inter-Coder-Correlation

R&D Research and Development

RMSEA Root Mean Square Error of Approximation

SD Standard Deviation

SMEs Small and Medium-Sized Enterprises

INTRODUCTION

Entrepreneurial firms are important drivers of innovation and economic growth (Audretsch & Keilbach, 2008). Their success and survival probability are dependent not only on the market situation, entrepreneurs' experiences, knowledge, and behavior but also on employees' performance (Barrett & Mayson, 2008a; Hayton, 2003; Rauch & Hatak, 2016). Especially in young and small firms, each individual usually contributes to performance and success (Ciavarella, 2003; Tharenou, Saks, & Moore, 2007; Van Yperen & Hagedoorn, 2003). Thus, leveraging employees' potential appears substantial (Ardichvili, Harmon, Cardozo, Reynolds, & Williams, 1998; DeGeest, Follmer, Walter, & O'Boyle, 2015). This is a particularly challenging task for entrepreneurs because they often cannot provide as many benefits and amenities as established companies can (Cardon & Stevens, 2004). Accordingly, observing how entrepreneurs can efficiently develop and influence their employees is a relevant research area. However, research on how entrepreneurs address these challenges is limited (Rauch & Hatak, 2016). Therefore, this dissertation aims to contribute to an understanding of how entrepreneurs can develop and influence their employees.

Research Questions

Two overarching research questions guide the following analyses. Initially, this dissertation explores how entrepreneurs develop human resources within their firms. Since the work environment in entrepreneurial firms is different from the work environment in more established firms, entrepreneurs need to utilize other human resources development (HRD) approaches. The work environment in entrepreneurial firms is highly dynamic and complex because processes in entrepreneurial firms are characterized by reactivity and informality (Barrett & Mayson, 2008a; Marlow, Taylor, & Thompson, 2010). Additionally, since a few people typically need to cover all the business functions, the employees in entrepreneurial firms

need a broad variety of competencies. Thus, conventional approaches for developing human resources – that are appropriate for established firms – appear to be less suitable in entrepreneurial firms. Entrepreneurs need to find ways to develop their employees that fit the contingencies in their firms and the strategies that they apply. Therefore, the first research question is

Research Question 1: How do entrepreneurs develop their employees to qualify them for their tasks in entrepreneurial firms?

However, developing employees' competencies is not the only important task for entrepreneurs. Additionally, influencing employees' commitment, motivation, productivity, and creativity is essential because it will determine whether employees apply and contribute their competencies (Ployhart & Moliterno, 2011). Therefore, this dissertation also analyzes how entrepreneurs influence these employee-level factors. The analyses examine effects of cognitions and emotions of entrepreneurs that might determine how they influence their employees' commitment, motivation, productivity, and creativity. The entrepreneurship literature indicates that entrepreneurs tend to show specific cognitions, based on effectual logics (Sarasvathy, 2001), and a specific emotion, entrepreneurial passion (Cardon, Wincent, Singh, & Drnovsek, 2009). These cognitions and emotions of entrepreneurs might have effects on their employees. Thus, this dissertation aims to contribute to an understanding of how effectuation (Sarasvathy, 2001) and entrepreneurial passion (Cardon et al., 2009) influence entrepreneurs' employees by answering the second research question:

Research Question 2: In what way do effectuation and entrepreneurial passion determine how entrepreneurs influence their employees?

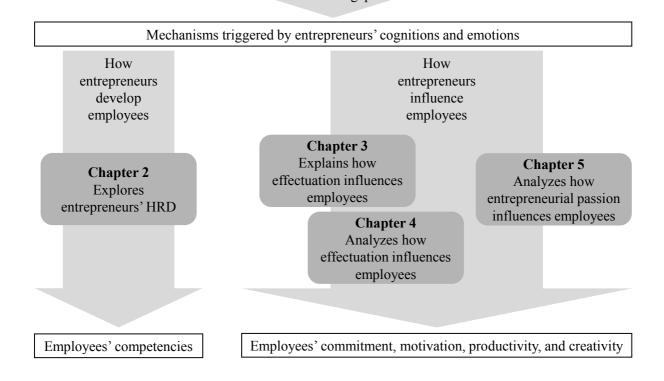
Outline and Contributions

This dissertation contains five chapters that address different aspects of these two research questions. Figure 0-1 gives an overview of all five chapters. Chapter one discusses what we know about these questions from previous theory. Chapter two focuses on the first question, which asks how entrepreneurs develop their employees, by exploring entrepreneurs' HRD approaches. Chapter three targets the first part of the second question by discussing how entrepreneurs influence their employees when they rely on effectuation. Chapter four empirically analyzes this effect of effectuation. Chapter five focuses on the second part of the second question, as it analyzes the influence of entrepreneurs' passion on employees. These chapters aim to contribute to the current literature as follows.

Figure 0-1: Overview of the Dissertation

How Entrepreneurs Develop and Influence their Employees

Chapter 1 Elaborates theoretical perspectives Research gap



Chapter one describes and discusses what we already know about how entrepreneurs develop employees within their firms and how they influence their employees' performance. In doing so, theoretical concepts are elaborated that help to understand how entrepreneurs develop and influence their employees. Thereby, perspectives and findings from the literature on human capital, human resources management (HRM), leadership, job characteristics, and emotional contagion are transferred to the entrepreneurial context. These perspectives and findings are integrated with the entrepreneurship literature. This allows noting knowledge gaps in the current literature. These knowledge gaps are addressed in the subsequent chapters of this dissertation.

Chapter two, which is co-authored by Prof. Dr. Matthias Baum, is a qualitative study on how entrepreneurs develop human resources within their firms. This chapter presents an HRD process that we observed in entrepreneurial firms. We observed that entrepreneurs predominantly rely on effectuation. We propose that the HRD process presented here, which includes effectual logics, is suitable in entrepreneurial firms. An analysis of HRD in entrepreneurial firms complements the current discussion because previous literature on human resources in entrepreneurial firms focused on recruitment as external way to accumulate human resources instead of HRD as internal way to develop human resources. Further, by integrating effectual logics, this study challenges the assumptions of the HRD literature that has, to date, focused on causal mechanisms. Additionally, this study informs entrepreneurs and entrepreneurship educators about possibilities for HRD processes that fit uncertain and dynamic environments.

Chapters three and four, which are also co-authored by Prof. Dr. Matthias Baum, are, to the best of our knowledge, the first studies to consider the effects of effectuation on employees. Chapter three theorizes about how effectuation determines entrepreneurs' leadership behaviors and how this, in turn, might influence employees' affective commitment, motivation, and

creativity. Effectuation was shown to be used by entrepreneurs and to enhance new ventures' performance, but the effects of effectuation on employees were neglected. Nevertheless, effectuation might influence employees' commitment, motivation, and creativity. By discussing these influences, chapter three of this dissertation introduces the employees' perspective in the discussion about effectuation.

Chapter four introduces the dynamism of a firm's environment as a moderator of the effect of effectuation on employees' intrinsic motivation and presents an empirical analysis of this mechanism. An empirical analysis of multi-level data suggested that the effect of effectuation on intrinsic motivation is negative when a firm's environment is dynamic. Chapters three and four add to an understanding of effectuation's effects on firm performance because they introduce firms' internal mediators, which have so far been neglected by previous research.

Chapter five, which is co-authored by Prof. Dr. Matthias Baum and Prof. Dr. Michael Frese, contributes to the discussion of how entrepreneurial passion influences employees. We investigate whether and how entrepreneurial passion is contagious, i.e., whether entrepreneurs' passion can transfer to employees and how this, in turn, influences employees' commitment, creativity, and productivity. Therefore, we combined a multi-level survey study with an online experiment. Our findings complement previous studies which provide conceptualizations of the influence process and show the effects of passion perceptions on employees' affective commitment. We first analyzed the contagion effect in the multi-level design and then used the experiment to investigate whether it translates to performance outcomes. Furthermore, chapter five enhances our understanding of how people perceive other people's passion. The experimental study separates emotion and identity of the passion construct and investigates an interactive effect. Thereby, we unleashed advantages of an experimental design for studying the effects of passion. In addition, this study draws attention to the contagion effects' contingency on employees' own passion.

CHAPTER 1 THEORETICAL PERSPECTIVES ON HOW ENTREPRENEURS DEVELOP AND INFLUENCE THEIR EMPLOYEES

Abstract

This paper describes and discusses the theoretical knowledge and empirical findings of previous literature on how entrepreneurs develop human resources within their firms and how they influence their employees' performance. I transfer perspectives and findings from the literature on human capital, human resources management, leadership, job characteristics, and emotional contagion to the entrepreneurial context. I integrate these perspectives with the entrepreneurship literature. In doing so, I elaborate theoretical concepts that help to understand how entrepreneurs develop and influence their employees. This allows noting contributions of previous literature and to identify knowledge gaps.

1.1 INTRODUCTION

For many entrepreneurs leading employees, which includes developing human resources and influencing employees' motivation, commitment, creativity, and productivity, is a new and difficult task (Kempster & Cope, 2010). Entrepreneurs are heterogeneous in their leadership experience, and many did not receive any leadership training before or while founding. Additionally, entrepreneurs face several disadvantages in comparison to managers in established firms because they cannot provide high salaries, high job security, or established career opportunities (Barrett & Mayson, 2008b; DeGeest et al., 2015; Leung, 2003). Furthermore, time and money to build sophisticated processes and structures for leading and managing employees are often missing (Hayton, 2003; Patel & Cardon, 2010).

Nevertheless, most entrepreneurial firms need employees who are qualified for various tasks and who work long hours with high dedication (Cardon & Stevens, 2004). The effects of human resources-enhancing practices on firm performance are particularly great for young firms (Rauch & Hatak, 2016). Consequently, developing human resources and stimulating employees' commitment, motivation, productivity, and creativity appear as important but exceedingly difficult tasks for entrepreneurs. Due to their specific context, entrepreneurs need to find different ways to cope with these challenges (Barrett & Mayson, 2008b; Cardon & Stevens, 2004).

Although developing and influencing employees in entrepreneurial firms are important and challenging tasks, we do not yet know what kind of processes or behaviors are most appropriate within the entrepreneurial context (Rauch & Hatak, 2016). Still, some perspectives and findings of previous literature might help understand the internal processes of entrepreneurial firms: First, entrepreneurship research analyzed what the work environment in entrepreneurial firms looks like. Second, the literature stemming from contexts other than entrepreneurship analyzed development and influence processes, and their findings might be

transferable to the entrepreneurial context. Third, entrepreneurship research identified cognitions and emotions of entrepreneurs that might determine how they develop and influence their employees. I suggest that integrating the entrepreneurship literature, which provides insights into what differentiates, supports, and complicates entrepreneurs' leadership, with perspectives of literature on human capital, HRM, leadership, job characteristics, and emotional contagion enhances our understanding of how entrepreneurs develop and influence their employees.

Elaborating different perspectives allows us to note contributions of different literature streams and to identify research gaps. I suggest to question whether specific cognitions and emotions of entrepreneurs, which determine their decisions and behavior, have implications for their employees. Two concepts might be particularly interesting: First, I suggest considering effectuation (Sarasvathy, 2001), an entrepreneurial way of decision making, which may help entrepreneurs address uncertain and dynamic situations under resource constraints (Dew, Read, Sarasvathy, & Wiltbank, 2009). We do not yet know whether effectuation influences employees, and if so, in which direction or under which constraints. Second, I suggest considering entrepreneurial passion (Cardon et al., 2009), a positive emotion that many entrepreneurs experience when pursuing entrepreneurial activities. Entrepreneurial passion makes entrepreneurs more creative, more persistent, and more successful (Cardon, Zietsma, Saparito, Matherne, & Davis, 2005; Chen, Yao, & Kotha, 2009; Liu, Chen, & Yao, 2011). Although entrepreneurial passion is expected to transfer to employees and, thus, might help entrepreneurs to increase employees' performance, our knowledge on underlying mechanisms remains limited (Cardon, 2008).

Thereby, I intend to contribute to previous literature in several ways. First, I show how perspectives of literatures on human capital, HRM, leadership, job characteristics, and emotional contagion can be transferred to the entrepreneurial context. Second, I note gaps in

the literature that can be addressed by integrating entrepreneurship literature with literature stemming from other contexts. Third, I describe how two concepts that refer to specific cognitions and emotions of entrepreneurs – effectuation and entrepreneurial passion – influence employees. I explain the way in which an analysis of underlying mechanisms will contribute to our understanding of how entrepreneurs develop and influence employees.

1.2 THE WORK ENVIRONMENT IN ENTREPRENEURIAL FIRMS

Before I can analyze how entrepreneurs develop and influence their employees, I need to clarify what distinguishes their context. Following the definitions of other researchers, I define a context to be entrepreneurial when it is characterized by high uncertainty, ambiguity, time pressure, emotional intensity, and risky decision making (Baron & Hannan, 2002; Busenitz & Barney, 1997; Mullins & Forlani, 2005; Shepherd, Williams, & Patzelt, 2015). Based on this, I define an entrepreneur as an individual leading and managing a firm in an entrepreneurial context and an entrepreneurial firm as a firm that operates in an entrepreneurial context.

Several researchers have studied the work environment in entrepreneurial firms. They identified different challenges that complicate managing employees in this context (e.g., Rutherford, Buller, & McMullen, 2003). Entrepreneurial firms mostly have limited resources, cannot provide high salaries, job security, or fixed career opportunities (Barrett & Mayson, 2008b; DeGeest et al., 2015; Leung, 2003). Further, newly founded businesses need to find specific strategies to attract potential employees (Tumasjan, Strobel, & Welpe, 2011) because they do not yet have a reputation as employers, which influences their potential employees' fit perceptions (Überschaer, Baum, Bietz, & Kabst, 2016). This implies that recruiting is challenging and, in turn, that binding employees appears particularly important because employees are difficult to replace. Additionally, sophisticated processes and structures for leading and managing employees – and the resources to establish them – are often missing

(Patel & Cardon, 2010). Communication and influence processes are primarily informal (Barrett & Mayson, 2008a; Hayton, 2003). At the same time, entrepreneurs often need to build commitment and motivation without being able to formulate concrete goals. In the early stages of the formation process, entrepreneurs need to adapt their strategies and goals to the firm's growth stage; therefore, new ventures' strategies and goals often change several times (Dobbs, 2007; Dodge & Robbins, 1992; Kazanjian & Drazin, 1990). Thus, the work environment in entrepreneurial firms is less defined, more fluid, and more dynamic than in established enterprises (DeGeest et al., 2015).

Furthermore, the job demands and responsibilities of employees in entrepreneurial firms are extremely high (Cope, Kempster, & Parry, 2011). Entrepreneurs expect a lot from their employees because, in many firms, each needs to address several troubles at the same time and has close and personal contact with the founder (Vecchio, 2003). Concurrently, in the early stages of a new venture's growth process, most if not all entrepreneurs and their employees need to cope with many setbacks and negative emotions (Baron, 2008; Shepherd, 2003; Shepherd, 2004). To fear failure in their situation means to fear unemployment. Hence, entrepreneurs need to regulate their own negative affect to retain their employees' trust in their firms. Moreover, employees in entrepreneurial firms often need to be creative while fulfilling their tasks (Cope et al., 2011; Jong & Den Hartog, 2007). Their dynamic environments require exploration and exploitation tasks (Jansen, Vera, & Crossan, 2009). Thus, stimulating employees' motivation, commitment, and creativity is a particularly challenging task for entrepreneurs.

Nonetheless, the work environment in entrepreneurial firms also holds particular opportunities for entrepreneurs. Entrepreneurial firms typically have low hierarchies. This might facilitate internal firm processes because communication and decision making processes can be highly efficient. At the same time, many entrepreneurs are seen as 'lone-heroes' who

control and decide anything in the firm (Ensley, Hmieleski, & Pearce, 2006). Human resources systems in their businesses are likely to be closely tied to their views of the employment relationship (Allen, Ericksen, & Collins, 2013). The resulting alignment of systems and decisions diminishes organizational inertia that could counter change initiatives. Furthermore, high expectations and broad responsibilities among employees, combined with the possibility to bring one's own ideas, could stimulate employees' initiative, motivation, and engagement. I will return to underlying mechanisms in section 2.5.2.

To unleash employees' potential in this entrepreneurial work environment, entrepreneurs need to find ways to develop and influence their employees. Developing employees includes increasing their human capital by stimulating and enhancing their competencies, experience, knowledge, and skills (Ployhart & Moliterno, 2011). This is, in established firms, managed mostly by HRM departments (Swanson & Holton, 2008), which are absent in entrepreneurial firms (Patel & Cardon, 2010). Influencing employees includes changing employees' choices, level of cooperation, and how they address external constituencies (Yukl, Gordon, & Taber, 2002). In the following section, I will outline which perspectives of literatures from other contexts might help to understand these mechanisms.

1.3 TRANSFERRING THEORETICAL PERSPECTIVES STEMMING FROM OTHER CONTEXTS

Perspectives and findings of different literature streams can inform an understanding of how entrepreneurs develop and influence their employees because several mechanisms that occur in entrepreneurial firms hold similarities with mechanisms observed in other contexts. In the following sections, I consult literature that examines the effects of human capital, HRM, leadership, job characteristics, and emotional contagion. I further outline which of these perspectives have already been transferred to the entrepreneurial context in previous studies. I

explain the ways in which these theoretical perspectives help to understand entrepreneurs' way of developing and influencing employees.

1.3.1 Human Capital

Human capital, containing individuals' education, experience, knowledge, and skills, is an important organizational resource that contributes to performance and success (Felin & Hesterly, 2007; Ployhart & Moliterno, 2011; Rauch & Hatak, 2016; Teece, 2007). Human capital emerges in a process determined by two components: The complexity of the task environment, which is dependent on temporal pacing, dynamism, the strength of member linkages, and workflow structure; and individual states, such as behavioral processes, cognitive mechanisms, and affective psychological states of employees (Ployhart & Moliterno, 2011).

Several studies already investigated the antecedents and outcomes of human capital in an entrepreneurial context (Chandler & Hanks, 1998; Davidsson & Honig, 2003; Martin, McNally, & Kay, 2013; Marvel, Davis, & Sproul, 2014; Unger, Rauch, Frese, & Rosenbusch, 2011). In a meta-analysis, Unger et al. (2011) find that human capital investments, which they define as education and experience, predict entrepreneurial firms' success. Further, they find that the effects of outcomes of human capital investments, defined as knowledge and skills, predict entrepreneurial firms' success even stronger. In their study, these effects were particularly strong for human capital with high task-relatedness and for young businesses compared to old businesses. These findings indicate a relationship between human capital and entrepreneurial firms' success and provide an understanding of the relationship's contingencies. Martin et al. (2013) analyze the formation of entrepreneurs' human capital in a meta-analysis on entrepreneurship education. They find that entrepreneurship education trainings lead to increased entrepreneurship-related human capital and to increased entrepreneurship outcomes. More recent studies on human capital and entrepreneurship dive into differences for commercial

vs. social entrepreneurs and a moderating effect of the rule of law (Estrin, Mickiewicz, & Stephan, 2016).

However, these studies neglect the effects of employees' human capital and fail to explain how human capital can be developed within entrepreneurial firms, after founding. Most studies on human capital in an entrepreneurial context focus on the entrepreneur's human capital (Rauch & Hatak, 2016). This is surprising because the concept of human capital was originally developed to explain and detect the effects of investments in employees' human capital (Becker, 1964). Marvel et al. (2014) conclude in their literature review on human capital and entrepreneurship that most relevant studies were carried out on the individual level and, thus, that we do not yet know enough about human capital on the firm level. Consequently, the existing literature at the intersection of human capital and entrepreneurship does not yet help to understand how entrepreneurs can develop and influence their employees' human capital. This provides opportunities for additional research. Literature on HRM appears to be more helpful.

1.3.2 Human Resources Management

Abundant literature shows that HRM can have a significant impact on firm performance (Combs, Liu, Hall, & Ketchen, 2006; Evans & Davis, 2005; Jiang, Lepak, Hu, & Baer, 2012; Lengnick-Hall, Lengnick-Hall, Andrade, & Drake, 2009; Yi & Hai, 2011) and that HRM also has a major impact on performance in small and emerging firms (DeGeest et al., 2015; Hayton, 2003; Huselid, 2011; Teo, Le Clerc, & Galang, 2011). Rauch and Hatak (2016) show that the effects of HRM practices on firms' performance are particularly strong in young firms. However, several findings indicate that HRM approaches cannot be transferred to the entrepreneurial context without adaption. In order to explain why HRM is different in entrepreneurial firms, I begin this section by contrasting two different perspectives on HRM before I highlight specifics of entrepreneurial settings.

The best practice perspective. There remains an ongoing discussion of what kind of HRM should be considered as a 'best practice'. HRM practices that are expected to increase employees' performance, often labeled 'high performance work practices', include participation and empowerment, performance-contingent pay, employment security, promotion from within, training and skill development, self-managed teams, job rotation, quality circles, and total quality management (Becker, Huselid, Pickus, & Spratt, 1997; Delery & Doty, 1996; Evans & Davis, 2005; Guthrie, 2001; Pfeffer, 1995). The 'best practice' perspective suggests that these sophisticated practices and processes enhance employees' performances, irrespective the context.

The contingency perspective. Most HRM literature argues that we not only need to understand which HRM practices are favorable to others but also need to consider the pattern or the system of HRM practices to be able to predict performance (Becker & Gerhart, 1996; Rauch & Hatak, 2016; Subramony, 2009). Many authors highlight the interdependence of different practices and emphasize the importance of congruence between the applied HRM practices. For example, Subramony (2009) suggests that firms should concentrate on a specific bundle of HRM practices and introduce three different types of bundles: empowermentenhancing, motivation-enhancing, and skill-enhancing. Moreover, Topcic, Baum, and Kabst (2016) find that some bundles – those that are particularly strong related to employees' stress – can also negatively influence employees. Additionally, the strategic HRM literature suggests that the strategy for HRM should fit the business strategy of the firm (e.g., Delery & Doty, 1996). Thus, the appropriateness of HRM practices appears to be dependent on the firm's strategy and the context in which the firm operates. This view on HRM is summarized in the contingency perspective (Delery & Doty, 1996; Hargis & Bradley, 2011; Rauch & Hatak, 2016), which also implies that specific HRM practices are appropriate in an entrepreneurial context.

HRM approaches in entrepreneurial firms. Bryant and Allen (2009) propose that emerging firms' 'human resources architecture' evolves in different stages of the firms' life cycle. They suggest that the value and uniqueness of a firm's human capital, types of necessary resources, organizational boundaries, and exchange relationships with outsiders determine how human resources are acquired or developed in emerging firms. Barrett and Mayson (2008a) highlight that HRM in small and/or entrepreneurial firms is often characterized by informal processes, which implies that decisions on HRM issues need to be made mostly without previously defined goals or formal plans. Entrepreneurs mostly have no choice but to make their decisions informally (Barrett & Mayson, 2008a; Hayton, 2003). Further, most entrepreneurial firms lack the ability to implement and exploit HRM processes (Patel & Cardon, 2010). This could indicate that HRM activities in small firms are limited in their scope and sophistication. However, we should acknowledge that there are certain strategic approaches in entrepreneurial firms that are suitable for dealing with dynamism, uncertainty, and resource limitations (Sarasvathy, 2001), which are simply not considered strategies by entrepreneurs (Duberley & Walley, 1995). I will return to these in section 1.4.1.

HRM practices in entrepreneurial firms. The work environment in young and small firms is different, making specific HRM practices most efficient. In their meta-analysis on HRM in small and medium-sized enterprises (SME), Rauch and Hatak (2016) find that the effects of commitment enhancing, empowerment and participation, training, and performance appraisal are strongly related to performance in SMEs. Selection, the presence of a job description, rewards and compensation, and communication appeared to be less important predictors of performance (Rauch & Hatak, 2016). Messersmith and Guthrie (2010) find that company-specific training, here as part of high-performance work systems, contribute to firm performance in emerging firms. Allen et al. (2013) show that commitment-based human resources practices increase the performance of entrepreneurial firms.

Summing up, there is a growing literature stream on HRM in entrepreneurial firms, which indicates which HRM approaches and practices are applied and are appropriate in entrepreneurial firms, and which contingencies determine how these internal firm processes can contribute to firm performance. Thus, transferring the HRM literature's findings to the entrepreneurial context already proved to be helpful for understanding how entrepreneurs can develop and influence their employees. Nevertheless, the literature did not consider entrepreneurs' specific way of decision making and strategy building. When HRM strategies fit business strategies (Delery & Doty, 1996), specific entrepreneurial strategies should imply specific HRM strategies. Additional research is needed to investigate what these would look like and whether this strategic fit contributes to firm performance.

1.3.3 Leadership

Entrepreneurs' leadership affects their influence on their employees. Leadership involves the ability and capacity to influence others (Falbe & Yukl, 1992) and is defined as 'a social influence process through which emergent coordination (i.e., evolving social order) and change (for example new values, attitudes, approaches, behaviors and ideologies) are constructed and produced' (Uhl-Bien, 2006: 655). This includes influencing employees' choices, motivation, learning opportunities, sharing of knowledge, reciprocal support, cooperation, and how they address external constituencies (Yukl et al., 2002). The leadership literature defines and examines different leadership behaviors that are proposed to enhance employees' performance (Hunter, Bedell-Avers, & Mumford, 2007; Yukl et al., 2002).

In entrepreneurial firms, distributed, shared, participative, and empowering leadership appear appropriate (Ensley et al., 2006; Ensley, Pearson, & Pearce, 2003; Hmieleski & Ensley, 2007; Jones & Crompton, 2009). Empowering leadership, including self-rewards, self-leadership, participative goal-setting, teamwork, and encouraging opportunity thinking, seems

to be useful to stimulate commitment and motivation in entrepreneurial firms (Ensley et al., 2006; Ensley et al., 2003; Hmieleski & Ensley, 2007). Further, Jones and Crompton (2009) observe that entrepreneurs encourage teamwork and democratic decision making, and that they share leadership responsibilities. The delegation appears useful to allow employees to contribute to firm performance (Jones & Crompton, 2009). In contrast, Witt, Andrews, and Kacmar (2000) expect that employee participation might give way to employees' self-interest, which could contradict entrepreneurs' interests. Nevertheless, in emergent businesses, informal leadership practices appear most efficient because these types of leadership are expected to facilitate entrepreneurial firms' growth (Ensley, Pearce, & Hmieleski, 2006).

The effectiveness of leadership styles, such as the effectiveness of HRM, is argued to be contingent on firm- and environment-specific characteristics (Dobbs, 2007; Dodge & Robbins, 1992). Zhang, Wang, and Pearce (2014) suggest to consider moderating effects of the dynamism of a firm's environment. This appears particularly interesting in the entrepreneurial context because the environment of entrepreneurial firms can be highly dynamic. A moderating effect of environmental dynamism has already been shown for the effect of transformational and transactional leadership behaviors in new ventures (Ensley et al., 2006) and for entrepreneurial leadership (Huang, Ding, & Chen, 2014). This calls for additional research on leadership behaviors' contingency on the dynamism of entrepreneurial firms' environments.

Additionally, stimulating employees' creativity appears particularly important for entrepreneurial firms. Founding a new business is justified mostly by creative innovations, and entrepreneurial firms' competitive advantages emerge via creativity (Ireland, Hitt, & Sirmon, 2003; Renko, El Tarabishy, Carsrud, & Brännback, 2015). Stimulating creativity and innovation requires specific leadership styles (Mumford & Licuanan, 2004). For example, Allen, Adomdza, and Meyer (2015) find that, when knowledge is incomplete, managerial control produces negative effects for employees who work on the development of new products.

Working on new products with incomplete information is likely in entrepreneurial firms. Mumford, Scott, Gaddis, and Strange (2002) demonstrate that leaders of creative people need to create conditions that channel motivation into present tasks and that they need to direct and structure often ill-defined tasks.

To lead in an entrepreneurial context, some researchers suggest concepts that describe an entrepreneurial leadership style (Gupta, MacMillan, & Surie, 2004; Renko et al., 2015). Many authors consider ambidextrous leadership, which facilitates the combination of exploration and exploitation, as the main goal of entrepreneurial leadership (e.g., Ireland et al., 2003). Gupta et al. (2004) define entrepreneurial leadership as creating 'visionary scenarios that are used to assemble and mobilize a supporting cast of participants who become committed by the vision to the discovery and exploitation of strategic value creation'. However, their approach stems from the context of established firms not entrepreneurial firms. Renko et al. (2015) define innovativeness, creativity, passion/motivation, tenacity/persistence, bootstrapping, vision creation, and risk taking as key elements of entrepreneurial leadership. They find that this kind of leadership is shown by entrepreneurs rather than non-entrepreneurs (Renko et al., 2015).

This overview of the literature at the intersection of leadership and entrepreneurship shows that we already know a great deal about leadership in entrepreneurial firms. However, several gaps remain. Although decision making and affective states appear to be important determinants of leadership mechanisms (Shepherd et al., 2015), specifics in entrepreneurs' behavior were not yet considered. For example, the influence of entrepreneurs' specific way of decision making did not receive appropriate attention in the literature, even though entrepreneurial decision making might shape the work environment for employees. In order to illustrate how such a specific work environment influences employees, I introduce the findings of the job characteristics literature in the next section.

1.3.4 Job Characteristics

A model of five core job dimensions was introduced by Hackman and Oldham (1976) who proposed that skill variety, task identity, task significance, autonomy, and feedback determine the motivational potential of a job. These job characteristics are expected to influence employee motivation, satisfaction, absenteeism, and performance via critical psychological states, i.e., experienced meaningfulness, experienced responsibility, and knowledge of the actual results. Further, Hackman and Oldham (1976) expect that these effects are dependent on individual differences, such as employees' individual need for growth. Empirical evidence suggests that these job characteristics indeed influence employees' work performance (Piccolo & Colquitt, 2006; Purvanova, Bono, & Dzieweczynski, 2006). The process underlying this influence mechanism was for example used to explain outcomes of job resources and demands (Schaufeli & Bakker, 2004) as well as outcomes of transformational leadership (Piccolo & Colquitt, 2006; Purvanova et al., 2006).

Job characteristics might also help to explain how specifics of an entrepreneurial context influence employees. In particular, job characteristics in entrepreneurial firms are likely to be influenced by entrepreneurs' way of decision making. Given that leadership behavior influences job characteristics (Piccolo & Colquitt, 2006; Purvanova et al., 2006), particular strategic logics that determine entrepreneurs' behavior (Sarasvathy, 2001) should also influence job characteristics. In turn, the tasks of employees of entrepreneurs who apply specific entrepreneurial logics will show specific job characteristics. Then, these specific job characteristics will influence employee-level outcomes (Schaufeli & Bakker, 2004). Accordingly, job characteristics appear to be mediators in the process of entrepreneurs' influence on their employees. However, the current literature lacks an analysis of job characteristics in entrepreneurial firms and its antecedents and outcomes. Therefore, integrating

the literature on job characteristics with the entrepreneurship literature will provide new insights.

1.3.5 Emotional Contagion

In addition to cognitive processes, which were emphasized above, emotions play an important role in entrepreneurial firms (Baron, 2008; Breugst & Shepherd, 2015; Cardon, Foo, Shepherd, & Wiklund, 2012; Hayton & Cholakova, 2012). Research has studied different antecedents of emotions in entrepreneurial processes, including economic, psychological, and social factors (Breugst & Shepherd, 2015; Doern & Goss, 2014). Entrepreneurs, compared to individuals in other contexts, appear to be strongly influenced by particular affective stimuli (Baron, 2008; Cardon et al., 2012), via specific mechanisms (Baron, 2008; Foo, 2011). Entrepreneurship researchers find that many entrepreneurs experience strong positive emotions while conducting entrepreneurial activities, these emotions are called entrepreneurial passion (Cardon et al., 2015; Gielnik, Spitzmuller, Schmitt, Klemann, & Frese, 2015). Entrepreneurial passion might influence employees via emotional contagion (Cardon, 2008). For this reason, I introduce emotional contagion mechanisms in the following paragraphs and suggest that they will help understand how entrepreneurs, as senders of emotions, influence their employees, as receivers of the entrepreneurs' emotions.

Emotional contagion allows emotions to transfer from one person to another (Peters & Kashima, 2015). The process of emotional contagion includes emotional mimicry (Hatfield, Cacioppo, & Rapson, 1994), activation of the mirror-neuron system (Rizzolatti & Craighero, 2004), affect diffusion (Peters & Kashima, 2015), and social comparison processes (Sullins, 1991).

In primitive emotional mimicry (Hatfield et al., 1994), people automatically mimic facial expression, body language, and movements of others. Additionally, the human mirror-neuron

system, which is involved in understanding others' actions and emotions, determines whether emotions are imitated (Rizzolatti & Craighero, 2004). Mirror neurons create a direct link between the sender and receiver of a message and make people represent actions and emotions that they observe. These are subconscious processes by which entrepreneurs can arouse emotions in employees.

In a more conscious process, which is called social appraisal, the senders' emotions inform the receivers' appraisal of activities (Peters & Kashima, 2015). When entrepreneurs work with their employees, this process might influence employees' evaluation of their work and, thus, their motivation and, subsequently, their performance. Moreover, people compare their emotions with emotions of relevant others around them in so-called social comparison processes (Sullins, 1991; Barsade, 2002). They evaluate whether it would be appropriate for them to have the same emotions. Thereby, employees in entrepreneurial firms are likely to use entrepreneurs' emotions as information about how they should feel while working in these firms. This highlights the importance of considering entrepreneurs' emotions when their influence on employees is analyzed.

In summary, several theoretical perspectives stemming from other contexts can inform an understanding of how entrepreneurs develop and influence their employees. In addition, the entrepreneurship literature suggests that entrepreneurs show particular cognitions and emotions. These will shape the above described mechanisms. Entrepreneurs' cognitions influence their human capital, HRM, and leadership and change subsequently the job characteristics in entrepreneurs' firms. Entrepreneurs' emotions influence whether emotional contagion processes are triggered. However, analyzing how entrepreneurs' specific cognitions and emotions influence internal firm processes in entrepreneurial firms was neglected by previous research. In the following, I address this missing link between the different literature streams. I describe the specific cognitions and emotions of entrepreneurs in order to discuss

how these shape the development and influence processes outlined by literature on human capital, human resources management, leadership, job characteristics, and emotional contagion.

1.4 ENTREPRENEURS' SPECIFIC COGNITIONS AND EMOTIONS

Several factors determine entrepreneurs' behaviors and decisions. Summarizing research themes that explore differences between entrepreneurs and non-entrepreneurs in heuristics and biases, Shepherd et al. (2015) highlight that entrepreneurs rely more strongly on heuristics, that they are more biased in their decision making, that heuristics can facilitate entrepreneurial decision making, and that entrepreneurs' optimism, overconfidence, and reliance on experience determines their decision making. They explain that entrepreneurs' individual differences, such as their human capital, their emotional dispositions, their perceptions of the environment, and their self-perceptions influence their behavior (Shepherd et al., 2015). Additionally, entrepreneurs appear to be strongly influenced by affective stimuli (Baron, 2008; Cardon et al., 2012). Furthermore, decisions vary due to the stage in the entrepreneurial process to which the decision is related (Cardon et al., 2005).

I suggest placing more effort on understanding how these specific cognitions and emotions of entrepreneurs influence how they address their employees. More specifically, I suggest studying two factors that characterize entrepreneurs: effectual decision making and entrepreneurial passion. Effectuation is cognitive in nature, and entrepreneurial passion is affective in nature, as it combines emotional aspects with an identity perspective. Although these factors stem from very different literature streams, both are likely to determine entrepreneurs' leadership. Effectuation is likely to determine what kind of human capital entrepreneurs acquire (Honig, Davidsson, & Karlsson, 2005), what kind of HRM they apply, which leadership behaviors they show, and what kinds of job characteristics emerge in their firms. Entrepreneurs' entrepreneurial passion might also influence their leadership because

passion is contagious and, thus, influences employees' own passion and performance (Cardon, 2008). However, we do not yet know a lot about how both effectuation and entrepreneurial passion influence employees or internal firm mechanisms in entrepreneurial firms. In the following section, I introduce these concepts and outline the ways in which they contribute to an understanding of how entrepreneurs develop and influence their employees.

1.4.1 Effectuation

Effectuation is a way of entrepreneurial decision making, which was introduced by Sarasvathy (2001). Since Sarasvathy's (2001) first definition, the concept was elaborated, tested, and discussed by several researchers (for a recent discussion on the construct, see the dialog in Academy of Management Review, July 2016). Effectuation was described as a process, as Garud and Gehman (2016) and Gupta, Chiles, and McMullen (2016) explain, and it is characterized by some specific dimensions (Brettel, Mauer, Engelen, & Küpper, 2012; Chandler, DeTienne, McKelvie, & Mumford, 2011; Dew et al., 2009). However, there are still different definitions of and perspectives on the construct (Arend, Sarooghi, & Burkemper, 2015; Perry, Chandler, & Markova, 2012). I will begin this section by describing the most common definitions and perspectives.

The effectuation process follows a sequence of steps but is non-linear and dynamic (Fisher, 2012; Read & Sarasvathy, 2005; Sarasvathy, 2001). Individuals who rely on effectuation begin by asking themselves three questions: who am I, what do I know, and who do I know. Thereby, they identify their means at hand and base their actions on these means rather than goals. These individuals, next, evaluate what they can do with these means. They interact with other people around them and try to obtain stakeholder commitments. These commitments lead to new means and new goals (Read & Sarasvathy, 2005), which change the answers to the initial questions. Consequently, the effectual process is a cycle rather than a

linear process. Effectuation expands resources and converges goals. This effectual process may help create new firms and new markets (Fisher, 2012; Read & Sarasvathy, 2005).

Drawing on Sarasvathy's (2001) theoretical elaboration, Dew et al. (2009) define five dimensions that distinguish effectuation from the conventional causal approach: (1) the view of the future (creative, not predictive), (2) the basis for taking action (means-oriented, not goal-oriented), (3) predispositions towards risk and resources (affordable loss, not expected return), (4) attitude towards outsiders (partnerships, not competitive analysis), and (5) attitudes toward unexpected contingencies (leveraging, not avoiding). When developing a scale to measure effectuation, Chandler et al. (2011) established four dimensions, i.e., experimentation, affordable loss, flexibility, and pre-commitments, and suggested that effectuation is a formal construct. Brettel et al. (2012) developed a different scale, which also covers four dimensions but is measured as a semantic differential: means vs. goals, affordable loss vs. expected contingencies, partnerships vs. competitive market analysis, and acknowledge vs. overcome the unexpected. Thus, although effectuation seems to explain facets of entrepreneurial decision making, its definition and operationalization are not yet a consensus in contemporary literature.

Research on effectuation explores its effects on exploration and exploitation processes and on opportunity recognition and creation (Dew et al., 2009). Moreover, several studies analyzed how effectual logics influence firm creation and design under resource constraints and under uncertainty (Sarasvathy, 2001; Sarasvathy, Dew, Read, & Witbank, 2008). While Read et al. (2009) analyzed effectuation's effect on overall firm performance, more recent research began to study effectuations' effects on more specific outcomes, such as product innovation processes (Berends, Jelinek, Reymen, and Stultiëns (2014) and efficiency in R&D projects (Brettel et al., 2012). Furthermore, effectuation was studied in the context of investment and marketing decisions (Read, Dew, Sarasvathy, Song, & Wiltbank, 2009; Wiltbank, Read, Dew,

& Sarasvathy, 2009). Still, we do not yet know how effectuation influences employees and internal firm mechanisms in entrepreneurial firms.

I propose that, when an HRM strategy is in alignment with the business strategy and the business strategy is based on effectuation, the HRM strategy should also be based on effectuation. However, we do not yet know what this would look like. This highlights knowledge gaps and provides new avenues for future research.

1.4.2 Entrepreneurial Passion

Literature at the interface between entrepreneurship and psychology has begun to stress the importance of entrepreneurial passion and its contagion towards employees in driving the performance of entrepreneurial firms (Cardon, 2008; Cardon et al., 2012).

Passion is a positive, intense, long-term feeling towards a particular activity (Vallerand et al., 2007). A passionate person experiences a flow-like feeling while doing this particular activity (Csikszentmihalyi & LeFevre, 1989). Knowing their positive feelings towards this activity, people internalize this activity as part of their self-concept over time. This internalization distinguishes passion from other positive emotions, such as joy or happiness. Two types of passion can be distinguished: Harmonious passion and obsessive passion (Vallerand et al., 2003). Harmonious passion is a result of an autonomous internalization process caused by intrinsic motivation, whereas obsessive passion originates from intra and/or interpersonal pressure (Vallerand et al., 2007). People experiencing harmonious passion show a flexible form of persistence, which still allows a balance of different parts of their self-identity (Vallerand et al., 2007).

Entrepreneurial passion is defined as a 'consciously accessible, intense positive feeling experienced by engagement in entrepreneurial activities associated with roles that are meaningful and salient to the self-identity of the entrepreneur' (Cardon, Gregoire, Stevens, &

Patel, 2013: 517). It is discussed as a central driving force underlying entrepreneurs' efforts, persistence, creativity, opportunity recognition, and performance (Cardon et al., 2005; Chen et al., 2009; Liu et al., 2011). Entrepreneurial activities that are expected to arouse entrepreneurial passion include (1) inventing, (2) founding, and (3) developing (Breugst, Domurath, Patzelt, & Klaukien, 2012; Cardon et al., 2013). Inventing refers to searching for new and innovative ideas or identifying and exploring new opportunities. Founding refers to establishing a venture by assembling necessary financial and human resources. Developing refers to nurturing, growing and expanding the business. People experiencing entrepreneurial passion internalize being an inventor, founder, and/or developer as part of their self-concept (Cardon et al., 2009).

If emotional contagion, as explained above, is possible, employees of entrepreneurs can also experience entrepreneurial passion. Employees' passion, as it is a strong positive emotion, might then influence other outcomes, such as commitment, motivation, productivity, or creativity. These effects can translate into performance outcomes. Therefore, considering entrepreneurial passion and its contagion can provide important new insights that enhance our understanding of how entrepreneurs influence their employees and how this influences entrepreneurial firms' performance.

1.5 DISCUSSION AND IMPLICATIONS

The aim of this paper was to elaborate literature on different contexts that might help to understand how entrepreneurs develop and influence their employees. The perspectives and findings of the literature on human capital, HRM, leadership, job characteristics, and emotional contagion help to understand internal firm processes in entrepreneurial firms. At the same time, several gaps in the literature remain.

Literature on human capital has focused mainly on entrepreneurs' human capital but neglected how employees' human capital can be developed and how it influences

entrepreneurial firms. Approaches of the HRM literature were already transferred to an entrepreneurial context. Human resources enhancing practices appear to be particularly important in entrepreneurial firms (Rauch & Hatak, 2016). Rauch and Hatak (2016) for example reported that the effects of human resources enhancing practices on firm performance, which they find in a meta-analysis, appear to be even stronger than the effects of business planning detected by Brinckmann, Grichnik, and Kapsa (2010).

The contingency perspective receives support in the HRM and the leadership literature. This suggests that the context, including the entrepreneurial context, determines whether and how strong specific HRM and leadership practices relate to firm performance. Therefore, I suggest exerting more effort in examining which variables determine what development and influence processes in entrepreneurial firms look like and which are efficient. This requires understanding what distinguishes internal processes in entrepreneurial firms from processes in other firms. Which job characteristics occur in entrepreneurial firms and whether these are systematically different remains unclear so far. Emotional contagion processes were hypothesized to contribute to firm performance but are not yet completely understood.

I illustrated that specific cognitions and emotions of entrepreneurs might determine how entrepreneurs develop and influence their employees. These were ignored mainly in previous literature on internal firm mechanisms in entrepreneurial firms. Entrepreneurs' cognitions, which are based on effectual logics, and their emotions, which contain entrepreneurial passion, determine their behavior and, thus, are likely to affect their employees. I expect that effectuation determines what kind of human capital entrepreneurs acquire (Honig et al., 2005), what kind of HRM they apply, which leadership behaviors they show, and what kinds of job characteristics emerge in their firms. Further, I expect that entrepreneurs' passion influences their employees because passion is contagious and can translate into performance outcomes (Cardon, 2008). Consequently, more research is needed to understand whether and how entrepreneurs develop

and influence their employees and whether and how influence processes are determined by effectuation and entrepreneurial passion.

CHAPTER 2 ENTREPRENEURS' HUMAN RESOURCES DEVELOPMENT 1

Abstract

This study observes how entrepreneurs develop human resources in their firms. To explore HRD in entrepreneurial firms, we first interview entrepreneurs and new venture consultants. Second, we extrapolate specifics that occur due to the entrepreneurial context by comparing entrepreneurs' approaches with those of HRD managers in established firms. Although we observe that some entrepreneurs apply causal logics, we predominately observe a logic in entrepreneurs' decisions that is characterized by informality, creativity, and a means orientation. This approach leverages contingencies and partnerships. Our study thus challenges and corroborates the assumptions of previous HRD research, which predominantly argued for causal mechanisms.

¹ Chapter two is co-authored by Prof. Dr. Matthias Baum.

2.1 INTRODUCTION

'Once a new venture is founded, becomes an organization, and hires its first employees, human resource issues and forces that exist in—and influence the success of—all organizations come into play. Indeed, growing evidence suggests that an inability on the part of some founders of new ventures to successfully manage HRM issues is an important factor in their ultimate failure' (Baron, 2003: 253).

Previous literature suggests that HRD significantly contributes to firms' performances (Ciavarella, 2003; Tharenou et al., 2007). The statement above and contributions from a plethora of studies highlight the particular importance of human resources for entrepreneurial firms (for recent meta-analyses on this topic, see Unger et al. (2011) and Marvel et al. (2014)). However, a simple transfer of the findings from the larger firm context to entrepreneurial firms without adaption seems problematic. New ventures differ systematically from larger or more established firms in multiple ways (Cardon & Stevens, 2004). For instance, new ventures usually do not have human resource departments, initially leaving the founding team responsible for the development of employees (Banks, Bures, & Champion, 1987; Fox, 2013; Katz & Welbourne, 2002). Furthermore, training primarily takes place on-the-job and is more informal than in larger firms (Harney & Dundon, 2006a; Hayton, 2003). These particularities of entrepreneurial firms make it difficult to transfer knowledge about HRD processes generated in the established firm context, leaving how entrepreneurial firms develop human resources within their boundaries as a chronically understudied question. Our understanding of how entrepreneurs develop human resources within their firms, by stimulating or enabling employees' learning, remains scarce at best (Cardon & Stevens, 2004; Marvel et al., 2014; Unger et al., 2011). This study seeks to address this void by exploring how entrepreneurs develop human resources within their firms.

To investigate HRD in entrepreneurial firms, we designed a qualitative inductive study. Drawing on the descriptions of new venture consultants and entrepreneurs in the high-tech industry, we identify and describe a characteristic HRD process that appears in entrepreneurial

firms. Through this exploration, we recognize that the HRD process in entrepreneurial firms is largely informal, creative, and means orientated. Entrepreneurs' approach leverages contingencies and partnerships and is driven by co-creation between entrepreneurs and employees. We observe that entrepreneurs enable employees to create new capabilities and opportunities for the firm.

By further interpreting our empirical results, we find that entrepreneurs apply specific logics in their decisions on HRD activities, which strongly relate to the dimensions of causation and effectuation (Sarasvathy, 2001). Effectuation was introduced by entrepreneurship research as a strategic logic that entrepreneurs use, in addition to the causal logic that is known from the strategic management literature (Sarasvathy, 2001; Wiltbank et al., 2009). Sarasvathy (2001) describes effectuation as a creative, means-orientated approach that leverages contingencies (Sarasvathy, 2001). Thus, effectuation accounts for resource limitations and vague goals that characterize the first stages in the life of new ventures.

We aim to expand and build upon the present HRD literature by offering an entrepreneurial HRD process that shows and explains HRD in entrepreneurial firms. Our findings provide an extended understanding of the pattern of HRD decisions that might be considered 'strategic', particularly in HRD processes that are informal. Furthermore, we discuss potential consequences of applying causal vs. effectual decision-making logics as well as the contingencies of their applicability. Thereby, we add to HRD literature by enhancing the understanding of how HRD looks like in the entrepreneurship domain and challenge the assumption that HRD is – irrespective the context – best explained using traditional causal models. Our findings also contribute to the entrepreneurship literature, which currently suffers from a dearth of theoretical development regarding HRD processes in new ventures (Katz & Welbourne, 2002). In addition, our findings elaborate the effectuation construct in a new context, as it was not yet studied in HRD processes. Finally, the presented HRD process

provides a suitable solution for entrepreneurs and might also be interesting for established firms, which operate in a dynamic and uncertain environment.

2.2 LITERATURE REVIEW

Before we report our analysis and findings, we situate our investigation in previous research. We define what we consider to be HRD, and we discuss what we can learn from previous studies on HRM in entrepreneurial firms about HRD in entrepreneurial firms. Additionally, we describe the decision-making logics that previous entrepreneurship research found to describe entrepreneurs' strategic decisions and that we use to categorize the logics that we observe to underlie entrepreneurs' HRD.

2.2.1 Defining Human Resources Development

We define HRD as the process of developing and/or unleashing employees' competencies through organizational development and personnel training and development for the purpose of improving performance (Swanson, 1995). HRD is an internal investment (Hatch & Dyer, 2004) that stimulates the emergence of individuals' knowledge, skills, abilities, or other characteristics (Ployhart & Moliterno, 2011).

Although research on HRD processes is virtually absent in the entrepreneurship domain, we can draw on significant contributions that have been made regarding larger established firms. Conventional HRD research suggests that HRD strategies are derived from previously formulated business strategies (Torraco & Swanson, 1995; Yi & Hai, 2011) or developed in interaction with business strategy development (Van Donk & Esser, 1992). The overarching strategy then defines HRD goals and an HRD process in alignment with the strategy (Hargis & Bradley, 2011). Thus, previous research generally views HRD as a formal process that should be closely aligned with a firm's planning and goals (Kraiger, McLinden, & Casper, 2004;

Tharenou et al., 2007). The hereby ensured alignment of business strategy and HRM, including HRD, has been found to enhance the positive effect on a firm's performance (Huselid, 1995).

This HRD approach, which focuses on alignment, is predominantly based on a causal logic: analyze, plan, select, implement, and evaluate HRD activities (Swanson, 1995). In this approach, the firms' goals and strategies define the competencies that are required of a firm's employees (Swanson, 1995). Then the requirements are matched with the actual stock of competencies, and a mismatch between the stock and the requirements translates into specific HRD activities. These are selected and carried out based on their potential to reduce the competency gap. Then, individual goals and career plans are defined to ensure a long-term congruence between business goals and HRD activities (Ford, Weissbein, Smith, & Gully, 1998). In established firms, these activities are managed and implemented by an HRM department that has the required resources to execute the HRD activities in an efficient manner (Lepak & Snell, 1999).

These formal processes might not be appropriate for entrepreneurs' HRD. Previous literature on HRD in SMEs and entrepreneurial firms has examined HRD mostly integrated into analyses of HRM practices (e.g. DeGeest et al., 2015; Patel & Cardon, 2010). These analyses show specifics that occur due to entrepreneurial firms' context. Since these specifics have implications for HRD in entrepreneurial firms, we will outline literature on HRM in entrepreneurial firms in the following section.

2.2.2 Human Resources Management in Entrepreneurial Firms

Research investigating the nature of HRM in small or entrepreneurial firms indicates that it is characterized by rather informal processes (Barrett & Mayson, 2008a; Hayton, 2003) and that these firms often lack capabilities to implement and exploit these processes (Patel & Cardon, 2010). Several studies find that HRM activities in small firms may be limited in their

scope and sophistication. However, these findings do not necessarily mean that effective HRM is any less significant to new venture performance. Many researchers find that HRM has a major impact on performance (DeGeest et al., 2015; Hayton, 2003; Huselid, 2011; Teo et al., 2011). For example, Messersmith and Guthrie (2010) find that high performance work systems, and company-specific training as part of those, contribute to firm performance in emerging firms. Still, there is a lack of consensus about whether informality is appropriate in an entrepreneurial context or if it appears due to entrepreneurs' lack of HRM experience and actually impedes the success of new ventures. Table 2-1 presents the arguments and findings of previous research on HRM in entrepreneurial firms and SMEs.

Table 2-1: Literature Review on Human Resources Management in Entrepreneurial Firms

Main Topic	Main Topic Study Key Findings				
HRM Adoption	Duberly & Walley (1995)	Only few SMEs adopt common HRM practices. HRM is characterized by reactivity and opportunistic pragmatism.			
	Bacon & Hoque (2005)	The extent of adoption of HRM practices increases with higher proportions of highly-skilled employees, with the presence of trade unions, and when large customers are dominant.			
	Hayton (2003)	Discretionary HRM is positively related to entrepreneurial performance.			
	Marchington, Carroll, & Boxall (2003)	Informality might be an appropriate strategy in small firms and thus should not be dismissed as ineffective.			
Evaluating Informality	Mayson & Barrett (2006)	There are several problems immanent to informal HRM practices, which are non-strategic (e.g. hiring someone who fits to the recruiter rather than to the actual job requirements; when informal training is used, continuous monitoring and immediate feedback are missing).			
	Wilkinson, Dundon, & Grugulis (2007)	The way processes are implemented are more important than firm size, for predicting whether regulations have a positive impact.			
	Duberly & Walley (1995)	Informality depends on the specific context within and around the firm. Formality cannot be linked to one factor.			
	Bacon & Hoque (2005)	Formality depends on the presence of institutional pressure.			
Contingencies	Mayson & Barrett (2006)	Formality depends on the awareness of employers and employees about legislation and legal requirements of HRM; Formalization depends on entrepreneurs' perception of the necessity to delegate these issues.			
of Informality	Moore & Read (2006)	The presence of key activists is critical for increasing formalization within larger SMEs.			
	Marlow, Taylor, & Thompson (2010)	Employees in small firms perceive the balance between formality and informality as negotiable. Formality is higher, when a human resources manager is present, who is accepted. Transitions from informality to formality require employees, owners, and managers to accept the redistribution of responsibilities. Formality depends on employers' and employees' awareness of how formal procedures could look like.			

Abbreviations: HRM: Human Resources Management, SMEs: Small and Medium-Sized Enterprises

The disagreement in the discussion around formality and informality demonstrates that the literature is not yet able to explain whether formal HRM practices or if a rather informal approach might be more appropriate for entrepreneurs. Hayton (2003) argues that decisions on HRM issues in entrepreneurial firms mostly need to be made without having formal and previously defined objectives making informality a necessity. Duberly and Walley (1995), on the one hand, state that they observe little strategy in SMEs' HRM; on the other hand, they acknowledge that there are some strategic approaches that are simply not considered strategies by entrepreneurs. Bacon and Hoque (2005) argue that the adoption of sophisticated HRM practices, suggested here as the opposite of informality, indicates that SMEs value their employees. This argument implies that less formal HRM, including HRD, indicates that employees are valued less. Our findings challenge this point of view, as we suggest effectual HRD as an approach that is characterized by informality but nevertheless values employees' ideas and competencies to a high extent. Mayson and Barrett (2006) call for a strategic examination of HRM issues in entrepreneurial firms that accounts for the informal and ad hoc nature of entrepreneurs' planning. Addressing this call, our study takes into account that entrepreneurs' decisions on HRD activities might be strategic, although they do not follow formal or causal logic. Our findings suggest the logics of effectuation to help us understand how informal decisions contribute to HRD outcomes. Before we present these findings, we describe what we already know about HRD in entrepreneurial firms from previous research.

2.2.3 Human Resources Development in Entrepreneurial Firms

Entrepreneurial firms usually do not have a formal human resources department that is engaged in stimulating competency development and learning. Entrepreneurs themselves need to decide on HRD activities. However, in early stages of a firm's development, entrepreneurs

may not yet be able to define target competencies, especially for positions that are not yet assigned.

Nonetheless, HRD is necessary right after hiring the first employees because specific human capital and numerous competencies are required. Employees' performances are dependent on employees' competencies and contribute significantly to firms' performances (Hatch & Dyer, 2004; Hitt, Bierman, Shimizu, & Kochhar, 2001). This is particularly true in early stages of venture development (Hayton, 2003; Huselid, 2011; Teo et al., 2011; Unger et al., 2011). Especially enhancing firm-specific competencies contributes to a firms' competitive advantage because of its inimitability and social complexity (Hatch & Dyer, 2004). While many studies analyzed the impact of entrepreneurs' competencies on firm-level outcomes (Crook, Todd, Combs, Woehr, & Ketchen, 2011), previous entrepreneurship research neglected the importance of employees' competencies in entrepreneurial firms. Furthermore, previous studies mainly focused on recruitment as a tool for accumulating competencies in SMEs and entrepreneurial firms (Heneman & Berkley, 1999; Kotey & Slade, 2005). However, several studies reported that SMEs face comparative disadvantages in recruiting highly qualified employees (Cardon & Stevens, 2004). Accordingly, HRD as a possibility to enhance competencies within entrepreneurial firms appears particularly important.

Although the importance of HRD in entrepreneurial firms has been highlighted repeatedly (Hayton, 2003; Huselid, 2011; Unger et al., 2011), only a few studies have analyzed its nature and impact. Some researchers show that on-the-job learning enhances employee satisfaction (Hornsby & Kuratko, 1990; Rowden, 2002); others find that the utilization of HRD mediates the relationship between employees' human capital and firm performance (Rauch, Frese, & Utsch, 2005). Duberly and Walley (1995) argue that training and development is particularly relevant for SMEs, which cannot buy in the necessary skills (for example because they cannot entice employees from larger companies). Nonetheless, they find training to be one of the least

common HRM practices (Duberley & Walley, 1995). Additionally, Duberly and Walley (1995) mainly observe a transactional leadership style in SMEs, which relies on monitoring instead of nurturing. Although most firms in their sample report difficulties that arise because of untrained staff, they did not consider HRD to be central to their corporate plan. Another obstacle to training in entrepreneurial firms occurs because of restricted resources (Messersmith & Guthrie, 2010). For young firms, the time that an employee spends in training appears to be a particularly important criterion for training choices (Banks et al., 1987). Furthermore, a lack of human and financial resources, a dynamic environment, and few concrete objectives increase difficulties for entrepreneurs who seek to imitate the best practices from larger organizations (Heneman & Tansky, 2002).

Harney and Dundon (2006b) analyze training and development in entrepreneurial firms on an operational level and find that training is mostly fragmented and inconsistent within these firms. They observe seminars for quality management, customer orientation, and soft skills. Thereby, they find that training is rarely strategically planned. They observe that seminars are chosen reactively, when problems or knowledge gaps are identified. In line with their findings, Hornsby and Kuratko (1990) find on-the-job training to be more relevant than more sophisticated forms of training, particularly in smaller firms.

Summing up, previous research suggests that several characteristics of HRM and HRD in entrepreneurial firms differ from that in established firms. Several researchers find that HRM in young and small firms is more informal (Barrett & Mayson, 2008a) and is more efficient when discretionary (Hayton, 2003), when employees are highly skilled (Bacon & Hoque, 2005) and when human resources managers are experienced (Marlow et al., 2010). Regarding HRD, we know that learning takes place primarily on the job (Hornsby & Kuratko, 1990), is inconsistent, and is chosen reactively (Harney & Dundon, 2006a). However, our knowledge of what potentially underlying strategies look like remains limited. We do not yet know how HRD

is conducted in entrepreneurial firms and why entrepreneurs shape it in that way. To fill this gap, this study aims to explain mechanisms that describe entrepreneurs' HRD. We aim to explore what the HRD process looks like by analyzing the strategies that entrepreneurs interpret in their decisions and to point out the characteristics that distinguish their approaches. We analyze how entrepreneurs frame their HRD decisions and extract an HRD process observed in entrepreneurial firms.

In our analysis, the categorization of causal and effectual logics helped us understand the logic underlying entrepreneurs' decisions. We find causal logic and effectual logic in entrepreneurs' decisions regarding HRD. For this reason, the next section explains how the entrepreneurship literature understands these decision-making logics.

2.2.4 Decision-Making Logics Applied by Entrepreneurs

Entrepreneurs have been shown to follow strategic logics that cannot be consistently explained using causal frames (Wiltbank et al., 2009). Instead, two different types of strategic logic can be observed in entrepreneurs' decision-making processes: causation and effectuation (Sarasvathy, 2001).

Causation follows a goal-orientated, predictive view and uses an expected return calculation as the basis for investment decisions. When causation is applied, outsiders are seen as competitors and firms attempt to avoid contingencies using accurate analyses and plans. For entrepreneurs, however, it is often not possible to define a concrete objective or strategy shortly after founding their ventures because their markets, business models, and organizational structures still have to evolve (Wiltbank et al., 2009). The development of the environment is mostly uncertain and highly dynamic. Entrepreneurs need to be flexible and react to situations that challenge them.

In this context, entrepreneurs have been shown to make significant use of effectuation (Fisher, 2012; Read, Song, & Smit, 2009). Several researchers observe both logics in entrepreneurial firms and discovered that effectual decisions outweighed causal decisions (e.g., Dew et al., 2009; Fisher, 2012; Read & Sarasvathy, 2005). Effectual decision making refers to an alternative to the development of formal plans. Effectuation is not a breach of rationality but a different category of rationality that is used for strategic decisions (Sarasvathy, 2001). Effectuation follows a means-orientated, creative view and is based on the principle of affordable loss. Outsiders are seen as partners, and networks are used to create possibilities. Contingencies are understood as opportunities that should be leveraged instead of avoided (Sarasvathy, Dew, Velamuri, & Venkataraman, 2010). When applying effectual decision making, entrepreneurs plan their actions by analyzing the means that they have at hand. They are attempt to achieve the best outcome with those means. Opportunities are recognized, discovered, or created from scratch.

Honig et al. (2005) have already transferred effectuation to learning mechanisms in the entrepreneurial context. They suggest that effectuation is an efficient learning strategy for entrepreneurs to develop their own competencies. They find that learning processes that are associated with effectuation (Sarasvathy, 2001) are positively related to entrepreneurs' progression. They suggest incrementalism and continual adjustment as effective tools for the start-up process in which entrepreneurs are choosing strategies to accumulate knowledge. In contrast, they do not find an effect of causal learning approaches that they link with systematic, institutionalized, and formalized education, on venture development (Honig et al., 2005). Thus, previous research has already found that effectuation and causation are appropriate for analyzing processes that refer to learning and competency development. However, these logics were not yet transferred to HRD processes for employees in entrepreneurial firms.

2.3 METHOD AND SAMPLE

We designed an inductive and open-ended study to explore HRD processes in entrepreneurial firms. A qualitative approach seemed appropriate for several reasons. First, we aimed to understand the strategies underlying entrepreneurs' subjective understanding (Suddaby, 2006) and wanted to observe a process (Edmondson & McManus, 2007). Second, contemporary research has yet to explain how human resources are developed within entrepreneurial firms. Third, previous research has indicated that the occurrence of informality in new ventures' HRM complicates structured analyses (Duberley & Walley, 1995; Jack, Hyman, & Osborne, 2006). Therefore, we started with category building in an inductive process. We aimed to observe entrepreneurs' perceptions about how they can best develop human resources in their firms. Therefore, we asked entrepreneurs about learning opportunities and HRD processes within their firms. We also talked to new venture consultants, whose statements provide a more generic and abstract view on entrepreneurs' HRD approaches. We then aimed to extrapolate what distinguishes entrepreneurs' approaches from approaches in established firms. We asked human resources managers in established firms the same questions as we asked the entrepreneurs in order to compare how entrepreneurs vs. human resources managers in established firms interpret HRD. Additionally, we discussed our findings with HRD consultants, who helped us understand the possible consequences and boundary conditions of the applicability of entrepreneurs' strategies.

2.3.1 Data Collection

Analyzing statements from different interviewee groups allowed us to illuminate entrepreneurs' HRD from different points of view (Strauss & Corbin, 1997). We were thereby able to draw a holistic picture of HRD processes in entrepreneurial firms. We stepwise included interview partners from different expert groups in the field, following a strategy of theoretical

sampling (Glaser & Strauss, 2009). All interviews were based on guidelines, but additional aspects that were not part of our questions, although mentioned by interviewees, were noted and scrutinized in the course of the interviews.

First, we interviewed 15 entrepreneurs in the high-tech industry (interview time: 519 min), who are still in a leadership position in the venture that they founded. The entrepreneurs were asked about HRD activities and their reasons for using these activities. Additional topics in these interviews included objectives and plans that entrepreneurs have for HRD in their firms. Furthermore, interviewees were asked to describe the problems that they encountered. In addition, they were asked to describe decision processes and how HRD activities are evaluated. Additional questions were asked about the firms' idea creation processes and employees' learning and development opportunities. Key questions are presented in appendix A. To ensure that our analysis covers all relevant issues, at the end of the interview, interviewees were asked for additional important aspects of their HRD that were not covered by our questions. The entrepreneurs' ventures were of different sizes and ages. Hence, we could also observe differences in entrepreneurs' decision-making logics, which might arise with increasing venture maturity.

Second, we interviewed four new venture consultants (interview time: 235 min). These consultants were asked about the HRD activities that they had observed in entrepreneurial firms and whether they found these approaches appropriate. These interviews covered the same topics as the interviews with the entrepreneurs. Key questions are also presented in appendix A. In addition to their insights into several entrepreneurial firms, whose founders they consulted, their experiences helped us understand the advantages and disadvantages of entrepreneurs' approaches. The new venture consultants' statements offered us the possibility to enrich our understanding through their greater knowledge, grounded in long-lasting consulting experience.

Third, we asked six HRD managers in established firms about their HRD strategies (interview time: 205 min). They were asked the same questions concerning HRD that we asked the entrepreneurs. This allowed comparing their decision-making logics with those of the entrepreneurs. We were thereby able to extrapolate the logics that are specific to the entrepreneurial context.

Finally, we discussed our findings with HRD consultants in two focus groups. The first group discussion was conducted with three experts, and the second group discussion with four experts. These group discussions enabled a superior understanding about the boundary conditions of the applicability of the entrepreneurs' logics because the HRD consultants had a general and more holistic point of view on HRD issues.

Summing up, we conducted 25 individual interviews (total interview time: 959 min) and discussed our findings in two focus groups (discussion time: 186 min). Detailed information about the interview attendees is listed in table 2-2.

Table 2-2: Sample

Expert Group		Development Stage	Firm Age (Years)	Number of Employees		Interview Length
Entrepreneur 1	Biotechnology	Start-up	4	14	Phone	42:37
Entrepreneur 2	Typography/ automation	Start-up	1.5	11	Phone	25:14
Entrepreneur 3	Biochemistry	Start-up	3	9	Phone	32:51
Entrepreneur 4	Pharma, R&D	Growth	16	100	Personal	01:03:18
Entrepreneur 5	Air bearing	Growth	12	30	Personal	59:22
Entrepreneur 6	User interfaces	Start-up	1	6	Personal	06:41
Entrepreneur 7	Online translation	Start-up	2	8	Personal	10:25
Entrepreneur 8	IT	Start-up	2	5	Phone	58:12
Entrepreneur 9	IT	Start-up	3	5	Phone	12:17
Entrepreneur 10	IT	Start-up	4	18	Phone	25:01
Entrepreneur 11	IT	Start-up	5	10	Phone	46:48
Entrepreneur 12	IT	Start-up	6	40	Phone	33:09
Entrepreneur 13	IT	Growth	11	15	Phone	28:33
Entrepreneur 14	IT	Growth	14	76	Phone	58:29
Entrepreneur 15	Automotive	Growth	25	1,000	Phone	16:03
HRD Manager 1	HR department		15	400	Phone	15:08
HRD Manager 2	HR department		16	120	Phone	12:17
HRD Manager 3	HR department		20	97	Phone	39:09
HRD Manager 4	HR department		102	2,000,00	Phone	24:47
HRD Manager 5	HR department		149	110,000	Phone	50:22
HRD Manager 6	HR department		149	110,000	Phone	63:17
NVC 1	High-tech specialis	zation			Phone	49:26
NVC 2	High-tech specialis	zation			Phone	28:51
NVC 3	HRD expertise				Personal	01:26:32
NVC 4	HRD expertise				Phone	53:47
HRD Consultants (1)	Change manageme leadership, teambu	ilding			Group discussion, 3 attendees	58:56
HRD Consultants (2)	Strategy, change p teambuilding, questraining	stionnaires,		- Nave	Group discussion, 4 attendees	02:06:43

Abbreviations: HR: Human Resources; HRD: Human Resources Development; NVC: New Venture Consultant; R&D: Research and Development; IT: Information Technology

2.3.2 Data Analysis

We started with an inductive elaboration process. We simultaneously collected data and structured our findings to understand entrepreneurs' HRD. In this regard, we compared interviewees' descriptions and explanations and identified reoccurring sequences in the interviews (Gioia, Corley, & Hamilton, 2012). Similar to approaches that other researchers have applied (Mathias, Williams, & Smith, 2015; Pratt & Rosa, 2003), our data analysis consisted of four phases (see figure 2-1). These phases did not follow each other sequentially but we went back and forth in the process, as is common in qualitative analyses (Glaser & Strauss, 2009). We applied several strategies to heighten reliability and validity of our findings (Yin, 2011), such as other researchers did (Müller-Seitz, 2014). The referring measures are outlined in table 2-3.

Figure 2-1: Four Phases of Data Analysis

Discovery (Step 1)

Read and analyze transcripts from individual interviews with entrepreneurs and new venture consultants

- Construct categories describing entrepreneurs' HRD activities
- Explore relationships between categories

Narrowing (Step 2)

- Hone categories by collapsing overlapping constructs
- Focus on strategic issues in the process of HRD
- Embed categories in existing theory
- Screen transcripts for statements referring to causation and effectuation

Enriching (Step 3)

- Include additional interviews with entrepreneurs
- Compare entrepreneurs' statements with statements from human resource managers from established firms

Validating (Step 4)

- Discuss findings with HRD consultants
- Discuss findings in the light of previous research

Table 2-3: Measures to Heighten Reliability and Validity

Research Phase

Criterion	Design	Sampling	Data Collection	Data Analysis
Reliability		Purposive sampling	Provide detailed information on interviewees	Calculation of an ICC
Construct Validity	Comparison with established firms to highlight specifics of entrepreneurial firms	Interviewees with different points of view	Formulate interview guidelines	Codes linked to categories defined by previous research
External Validity		Interviewees with general knowledge in the field (new venture consultants)	Feedback from experts with abstract knowledge on the topic (HRD consultants)	Transparent description of data analysis- steps

Abbreviations: HRD: Human Resources Development; ICC: Inter-Coder-Correlation

We started with interviews with entrepreneurs (entrepreneurs 1-5) and new venture consultants (new venture consultants 1-4). The codes that we used for our initial categorization stemmed from reoccurring sequences in the interviews, not from an a priori logic. The categorization within this step followed an open and iterative process that inductively created classes of findings. In the beginning (step 1), we focused on the HRD practices that entrepreneurs chose. The codes used in this phase provided insight into which HRD activities are used and which objectives entrepreneurs target.

However, during this process of analyzing, we learned that solely analyzing HRD activities and objectives would not paint the whole picture. Several rounds of open coding brought us from our initial observations of HRD activities and targeted objectives to more strategic issues in the process. We then consulted the existing literature to explain findings and data patterns. We integrated theory that seemed to explain our observations. Our categories, covering entrepreneurs' strategic logics, appeared to fit the dimensions of causation and

effectuation (Sarasvathy, 2001). For example, we used a category for a clear definition of a target and another category for referring to means, such as employees' interests, when choosing training. These categories could be easily matched with the dimensions of causation (here: goal orientation) and effectuation (here: means orientation). Another category covered statements that indicated the calculation of the training costs against the learning outcomes of, for example, visiting a fair. This category reflected the principle of expected return, which is one dimension of causation, as defined in previous entrepreneurship research. Furthermore, we had a category covering statements that indicated a tendency to invest in as many learning opportunities as possible, as long as the venture's success was not threatened. This approach fits the principle of affordable loss, as explained in studies on effectuation. Thus, Sarasvathy's (2001) framework of effectuation and causation, which has been extensively used in the entrepreneurship context and has proven suitable for classifying entrepreneurs' actions and logics (Dew et al., 2009; Perry et al., 2012; Read et al., 2009), appeared appropriate to help structure the strategic logics underlying entrepreneurs' decisions and the observed patterns of their HRD.

Subsequently (step 2), we shifted to a more structured type of content analysis. In this phase, we exposed how entrepreneurs' HRD looks like and why they do it in that way. Therefore, we used codes referring to the dimensions of causation and effectuation to code entrepreneurs' explanations of how they develop human resources within their firms. We were thereby able to understand the strategies underlying their decisions and to acquire a greater understanding of strategic issues. We used the ten basic categories of causation and effectuation (Perry et al., 2012) (five for effectuation, for example the creative view, and five for causation, for example the predictive view) to code statements explaining how entrepreneurs decide on HRD activities. The categories are connected along each decision-making logic, but they can be observed independently. We therefore used this categorization of effectuation and causation (Dew et al., 2009), with its five dimensions, for our final coding.

In the next step (step 3), we tried to narrow our findings. We conducted additional interviews with entrepreneurs (entrepreneurs 6-15) to investigate whether our categorization explained all decision-making patterns and was thus stable when additional data were included. Including interviews with additional entrepreneurs validated our finding that the chosen categorization is appropriate for describing entrepreneurs' decision making concerning HRD within their firms. Moreover, we conducted interviews with HRD managers from established firms (HRD managers 1-6). These interviews were again coded using the categorization of causation and effectuation. The analysis of the HRD managers' interviews allowed us to compare their approaches with the entrepreneurs' approaches. We could thus confirm that the strategies that we observed were specific to the entrepreneurial context.

All individual interviews were recorded and transcribed for an analysis with ATLAS.ti. Two researchers individually coded the transcriptions. We then counted how often particular statements, referring to each dimension of each logic in all individual interviews, occurred. The inter-coder-correlation (ICC) had a sufficient value (ICC = .89 during step 2 and ICC = .81 during step 3) showing a high level of agreement (Shrout & Fleiss, 1979).

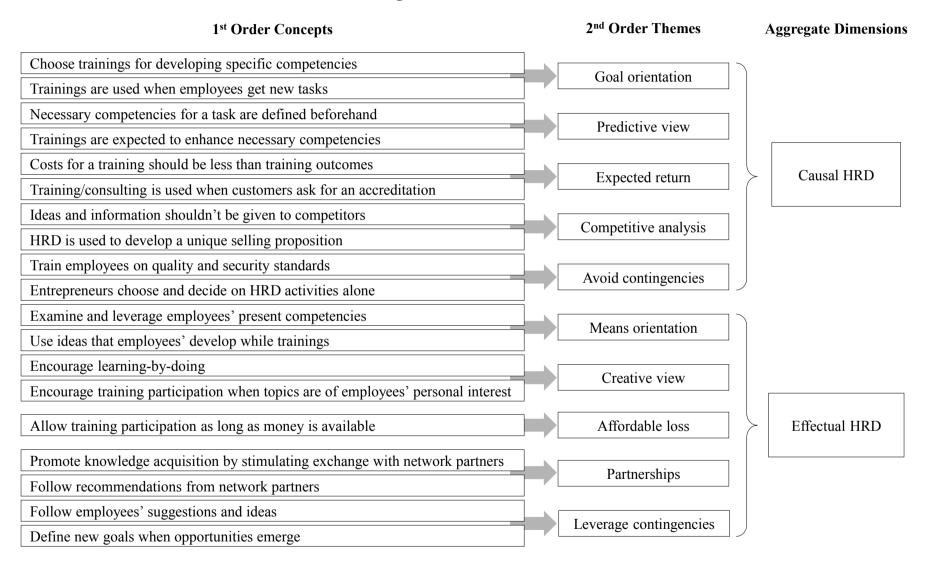
Finally (step 4), we conducted and analyzed group discussions with HRD consultants. We analyzed their argumentation about which strategic logics might result in which outcomes and the advantages and disadvantages that they perceived in applying causal vs. effectual logics. This part of the analysis helped us to understand the context dependency of the HRD process. Finally, we discussed the boundary conditions of the applicability of the observed strategic logics in light of the findings and suggestions from previous research.

2.4 FINDINGS

We started our analysis by listing the HRD activities that the entrepreneurs reported using. We also listed the objectives that entrepreneurs targeted with these HRD activities. We

attempted to understand when entrepreneurs followed which objectives and which activities they choose for which objective. However, as entrepreneurs tended to decide on HRD activities in rather informal communication processes, this type of structuring did not describe how entrepreneurs' crafted their decisions. Thus, we started to analyze the logics underlying entrepreneurs' decisions. During an iterative process of analyzing data and returning to theory, which is common in qualitative research designs (Gioia et al., 2012; Glaser & Strauss, 2009), we found that the logics underlying entrepreneurs' decisions were appropriately described by causation and effectuation (Sarasvathy, 2001). In order to describe entrepreneurs' decisions, we continued our analysis by linking the dimensions of causation and effectuation to the patterns that we observed.

Figure 2-2: Data Structure



2.4.1 Causation and Effectuation in the Individual Interviews

We analyzed the strategies underlying entrepreneurs' decisions. In the interviews with entrepreneurs, we looked for statements explaining their HRD decisions; in the interviews with new venture consultants, we looked for statements about HRD in firms, which they observed in their consulting. We linked the decision-making principles that we observed with the logics of causation and effectuation. To clarify that procedure, we included a data structure display (figure 2-2). We subsequently screened all the transcripts of the individual interviews for statements that reflected the logics of causation or effectuation. In our data, we found statements² that referred to effectual logic and statements that referred to causal logic, showing that both logics guide HRD in entrepreneurial firms. In the following narrative, we use the logics underlying causation and effectuation to structure the presentation of our observations about entrepreneurs' HRD.

Goal orientation. Although effectual logic is predominantly applied by the entrepreneurs in our sample, several founders highlight the importance of goal orientation for choosing HRD activities. Particularly for topics such as quality management and safety issues, a goal orientation is favorable because specific training is necessary, or a certification is desirable. For example, one entrepreneur states that for some topics specific training is necessary, which is chosen with a specific goal. His goal was being in line with governmental regulations. He stated:

The pharmacy industry is heavily regulated, so employees need to be trained on the norms and standards of the government.

-

² The interviews were conducted in German. All quotations from interview partners are translated by the authors of this paper.

Many other examples indicate that entrepreneurs have certain goals in mind while they decide on HRD activities: When entrepreneurs seek the advice of business consultants, they want them to purposefully develop employees' competencies to solve a specific problem. Moreover, introducing newly hired employees to structured incorporation reflects a goal orientation. Other statements indicate that entrepreneurs send an employee to be trained with the goal of having him distribute the new knowledge throughout the firm. In addition, some entrepreneurs report that the need for training is evaluated in employee appraisals, which indicates that they try to choose trainings with the goal to fill an identified competency gap. Even when no regular meetings are implemented, many entrepreneurs decide on employees' training participation based on specific needs that they have identified. These findings indicate that HRD activities, for example trainings, are only agreed to when they fit with the entrepreneurs' plans. Thus, we find that several entrepreneurs define goals for training participation.

The predictive view on the future. Several statements from our interviewees reveal a predictive logic for HRD. For example, one entrepreneur explains that he only allows his employees to visit a fair when he is sure that they will learn a lot. We find a similar logic when entrepreneurs send their employees for training or to conferences because they think that their employees will thereby learn something about new technologies or fill a competency gap. These statements reflect a predictive logic because decisions are made on the basis of the prediction that these HRD activities will enhance specific knowledge, skills, or abilities that, in turn, are expected to contribute to firm performance. Entrepreneurs thus identify the necessity or requirement of employee training and then offer the employee a training opportunity.

Expected return. Some statements indicate that entrepreneurs decide on HRD activities on the basis of some type of expected return calculation. When they invest in training to obtain a certification or a qualification for an employee, they expect that this investment will enhance

sales to an extent that exceeds the training costs. Similarly, when training is driven by customer demands or is focused on profitable activities, decisions are based on expected return calculations. A similar logic underlies the statement of a founder, who explains that most HRD actions are only useful for one person in the firm because the firm needs only one expert per topic. Consequently, he sets restrictions according to firm-level benefits. However, an expected return calculation would imply that benefits are measured afterwards, and a structured evaluation of HRD actions does not take place in any of the observed firms. A new venture consultant mentions that high training costs are an obstacle for HRD in young firms. When an expected return calculation is applied, these costs are particularly problematic because training outcomes are difficult to measure and it is difficult to link progress with a training. Thus, we observe that an expected return calculation is applied, but also that it opposes HRD activities.

Competitive analysis. We do not find many statements that would indicate that entrepreneurs compete with outsiders for knowledge acquisition. Only one new venture consultant emphasizes the importance of a unique selling proposition and warns against overly close collaborations. The entrepreneurs sporadically mention competition in some statements, for example, when an interaction with competitors is labeled as a gray zone between collaboration and idea theft. Overall, entrepreneurs seem to rather cooperate with outsiders to accumulate knowledge, skills, and abilities than to compete about competencies.

Avoid contingency. As already mentioned, some entrepreneurs use goals and predictions when choosing HRD activities. In this approach, contingencies are obstacles that should be avoided. This kind of decision making appears meaningful for topics such as occupational safety and quality management. For these topics, entrepreneurs try to avoid contingencies by using plans that define the training that employees need to complete. Such trainings are used to ensure that employees are aware of legal requirements or processes that ensure quality

standards. Additionally, a few entrepreneurs report that they limit employees' suggestions, as they want to decide what is appropriate for them, which helps them avoid contingencies.

Table 2-4 summarizes statements of interviewees, which reflect causal logic, as explained.

Table 2-4: Statements Referring to Causation

Ent. 2	Visiting a fair is senseless if we don't stay in contact with potential customers.			
Ent. 12	There is an ongoing necessity that employees join conferences which are, for example, around new java developments or such things.			
Ent. 3	We send someone on a training and afterwards this employee is a multiplier e.g. is responsible to distribute all new information in our firm.			
Ent. 13	When I have plans for an employee and his suggestion of a training doesn't fit my plans, then I am not convinced by the effectiveness of the training.			
Ent. 11	We provide training when we use a new technology. Mostly, these are conducted by the software supplier and mostly in form of any webinar.			
NVC 2	Support for an employee could be that they send him to a training, a congress or anything else what they think helps him progress in this topic.			
NVC 3	When employees need to be qualified for a new task, they search for a specific training.			
Ent. 8	Whether an employee can go to a training, depends on what he wants. The firm needs to profit from it. There needs to be a value for us.			
Ent. 5	We invested in this consulting because we wanted the quality accreditation. We did this voluntarily [] because we recognized the necessity that we need more structure ourselves.			
Ent. 14	These courses were driven by customer demands. For example in the area of quality management, we have sent out test teams on a training so that they achieved a certificate which is internationally acknowledged.			
Ent. 13	If someone wants to do a training, then the benefit behind it needs to be calculated. An English course for 10,000 Euro and he speaks a little better English afterwards, is nonsense in my opinion. We do not do any investment that the market didn't request.			
NVC 2	It's important that they focus on networks that are profitable for them.			
Ent. 3	It's a narrow ride between positive exchange and handing over information that is relevant for our success.			
NVC 2	They need to generate a unique selling position.			
NVC 1	In life science research quality problems can be a show stopper, therefore they need to train employees on the common standards.			
Ent. 4	To ensure occupational safety it is necessary that the employees join safety trainings regularly.			
Ent. 4	Our employees can make suggestions but in the end the manager has to decide what is appropriate.			
	Ent. 12 Ent. 3 Ent. 13 Ent. 11 NVC 2 NVC 3 Ent. 8 Ent. 5 Ent. 14 Ent. 13 NVC 2 Ent. 3 NVC 2 Ent. 3 NVC 1 Ent. 4			

Abbreviations: Ent.: Entrepreneur; NVC: New Venture Consultant

Although we find that entrepreneurs rely on a causal logic for some decisions, effectuation is predominantly applied for their HRD.

Means orientation. We observe that entrepreneurs view their employees' competencies, their interests, and network partners as a means for HRD activities. Network partners represent a means when employees can learn from their knowledge or experience. In addition, network exchanges are not only used to accumulate knowledge; training recommendations from partners are also seen as a means because these recommendations increase the probability that efficient HRD activities are chosen. We also find a means orientation when entrepreneurs report that their employees teach their colleagues and support them in their learning processes. Several entrepreneurs state that they exploit the competencies of single employees to develop human resources of the entire firm. For example, one entrepreneur, operating in the pharmaceutical industry, states the following:

Of course we use the experience of our employees; we try to facilitate internal training so that they are prepared for what they need to do.

In addition to existing competencies, entrepreneurs leverage employees' interests as means of their firm. For example, a new venture consultant states the following:

[In new ventures,] almost everybody can have a personal development in a direction that fits his competencies. Irrespective of whether he is an intern or a developer, when someone spends time on an issue, becomes very familiar with a topic, and assumes the responsibility, he will become the contact and responsible person for this topic.

Consequently, entrepreneurs view competencies and interests in learning new things as important means for HRD.

The creative view on the future. We observe that entrepreneurs choose training activities for their employees primarily based on their employees' personal interests. For example, an entrepreneur says that employees explore what they find interesting, and then he lets them pursue these interests. This idea corresponds with Sarasvathy's (2001) argument that, when

effectuation is applied, a firm's future is created by the ideas of the individuals involved. With entrepreneurs' approval and encouragement, employees search independently for creative solutions to their problems and accumulate knowledge in the process. In this context, we find that many interviewees mention that learning-by-doing and trial-and-error learning takes place. The entrepreneurs emphasize that new possibilities for the firm evolve because of non-structured development opportunities. A new venture consultant, explaining that structures for employees' learning initially damage innovation, supports this creative view of learning opportunities. This creative approach implies that the scope for employees' development in entrepreneurial firms is open to a great extent. Employees are mostly responsible for their acquisition of the necessary knowledge, skills, and abilities and thus have considerable influence on their career paths.

Affordable loss. We observe that most entrepreneurs choose interest-guided training. In this case, they do not limit employees' opportunities because of financial issues or training time. Some statements indicate that entrepreneurs try to make training possible whenever an employee shows an interest in it. They mostly trust their employees' assessment of whether a particular training opportunity is appropriate. These statements reflect the affordable loss principle.

Partnerships. For HRD, exchanges with partners and even with competitors are seen as learning opportunities and chances to profit from others' experience. Entrepreneurs facilitate exchanges with universities, institutes, and other start-up communities. Communication thereby follows topics that are not pre-defined. Entrepreneurs suggest that their employees talk to peers who are handling similar problems. This camaraderie acts as a meaningful resource for the acquisition of competencies through informal learning. Furthermore, entrepreneurs prefer that network partners conduct their firm's training. Entrepreneurs prefer to know the trainer who

conducts training for their employees. This again highlights the importance that entrepreneurs attach to partnerships.

Leverage contingency. Several interviewees suggest that leveraging contingencies provides many advantages for HRD in entrepreneurial firms. The interviewees explain that exploiting unexpected opportunities enhances their possibilities and that creativity and flexibility are very important for the development of human resources within their firm. Entrepreneurs often follow training offers, which they randomly hear about in their networks, in blogs or forums, or, for example, when a trainer or coach who fits their requirements contacts them. After training or coaching, entrepreneurs ask themselves or their employees how the firm can profit from the new knowledge, the new idea or the new partner that they have met. Irrespective of what the purpose of the training was, entrepreneurs try to leverage all the acquired competencies and new contacts.

Table 2-5 summarizes our interviewees' statements, which reflect effectual logic, as explained above.

Table 2-5: Statements Referring to Effectuation

Creative View	Ent. 2	We take a look at what's interesting and then we just do it.
	Ent. 2	They are learning by doing and the rest evolves by itself.
	NVC 4	Structures initially damage innovation.
	Ent. 3	Basically everybody can develop himself in a direction that suits him.
	Ent. 15	We don't use evaluation as these would cause pressure on our employees. We don't want that. We want an open end, these courses are for everyone who wants to go.
	Ent. 12	We are on the very front in our technology. Thus, there are no classic trainings or courses that we can use. Our employees need to apply new technologies and play and experiment a little and look for necessary information, mainly in the internet, on their own.
	Ent. 3	We don't have a plan for seminaries and workshops, everybody is invited to look for something for himself.
Means Orientation	Ent. 11	[Sometimes] there is a problem and I recognize employee A has the problem, and perhaps also employee B. Then C, the only one who knows something about the topic, talks about it to transfer his knowledge.
	Ent. 5	We try to establish a reflection after a workshop, so that they reflect which things they should take care of.

	Ent. 1	We are very interdisciplinary, hence we can internally learn from each other about different research fields.
	Ent. 8	One time we met on the weekend and someone prepared a presentation on a topic, like a small workshop.
	NVC 4	[The employee] said she wants to do that and then they consider what they can do with this advantage that someone in their firm wants to learn that.
Affordable Loss	Ent. 1	If an employee thinks that he needs a training we try to make it possible.
	Ent. 3	When employees want to join a training, of course this needs to be agreed by us, but then he can go if it fits our timetable and is not exorbitantly expensive. We have a culture of trust. We assume that they do not want to hear anything about nonsense.
	Ent. 4	If something makes any sense the only question is if it fits in our budget.
Partnerships	Ent. 14	If someone has a problem in the laboratory he will ask his colleagues, if he doesn't get a solution he will ask my manager colleague and then he will ask in the surrounding network.
	NVC 1	At network meetings they talk about actually everything.
	Ent. 8	We often talk to other people. Mostly, those are not firms, but individuals. Like mentors. Those are any entrepreneurs from other ventures or their employees. We do have some exchange with these people.
	Ent. 7	We wondered whether we should send our sales man to a course on networking. Normally, we then start to talk about that in our entrepreneurship network of the university. [] What we did is that we came together with other start-ups and talked about different topics like online marketing, legal requirements etc.
	Ent. 13	There is so much nonsense on the market. But we do sales training now with someone I know from Switzerland who I think is a true expert. I learned from him myself and that makes sense since we really need more professional distribution.
	Ent. 4	We can learn from each other when we know each other. Even an exchange with firms who have competitive projects is supported.
Leverage	Ent. 1	We didn't find the coach, the coach found us.
Contingency	Ent. 10	There are a lot of possibilities for exchange. We could visit a start-up event every evening. We do that to a limited extent. We do not have any strategy or tactic. We do it when we have the time for it.
	Ent. 3	When I hear that somewhere is an interesting speech I will tell my colleagues and then perhaps someone will go.
	Ent. 6	Employees get a short introduction and then learning-by-doing, stepwise, with growing tasks and task areas, thereby they learn new things.
	Ent. 2	We are registered at blogs and forums and then information about workshops and conferences fly in.

Abbreviations: Ent.: Entrepreneur; NVC: New Venture Consultant

We not only analyzed characteristic patterns of entrepreneurs' decision making; we also attempted to determine which logics were predominantly applied. Therefore, we counted the number of statements from all the individual interviews that reflected effectuation vs. causation logics. In this analysis, we separated firms in an early development phase from firms in the growth phase. We find that effectuation is applied more often than causation in entrepreneurial

firms in the early development phase (firm's age \leq 6 years). In firms that are already in the growth phase (firm's age > 10 years), causation is applied more often than effectuation. This finding could indicate a shift from an emphasis on effectuation to causal logic during a firm's development process. Analyzing statements from new venture consultants, we see that they observe that entrepreneurs use more effectual logic than causal logic for developing human resources

In addition to observing how entrepreneurs frame their HRD decisions, we wanted to understand which observations were specific to the entrepreneurial context. Therefore, we compared the strategic logics underlying entrepreneurs' statements with the statements of HRD managers from established firms who described the HRD processes in their firms. These HRD managers revealed a strong focus on causal decision-making logic. Table 2-6 shows the categories that we found in the individual interviews, ranked by frequency of occurrence. Table 2-7 indicates which expert group focused on which strategy, showing the percentage of statements that refer to each strategy in each expert group.

Table 2-6: Comparing Statements of Interviewees with Different Points of View

Dimensions of Effectuation and Causation Ranked by Frequency of Occurrence

Early Development St (n = 10)	Growth Stage New Venture Consulta (n = 5) (n = 4)		ants HRD Professionals (n = 6)		I		
Creative view	77	Goal orientation	71	Goal orientation	59	Goal orientation	79
Goal orientation	75	Creative view	36	Creative view	48	Predictive view	49
Means orientation	74	Means orientation	36	Means orientation	37	Avoid contingency	31
Partnerships	41	Expected return	31	Partnerships	30	Competition	20
Leverage contingency	31	Predictive view	27	Avoid contingency	19	Means orientation	18
Expected return	31	Avoid contingency	26	Predictive view	12	Expected return	18
Predictive view	30	Partnerships	23	Expected return	11	Partnerships	10
Competition	25	Affordable loss	10	Leverage contingency	11	Affordable loss	8
Avoid contingency	21	Leverage contingency	8	Affordable loss	7	Creative view	5
Affordable loss	14	Competition	7	Competition	3	Leverage contingency	1

Note: We counted the interviewees' statements that reflect the strategic logics of effectuation and causation. Then, we aggregated the numbers of statements in each group of interviewees. Dimensions are ranked by frequency of occurrence for each group.

Abbreviation: HRD: Human Resources Development

Table 2-7: Effectuation and Causation in the Individual Interviews

	Early Development Stage (n = 10)	Growth Stage (n = 5)	New Venture Consultants (n = 4)	HRD Professionals (n = 6)
	Strategic logics applied resources in the inte entrepreneur	rview partner's	Strategic logics the interview partner observes in entrepreneurial firms	Strategic logics applied to develop human resources in the interview partner's established firm
Causation	43.44 %	58.91 %	43.88 %	82.43 %
Effectuation	56.56 % 41.09 %		56.12 %	17.57 %
	Emphasis on effectuation in earlier and on causation in later phases of the development process		Emphasis on effectuation by new venture consultants	Strong emphasis on causation in established firms

Note: We counted the interviewees' statements that reflect the strategic logics of effectuation and causation. Then, we aggregated the numbers of statements in each group of interviewees. Percentages indicate how often effectuation vs. causation were identified in each group.

Abbreviation: HRD: Human Resources Development

2.4.2 The Human Resources Development Process in Entrepreneurial Firms

Thus far, we have described the logics underlying entrepreneurs' decision making for HRD in their firms. These findings inform a process model for entrepreneurial HRD. Combining the logics that we observed allows us to draw characteristic process lines. The process contains causal and effectual decision-making logics. The process lines are used simultaneously, not exclusively. Contingent on training content, employees' traits, their tasks' characteristics and internal firm dynamics, the causal or the effectual process line is focused.

Entrepreneurs' HRD relying on causation. One part of the HRD process that we observe is linear and causal and resembles previous HRD research. In this part of the process, entrepreneurs formulate goals for HRD activities. These goals are derived from business objectives and are used to assess the competencies that employees need. Entrepreneurs thereby ensure that the developed HRD strategy, which focuses these necessary competencies, complements the business strategy. Entrepreneurs thus predict which competencies are necessary to achieve business goals. When target competencies are defined, the employees' existing competencies are evaluated. Entrepreneurs thereby identify the competencies that are missing of those previously defined as necessary. After identifying the competencies that need to be enhanced, the firm formulates a strategy regarding how to select and perform HRD activities that can fill the gap in necessary competencies. HRD activities are chosen using the expected return principle. Employees participate in, for example, training, workshops or coaching, if the benefits are expected to outweigh the costs and if the newly acquired competencies are expected to solve the observed deficit. In addition to external HRD activities, such as training, workshops and conferences, some entrepreneurs implement internal HRD activities in a causal and predictive manner. They plan internal presentations by individual employees or ensure that an employee who is an expert in a specific topic teaches her colleagues. An evaluation of whether targeted learning outcomes have been reached is conducted during the workflow. Entrepreneurs observe while working together whether their employees have learned what they expected them to learn. This evaluation during the workflow is possible due to the usually short communication channels and close contact between the entrepreneur and her employees.

Entrepreneurs' HRD relying on effectuation. Our interview partners propose that overly strict structures can harm creative and innovative solutions. Employees need a broad scope for development when they are expected to generate their own ideas. We observe patterns in the HRD process in entrepreneurial firms that refer to the effectuation process, as it is described by Read and Sarasvathy (2005). This part of the process starts with a reflection about the means that a firm has at hand. Employees' existing competencies, including their knowledge, skills, and abilities, are used as the means for internal HRD. All learning opportunities that occur are leveraged. Employees can join training when they are interested in a topic, even when entrepreneurs do not yet know how or even whether employees will use that knowledge. Some entrepreneurs report that they try to make the most out of HRD activities by encouraging employees to discuss the main things that they learned in training. In this way, the firm tries to disseminate the information learned across the entire workforce. Additionally, entrepreneurs encourage the intensive use of exchanges with (external) partners to learn from them. Entrepreneurs also report that their employees recommend their network partners to colleagues within the firm. In addition to learning outcomes, informal communication in the network and within a firm can support employees' career development opportunities at a reasonable price. Besides learning from partners, facilitating learning-by-doing and trial-and-error learning appears characteristic of an effectual approach to HRD. Thus, when choosing training, entrepreneurs consider recommendations from their networks, their personal interests, their employees' interests, and/or their fascination with a topic. Training is chosen on the basis of the affordable loss principle. Employees are allowed to participate in training when it does not

threaten the firm's survival. The key to this effectual HRD process occurs after the HRD activity. Entrepreneurs try to leverage all new ideas, competencies, and possibilities that an HRD activity has produced. Entrepreneurs reflect on what they can do with new knowledge, skills, abilities or partners that their employees have acquired through training, workshops or other HRD activities. Entrepreneurs view these gains as new means for further competency development and as basis for further business development. Within this process, some entrepreneurs pay attention to acquired competencies and their exploitation; others pay more attention to the generation of additional competencies. In both cases, the firm's core competencies, which are primarily human resources in entrepreneurial high-tech firms, as several interviewees confirm, can be leveraged.

Integrating the observed patterns of causal and effectual HRD leads to a process that reflects both, causal and effectual, strategic logics. Figure 2-3 depicts a process that contains the logics that we observed in entrepreneurial high-tech firms' HRD. In sketching this process, we integrated previous theories that describe what we observed: causal HRD (Swanson & Holton, 2008) and effectual decision-making logic (Read & Sarasvathy, 2005).

Requirements/decision Causal approach Effectual approach **Actual means** Goal definition Available competencies Business strategy determines Learning opportunities necessary competencies of employees Interest/fascination of employees Offered or recommended training Predictive view Experts in one's network for exchange Avoid contingency , Affordable loss **Strategy definition** What can I do? Analyze actual vs. target competencies Take part in personally offered, and choose HRD activities New means recommended, or 'just interesting' training Expected return Support colleagues, learning-by-doing **Strategy operation** Communication in networks Perform chosen HRD activities (e.g. Creative view training, coaching, mentoring, ...) Leverage contingency Reflection What did I learn? Which new ideas do **Evaluation** I have? Whom did I meet? Change in employees' behavior? → What can I do with this new Are target competencies enhanced? knowledge, ability, idea, or partner? New business goals Additional competencies (Employees' co-creation)

Figure 2-3: Entrepreneurs' Human Resources Development

2.4.3 Discussing Our Findings with Human Resources Development Consultants

To understand whether the entrepreneurs' strategies that reflect effectuation might stem from their inexperience in HRD topics or whether their approach is particularly appropriate in their situation, we discussed our findings with seven HRD consultants in two focus groups. These group discussions provided several insights into the consequences of the entrepreneurs' decisions. We discussed the advantages and disadvantages of their approaches. The HRD consultants in the first focus group suggested that choosing HRD activities without goals could not be called HRD. They recommended a concrete structure, strictly defined responsibilities, and extensive planning for HRD. This view is in line with the strategic HRM literature (Chen & Klimoski, 2007; Lengnick-Hall et al., 2009) and the conventional HRD literature (Alvarez,

Salas, & Garofano, 2004). However, as we observe circumstances in entrepreneurial firms in which the conventional process is very difficult to implement, the HRD consultants' recommendations might be not appropriate in entrepreneurial firms.

The HRD consultants in the second focus group were familiar with both fields of interest (HRD and entrepreneurship). We started the second discussion by asking the group of HRD consultants about how they developed human resources in their own firm. Their statements indicated a preponderance of effectual decision making in their HRD. Most answers matched the effectual logic, while only few resembled causation. It becomes apparent that their courses of action reflect effectual decision making, while their advice reflects causal logic. These HRD consultants chose training because of their fascination with a topic, cooperated with competitors, and learned from their network partners or informally defined mentors. They mentioned that many contingencies influenced their career paths. Their goals evolved when new challenges were accepted. They underline the importance of both decision-making logics in the early development stages.

After we presented the observed effectual HRD process, the HRD consultants discussed their expectations and the advantages of effectuation for HRD in entrepreneurial firms. The HRD consultants expected effectuation to be an instrumental approach for increasing flexibility, motivation, and innovativeness. These findings provide support for the hypothesis that entrepreneurs do not follow effectual logic because of their underdeveloped expertise in HRD topics; they rather use it as a strategically valuable option. The HRD consultants still suggest embedding the effectual HRD process in a structured process of organizational development. They recommend clearly defining overall organizational goals because an open, creative, and flexible HRD process is only sustainably efficient if it is embedded in the surrounding structures.

The discussion with HRD consultants highlights another aspect. They reiterate that the HRD strategy needs to be aligned with the business strategy. Thus, when entrepreneurs follow effectual decision-making logics when framing the business strategy (Sarasvathy, 2001) and need an aligned HRD strategy (Torraco & Swanson, 1995; Yi & Hai, 2011), an HRD strategy based on effectual logic seems suitable.

2.5 DISCUSSION

This paper investigated the strategic decision-making logics that entrepreneurs apply for developing human resources in their firm. Our findings expand previous knowledge on HRD in several ways. First, our study informs HRM researchers by showing that causation might be important for describing HRD processes in larger, established firms, but it alone does not suffice when researching HRD in entrepreneurial firms. Moreover, because we still find effectual logic in somewhat older, more mature entrepreneurial firms, it might be possible that effectual logic still covers some HRD domains, even in large established firms. Thus, we show that neither effectual nor causal logics alone determine how entrepreneurial firms design their HRD processes. Entrepreneurs use a combination of both logics in defining the processes and procedures in their emerging HRD. However, our findings indicate that even though both logics are applied, effectuation is likely to dominate causation in entrepreneurial firms, particularly in the early stages of venture development, which points to some interesting future research endeavors in the arena of HRM, specifically HRD.

Second, our analysis provides insights that contribute to the entrepreneurship literature, as we describe an HRD process that can be observed in entrepreneurial high-tech firms and thus open the black box on how entrepreneurs actually pursue HRD within their firms. The observed process includes two different, side-by-side strategic logics; we link these logics to the dimensions of effectuation and causation, which previous research suggested was appropriate

in the entrepreneurial context. We contribute to this research because we suggest that effectuation also explains HRD processes.

Our findings also suggest that effectuation and causation both provide unique advantages and risks. Causation provides advantages when facilitating HRD activities with specific goals that are rather stable. Effectuation will instead support flexibility, innovativeness, and motivation and thus may be a vehicle for enhancing dynamic capabilities. In the following, we discuss these findings in light of previous research. We discuss contingencies that will strengthen the causal vs. effectual part of the HRD process.

2.5.1 The Balance between Causal and Effectual Human Resources Development

Our observations suggest that both decision-making logics, causal and effectual, can positively influence HRD outcomes. However, some statements of our interviewees also suggest that the positive impact of both logics reverses at a specific point, i.e., when it is over-pronounced. Prior research has shown that entrepreneurs who only use effectual processes tend to put too much trust in their view of the future (Goel & Karri, 2006; Karri & Goel, 2008). A concentration on effectuation will result in high innovativeness and motivation, but its positive impact will be offset by a negative effect on structure and quality if no causal process is implemented. Thus, a balance between effectuation and causation might be the most efficient way to develop appropriate human resources. For example, one new venture consultant supports this argument as follows:

The question of innovative capacity is of course a little bit difficult because the question already implies the wrong answer. [Founders ask] which structures they should implement to maintain their capacity for innovation, but of course every structure devours innovation. However, I still know firms that implemented an innovation process. It's an open, but structured, process that enhances innovations.

This finding provides support for the suggestion in previous research that formality and informality do not exclude each other but can exist concurrently (Marlow et al., 2010).

2.5.2 Expected Contingencies Shaping the Emphasis on Causation versus Effectuation

If it is true that HRD processes, using causation vs. effectuation, serve different purposes, their efficiency might depend on several contingencies, such as that of many HRM practices (Bamberger, Bacharach, & Dyer, 1989). The findings of our study suggest that HRD approaches using causal vs. effectual logics influence entrepreneurs' employees differently, with varying training content, employees' traits, their tasks' characteristics, and internal firm dynamics.

Training Content

Causation targets specific knowledge, skills, and abilities that are necessary to perform a particular task (Tannenbaum & Yukl, 1992). Suitable HRD activities are chosen using causal logic when entrepreneurs consider the necessity of specific knowledge, skills, or abilities. For example, a new venture consultant described how consulting is used in his customers' firms:

In the biotech industry, the founders learn a lot about quality management from consultants. They need consulting because if they make mistakes at start, they lose many millions if their product is rejected by the admission board. They are taking a high risk, and, therefore, even the investors care about their knowledge about quality standards, [...] but we also supervise founders from other industries who have fewer legal requirements. They don't have such strict quality management, but they also reach a point where they need products with a reliable quality.

This and similar statements indicate that a causal-driven HRD process is predominantly applied when product quality, occupational safety, and customer orientation are the focus. Securing a high level of product quality requires a minimization of fluctuations in the production process, in which employees carefully handle the produced goods. Causation appears conducive when teaching employees to adhere to specific predefined rules in an efficient manner. A similar rationale applies when maintaining security standards. In most high-tech industries, ventures need to ensure occupational safety processes, meet legal requirements, and clearly define organizational routines. The necessary knowledge, skills, and abilities need

to be narrowly defined to design appropriate development programs, which keep the security at the required level. Furthermore, causation may be particularly meaningful when establishing customer orientation. Customer orientation mostly correlates with being a reliable partner; therefore, choosing training based on goal orientation and predictive logic seems suitable for this domain.

In contrast, we find that entrepreneurs apply effectual logic when they want to encourage employees to suggest training and to take responsibility for their own knowledge acquisition. Applying effectual logic for HRD decisions here focuses on stimulating employees' motivation, their opportunity recognition, and their creative thinking. Creative thinking is emphasized by several interviewees to be particularly important in the growth process. For example, one founder of a young venture explains its importance as follows:

It is a challenge in a firm like ours that we always have more ideas than financial resources to realize those ideas. On the other hand, ideas are always part of an innovative culture, and we need to rely on these. The firm finally grows through its innovative strength, and it is the challenge of all leaders to find a balance between allowing the employees to generate ideas and sometimes to just think 'outside the box', but simultaneously call for the discipline to keep track of the budget that we only have as long as we meet the prospective criteria.

Effectuation appears to be more appropriate to enhancing knowledge, skills, and abilities that are necessary for creating these creative and innovative structures.

Characteristics of Employees and their Tasks

Our interview partners highlight that, when deciding on HRD, employees' personalities need to be considered. Due to self-selection processes, employees in entrepreneurial firms are more likely to have high levels of personal initiative (Frese, Fay, Hilburger, Leng, & Tag, 1997). Our interview partners expect their employees want to take the responsibility for their own personal development. Additionally, high levels of involvement of employees is likely in young firms (Ciavarella, 2003). Several entrepreneurs report that employees in their firms have

the agency to develop organizational routines and processes. As a result, most employees in young or small firms have different needs for HRD activities than do employees in established firms. To address these needs, employees get a broad area of tasks and responsibilities and acquire the competencies that they need by self-imposed information screening, network exchanges, and learning-by-doing. They thereby have many opportunities for their personal development. For example, one new venture consultant explains as follows:

If there is an employee who is very engaged and claims numerous things and topics in a small young firm, then he has opportunities to climb up and to assume more responsibilities in flat hierarchies [...] ultimately, he can become a partner alongside the founders.

Employees with high personal initiative might need fewer guidelines and will thus benefit from effectual processes, whereas causation might limit their ideas. Several entrepreneurs report that their employees are interested in learning new things and that they expect them to know what they need to learn. Thus, effectual HRD appears to meet the needs of entrepreneurial firms and their employees' preferences. Younger firms can thereby exhibit learning advantages, which occur when they are more flexible and do not have to learn old routines (Autio, Sapienza, & Almeida, 2000). In addition, our interviewees suggest that effectual logic is more useful for employees whose tasks require high cognitive abilities, flexibility, and innovativeness. A more cooperative and effectuation-based approach in HRD assists in shaping roles in a consistent and accepted manner. By integrating employees' perspectives when creating internal structures, the processes will fit the employees' competencies and communication styles. One founder, for example, explains the development opportunities for employees who communicate their wishes as follows:

[They have possibilities,] for example, in the form of new fields of activity or perhaps an adaption of the work structure when they communicate their wishes. This, of course, can be advanced training; then we think about it.

On the other hand, some entrepreneurs indicate that causal processes appear more instrumental in developing necessary competencies for employees with a clearly defined and specific area of responsibility. For their tasks, necessary competencies are obvious and can be specifically enhanced.

Internal Firm Dynamics

Our interviewees frequently indicated that the balance between effectuation and causation, which entrepreneurs find appropriate for their firms, depends on the dynamism of internal firm structures. In new organizations, employees' roles and tasks still have to be defined or have to be newly created. We observe that, especially in the early dynamic phases, new ventures profit from effectual logic for HRD. For example, a new venture consultant explains as follows:

Small firms are innovative because they also have flat leadership hierarchies, and then they are more flexible; they can implement and try new things, and when these things don't work, they can also reverse things very quickly. That's not so easily done in larger firms.

In contrast, larger, more established firms are confronted with rather fixed internal structures and with predefined processes. For example, one founder of a firm with approximately 100 employees at the time of the interview describes a shift from effectuation to causation during his firm's growth process:

I think when you have approximately 20 employees, you need to clearly formulate things and structure everything. Below 20, you can sit together, communicate, and transport a lot on an informal way. We arranged these structures and instruments when we reached 20 employees. Then, we began with using consulting and, well, implemented structures.

This and similar statements indicate that causation logics appear to be more instrumental for HRD when the firm becomes larger and older. Prior research provides support for this notion, showing that smaller firms can more easily apply effectual logic because of their lesser need for structure (Kotey & Slade, 2005; Read & Sarasvathy, 2005). We observe that this logic

shift is also true for HRD processes in entrepreneurial firms. Effectuation provides the opportunity to more easily re-adapt structures and processes if they turn out to be suboptimal.

When a young high-tech firm is growing, the structures within the firm need to be continuously adapted (Ciavarella, 2003). Our interview partners report that strict structures harm flexibility, which is necessary to develop processes that fit the firm's current requirements. One founder, for example, describes the difficulties related to a changing process in their internal structures:

We implemented hierarchies in between. These were functional hierarchies. However, of course the strategic decisions remain with me. And of course the more the people disconnect, the more difficult it is to integrate them [...] and, then, with no alternative, I defined an overall firm goal, and the whole organization and all structures are secondary.

Furthermore, within young organizations, employees' social interactions with individuals inside and outside the organization are not yet established and stable. One founder, for example, explains that his firm could not profit from leadership consulting until the consultant personally knew the employees in the firm:

We did these seminars, leadership seminars, and we worked together with the same consultants for several years, which brought the advantage that they then already knew the employees and could help us with evaluations and could develop them.

Previous research provides support for this finding. To remain efficient, the processes implemented in entrepreneurial firms need to fit the dynamics within the firm and thus the growth stage of the firm (Fisher, 2012).

2.6 LIMITATIONS AND IMPLICATIONS

Our research underscores the need to examine HRD in entrepreneurial firms, offers a rich agenda for future studies, and provides implications for practitioners. In the following, we will outline limitations of our study, implications for future research, and the implications for practitioners.

2.6.1 Limitations and Implications for Future Research

Our research was motivated by our desire to expand theory rather than testing it. Future studies may test the generalizability of our findings or consider quantitatively investigating the contingencies and outcomes of applying causation vs. effectuation for HRD. These contingencies may be nested on the institutional level (for example industry sector, occupational structure, or industrial relations (Smith & Hayton, 1999)), the organizational level (for example strategy, team composition, available resources, or leadership styles (Messersmith & Guthrie, 2010; West, 2007)), or the individual level covering the entrepreneur's individual characteristics (for example founders' HRM experience (Fox, 2013; Tocher & Rutherford, 2009) or training motivations (Alvarez et al., 2004)), or employees' educational levels (Becker & Huselid, 2006). These factors might be the subject of future observations.

Moreover, sharpening our understanding of the antecedents and additional outcomes, besides knowledge, skills, and abilities (for example motivation), of HRD strategies seems worthwhile. While our interviews provide preliminary indications that internal firm structures and employees' characteristics influence whether entrepreneurs use effectuation or causation when framing their decisions, future research could aim to observe additional factors influencing the strategic decision-making process and its relation to new venture success. Moreover, a longitudinal observation of different outcomes for the different decision-making logics is necessary to understand which logics influence which type of outcomes (for example human capital, motivation, turnover, behavior (Jiang et al., 2012; Tharenou et al., 2007).

Furthermore, in our interviews, HRD consultants propose that the HRD process in entrepreneurial firms should be implemented in the organizational development process. Structures, principles, and organizational cultures evolve slowly. To avoid a misalignment of these processes, regular communication about and reflection on these processes is necessary. Leadership principles and rules for social behavior enrich the work environment if they make

sense to all employees. If that is the case, the empowerment that effectual HRD allows for might facilitate self-development, which is particularly necessary in changing environments (London & Smither, 1999). Future research could provide an understanding of the connection between HRD, leadership, and organizational development in entrepreneurial firms.

Although our data reveal some characteristics of HRD in entrepreneurial firms, there are some limitations in our study. While we carefully selected representative ventures from different evolution stages in the high-tech sector, including multiple industries, we cannot guarantee that our findings are not biased due to the finite number of observations. In order to evaluate the reliability and generalizability of our findings, future research should aim to observe HRD in a broader range of entrepreneurial firms and in firms from more industries.

2.6.2 Implications for Practitioners

Entrepreneurs' HRD might be successful when they apply causal or effectual logic. However, finding a balance between effectuation and causation appears to be the most efficient approach for their HRD. The HRD process that we described in this study can guide entrepreneurs who seek for opportunities to enhance HRD outcomes in their firms. Establishing both parts of the process, one relying on causal logic and one on effectual logic, will enhance process outcomes. Periodic reflections on intended and unintended processes that evolve are crucial because human capital requirements change as a firm grows.

The effectuation process is an open and creative HRD process. Using effectual logic, flexibility and support for new ideas can enhance a firm's innovativeness. Throughout this HRD process, the use of networks should be emphasized to enhance a firm's opportunities. The intercommunication after HRD actions is key in this process as it helps to identify new opportunities and means that have emerged through HRD activities. The causation process is goal-orientated and developed along particularly defined structures. Entrepreneurs should

implement this process for domains that are stable and/or little dynamic. However, when deciding on HRD activities, entrepreneurs should be careful with causal recommendations and consider their intuitive effectual approaches as equal to them.

CHAPTER 3 EFFECTUATION, ENTREPRENEURS' LEADERSHIP BEHAVIOR, AND EMPLOYEE OUTCOMES: A CONCEPTUAL MODEL³

Abstract

This study develops a conceptual framework for explaining how effectual and causal logics influence entrepreneurs' leadership behaviors and how these, in turn, impact employee individual-level outcomes (commitment, extrinsic and intrinsic motivation, and creativity) and performance outcomes (employee work performance and firm performance). We propose that employees' commitment and motivation develop via distinct paths when entrepreneurs apply causal or effectual logics. We furthermore theorize that employees' creativity is facilitated by effectuation, but hindered by causation. These differences might explain firm internal consequences of applying effectuation as a decision logic.

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³ Chapter three is co-authored by Prof. Dr. Matthias Baum. A similar version of this chapter is in press at the International Journal of Entrepreneurial Venturing.

3.1 INTRODUCTION

Entrepreneurs use different strategic logics – causal and effectual logics – to navigate their enterprises (Dew et al., 2009). Entrepreneurs applying causation rely on prediction and an expected return rationale, set concrete goals for their venture, try to avoid contingencies, and see outsiders as competitors (Sarasvathy, 2008). Contrastingly, entrepreneurs applying effectuation rely on their creativity and an affordable loss principle, use their means at hand, try to leverage contingencies, and see outsiders as partners (Sarasvathy, 2008). The existing entrepreneurship literature provides important contributions regarding the use (Dew et al., 2009) and general usefulness (Brettel et al., 2012) of these decision-making logics.

Literature on entrepreneurs' decision making vividly discusses the effects of causation and effectuation on firm performance (Read et al., 2009) and through which mechanisms these effects occur (Perry et al., 2012). Thereby, researchers emphasized mediating effects of opportunity recognition and creation (Dew et al., 2009), the assembly of firms' resource bundles (Sarasvathy et al., 2008), product innovation (Brettel et al., 2012), and investment decisions (Wiltbank et al., 2009).

Research, however, has devoted surprisingly little attention to answering the question of how these decision-making logics applied by an entrepreneur (defined here as the founder of an entrepreneurial firm) impact employees, the followers of the entrepreneur. This is even more astonishing given that human resources are among the most important sources for entrepreneurial firms' competitive advantage (Cope et al., 2011; Phelps, Adams, & Bessant, 2007; Vecchio, 2003). Research on small- and medium-sized firms demonstrates the importance of employee management in small, growing firms, but also points out that researchers in the entrepreneurship domain have largely neglected the importance of employees for the performance of new ventures (Cardon & Stevens, 2004; Hornsby & Kuratko, 1990; Jack et al., 2006; Tocher & Rutherford, 2009). There are only some rare exceptions highlighting that

entrepreneurs' success is dependent on human capital development in their firm, employees' participation, and their learning processes (Cope et al., 2011; Phelps et al., 2007; Vecchio, 2003). This paper aims to contribute to an enhanced understanding of how entrepreneurs act and perform in their role as a leader for their employees. We discuss how the logics underlying causation and effectuation influence entrepreneurs' leadership behavior and how this, in turn, influences employee outcomes.

Entrepreneurs' strategic decisions should not only affect their resource acquisition and opportunity recognition, upon which previous research has focused. Entrepreneurs' strategies also have implications for interpersonal relationships, particularly with their employees. Thus, understanding how effectuation (vs. causation) influences firm internal mechanisms appears particularly important for entrepreneurs, entrepreneurship scholars, and entrepreneurship educators. Integrating the employee-level into the debate about causation and effectuation enhances our understanding of how these different strategic logics influence the entrepreneurial firm and its performance. In particular, we argue that causation and effectuation cause different leadership behaviors, which influence employees' individual outcomes via distinct pathways. We discuss effects on employees' commitment and motivation because those are among the most important drivers of performance outcomes (Battistelli, Galletta, Portoghese, & Vandenberghe, 2013; Meyer, Becker, & Vandenberghe, 2004; Mumford et al., 2002). Additionally, we discuss effects on creativity because working in entrepreneurial firms usually requires creative work (Mumford et al., 2002).

By theorizing about the underlying processes, we aim to contribute to the ongoing debate about entrepreneurial decision-making logics and their appropriateness. Further, analyzing effects of causal and effectual decision making sheds light on what distinguishes entrepreneurs' way of managing employees in comparison to managers in more established firms. Particularly,

we aim to contribute to the understanding of effectuation and causation by changing the perspective and integrating leadership and HRM literature.

The remainder of this paper is structured as follows. First, we introduce causation and effectuation logics. Second, we briefly discuss aspects that distinguish leading in entrepreneurial firms from leading in established firms. We do this by describing the work environment in entrepreneurial firms, explaining which leadership styles are appropriate in entrepreneurial firms, and discussing why we expect that causation and effectuation influence employees. Third, we derive propositions on how causal and effectual logics, through entrepreneurs' leadership behavior, might influence motivation, commitment, and creativity of their employees. This informs our conceptual model on entrepreneurial logics, entrepreneurs' leadership behavior and employee outcomes. Finally, we discuss implications for future research, for entrepreneurs, and for entrepreneurship education.

3.2 THEORETICAL BACKGROUND

3.2.1 Different Strategic Logics Applied by Entrepreneurs

Two different kinds of strategic logics can be observed in entrepreneurs' decision making: causation and effectuation (Sarasvathy, 2001; Sarasvathy, 2008). Causation reflects the approach described in conventional management literature. Therefore, strategy formulation starts with defining a goal. When the goal is set, necessary resources are defined and acquired. Causation uses an expected return calculation as the basis for investment decisions (Sarasvathy, 2001). In other words, entrepreneurs who apply causation invest when they think that outcomes will exceed costs. They will tailor specific plans to achieve their pre-defined goal. By predictions, accurate analyses, and plans, these entrepreneurs try to avoid contingencies. Furthermore, entrepreneurs who primarily apply causal logics see individuals outside the firm

as competitors (Sarasvathy, 2008). Thus, they are unlikely to share all their information or engage in many networking activities.

In new ventures, however, it is often difficult to foresee and analyze future developments accurately. The environment of entrepreneurial firms is often uncertain and dynamic, and the new venture's market, its business model, and the organizational structures are still evolving (Wiltbank et al., 2009). In these situations, researchers observe that entrepreneurs rely on different logics (Fisher, 2012; Read et al., 2009), summarized in the concept 'effectuation' (Sarasvathy, 2001).

Effectual decision making can be understood as a creative approach that allows coping with dynamic and uncertain challenges. Effectuation is described as a strategic logic reflecting a different category of rationality (Sarasvathy, 2001). Effectuation starts with the means at hand, uses those creatively, and thus allows leveraging contingencies. Entrepreneurs using effectual logics see stakeholders as partners, not as competitors. These entrepreneurs try to learn from others in their network. Contingencies are seen as possibilities to create opportunities for the firm (Sarasvathy et al., 2010). The five dimensions that are used to differentiate causation and effectuation are summarized in table 3-1.

Table 3-1: Causation and Effectuation

Causation	Effectuation
Prediction	Creativity
Goals	Means
Excepted return	Affordable loss
Competition	Partnerships
Avoid contingencies	Leverage contingencies

Following Sarasvathy (2001)

Previous research on effectuation and causation predominantly focused on exploration and exploitation processes, as well as opportunity recognition and creation (Dew et al., 2009).

Some researchers furthermore analyzed how applying causal or effectual logics influences firm creation and design, especially under resource constraints and under uncertainty (Sarasvathy, 2001; Sarasvathy et al., 2008). Read et al. (2009) analyzed effectuation's effect on overall firm performance. Berends et al. (2014) analyzed effects of effectuation on product innovation processes, and Brettel et al. (2012) studied differences in effects of effectuation and causation on process output and efficiency in R&D projects. Effectual logics were also transferred to investment decisions (Wiltbank et al., 2009) and marketing decisions (Read et al., 2009). However, how effectuation influences employees through entrepreneurs' leadership behavior remains unclear.

Leadership is a substantial factor of the entrepreneurial process (Ensley et al., 2003) because stimulating and steering individual and collective efforts is necessary to create and exploit opportunities. Although some authors provide an insight into the intersection between leadership and entrepreneurship (see Cogliser & Brigham, 2004), we do not yet know how causation and effectuation, which are both shown to be applied by entrepreneurs (Dew et al., 2009), influence their leadership behavior and how the underlying strategic logics affect employees.

The literature has continually ignored potential difficulties that entrepreneurs might face in their role as leaders while relying on effectuation. Entrepreneurs who apply mainly causal logics are, for example, able to commit and motivate their employees by goals and a goal-orientated vision. Entrepreneurs who apply mainly effectual logics, do not set concrete goals and thus might not be able to formulate a goal-oriented vision. Employees might mistrust entrepreneurs when plans are constantly changing (Read & Sarasvathy, 2005) and when entrepreneurs seem to over-trust (Goel & Karri, 2006; Karri & Goel, 2008).

However, we expect that entrepreneurs relying on effectuation are able to stimulate employees' motivation and commitment via different mechanisms. We anticipate that

entrepreneurs who apply effectual decision-making logics see their employees, like other stakeholders (Sarasvathy, 2008), as partners who co-create the firm and appreciate their knowledge and network as means that they can use. Thereby, entrepreneurs who predominantly apply effectual logics might be able to enhance employees' motivation and commitment without purposeful goal setting. In addition, entrepreneurs who apply effectual logics might be able to facilitate employees' creative work, as effectuation refers to a creative view on the future and leveraging contingencies.

Before we elaborate on those mechanisms in more detail, we need to consider specifics of leading in entrepreneurial firms, as context is a particularly important factor while studying leadership dynamics (Uhl-Bien, 2006).

3.2.2 Leading in Entrepreneurial Firms

While leading their employees, entrepreneurs face different challenges than leaders in established firms must handle (Rutherford et al., 2003). Therefore, we expect that entrepreneurs need to apply slightly different influence tactics (Cogliser & Brigham, 2004). Most entrepreneurs start their businesses on their own or with a small team of equals. So, leading subordinates is not necessarily part of their entrepreneurial life in the first stages of the firm's development. This usually changes as the firm grows. In this transition phase, entrepreneurs must become acquainted with new processes and, particularly, with leading other people. When their start-up begins to hire employees and grow, some entrepreneurs experience difficulties, or even fail, because their strategy and decision making need to adapt to their firm's growth (Dobbs, 2007; Dodge & Robbins, 1992; Kazanjian & Drazin, 1990). Becoming a leader seems particularly difficult for entrepreneurs because they lack role models, have few resources for leadership development trainings or consulting, and are much more interwoven with the venture itself than leaders in established firms. By analyzing entrepreneurs' difficulties in their roles as

leaders, we contribute to an enhanced understanding of the mechanisms that determine their success in the ventures' transition from a lone founder or founding team to a firm with employees.

Following Uhl-Bien (2006: 655), we define leadership as 'a social influence process through which emergent coordination (i.e., evolving social order) and change (for example new values, attitudes, approaches, behaviors and ideologies) are constructed and produced.' Thus, leadership involves the ability and capacity to influence others (Falbe & Yukl, 1992). This includes influencing employees' choices, motivation, learning opportunities, sharing of knowledge, reciprocal support, cooperation, and how they deal with external constituencies (Yukl et al., 2002). Which leadership behavior or influence tactic is appropriate depends on the work environment, which is why we first describe the work environment in entrepreneurial firms before we delve deeper into leadership styles and strategic logics.

The Work Environment in Entrepreneurial Firms

The work environment in entrepreneurial firms is less defined and more fluid and dynamic than in established enterprises (Katz & Welbourne, 2002). In most entrepreneurial firms, internal structures are created without exactly knowing how fast the firm will grow, what kind of processes and communication tools will be necessary or efficient, and without knowing what kind of knowledge, skills, and abilities employees will need in the future (Ardichvili et al., 1998). Roles and tasks of employees are not yet defined and human capital, especially specific human capital, still needs to be created (Hayton, 2003). Goals and strategies are emerging in an iterative process and are changing over and over in the growth process of the new venture. Ensley et al. (2003) explain that resulting risks, ambiguity, and resource scarcity influence leadership outcomes in entrepreneurial firms. Furthermore, entrepreneurs often cannot provide job security, high salaries, or even complete job descriptions (Tumasjan et al.,

2011) and job demands for employees in entrepreneurial firms are extremely challenging (Cope et al., 2011). They often act in highly dynamic environments, they often need to define their roles and tasks themselves, and they have a very broad field of responsibilities. Additionally, employees are expected to think independently and work creatively (Jong & Den Hartog, 2007), and sometimes they even have to co-create the new venture, which represents a very challenging task.

In entrepreneurial firms, few organizational structures are present (Patel & Cardon, 2010). This could, on the one hand, harm the firms' efficiency. On the other hand, it could reduce communication barriers and sources of inertia (Cogliser & Brigham, 2004). Mayer and Dean (1990) find that when entrepreneurs try to implement organizational structures that become necessary in the growth process, they are often confronted with employees' distrust of management and their unwillingness to follow experienced, functional specialists.

As working in an entrepreneurial firm includes doing novel things and having ill-defined tasks (Jong & Den Hartog, 2007), work in entrepreneurial firms is likely to be highly creative (Mumford et al., 2002). To stimulate employees' creativity, entrepreneurs need to facilitate their idea generation, idea structuring, and idea promotion (Mumford et al., 2002). Entrepreneurs need to provide a direction to work where there is no direction. As they cannot rely on predefined structures, they need to induce structure. Thereby, entrepreneurs must 'reduce stress and ambiguity, while simultaneously maximizing challenge and risk taking' (Mumford et al., 2002: 719).

Vecchio (2003) highlights that employees in entrepreneurial firms have more opportunities for close interpersonal contact with the entrepreneur than employees in established firms have with their leader. This closer and more personal contact is likely to bring about higher expectations (Vecchio, 2003). Close contact also represents a significant opportunity to receive approval or affirmation from an authority figure for most employees

(Vecchio, 2003). This implies that entrepreneurs' leadership behavior influences their employees even more so than in established firms.

Leadership Styles in Entrepreneurial Firms

Previous literature suggests that different leadership styles are appropriate for entrepreneurs. Distributed, shared, participative, and empowering forms of leadership are said to be most instrumental in entrepreneurial firms. Jones and Crompton (2009) observe that entrepreneurs facilitate democratic decision making, shared leadership responsibilities, and encourage teamwork. They explain that entrepreneurs leverage the distributed expertise within their firm best when they rely on delegation. However, Witt et al. (2000) shed light on a dark side of employee participation in distributed entrepreneurial leadership structures. They worry that self-interest of all individuals finds acceptance and thereby contradicts interests of other stakeholders. Still, most researchers suggest that informal management and leadership practices are most effective in emergent businesses. Ensley et al. (2003), as well as Hmieleski and Ensley (2007), expect that empowering leadership, which includes encouraging opportunity thinking, self-rewards, self-leadership, participative goal-setting, and teamwork (Pearce et al., 2003), is appropriate for entrepreneurs to stimulate commitment and motivation of their top management teams. Entrepreneurship literature furthermore sees empowering and participative types of vertical leadership as essential for leading new ventures toward growth (e.g., Ensley et al., 2006).

Some authors argue that entrepreneurs often seem to be seen as heroic leaders (Ensley et al., 2006) with limited experience in leading employees (Kempster & Cope, 2010). Hmieleski and Ensley (2007) also see heroic leadership as a likely strategy of entrepreneurs. They argue that this kind of leadership behavior emerges because employees who were hired in very early

stages of firm development, when the entrepreneur her- or himself was the only driving force, got to know the entrepreneur as a 'lone hero' and are likely to stick to this point of view.

Vecchio (2003) considers motivating followers, especially under dynamic and risky conditions, as a critical ability of entrepreneurs. Entrepreneurial leaders need to be able to specify highly challenging but realistic outcomes, absorb uncertainty, clear the path by negotiating the opposition, build commitment, and specify limits (Gupta et al., 2004). Therefore, many researchers in the entrepreneurship domain (e.g., Baum, Locke, & Kirkpatrick, 1998) discuss vision and its communication, as well as charismatic leadership, as the most substantial part of entrepreneurs' leadership and as crucial to entrepreneurial firms' performance.

Accordingly, the relevance of entrepreneurs' charisma appears substantial (Ehrlich, Meindl, & Viellieu, 1990). This becomes even more obvious when we consider that in early stages of a new ventures' growth process, both entrepreneurs and their employees must cope with various setbacks. Fearing failure in an entrepreneurial firm often means fearing unemployment. This means that entrepreneurs need to regulate their own negative affect to retain their employees' willingness to act entrepreneurially (Brundin, Patzelt, & Shepherd, 2008). Thus, dealing with emotions appears to be a substantial part of entrepreneurs' leadership behavior.

Another important aspect is that effects of different leadership behavior in entrepreneurial firms are dependent on the firms' environmental dynamism (Hmieleski & Ensley, 2007), which is likely to be high in most entrepreneurial firms. Ensley et al. (2006) find that, in the case of high environmental dynamism, transformational leadership is positively related to new venture performance, and transactional leadership is negatively related to new venture performance (Ensley et al., 2006). Thus, entrepreneurs need to be aware that they need to adapt their leadership behavior to their environment.

Based on the existing literature, we can acknowledge that previous research has discussed and analyzed several aspects of specifics of leadership behavior in entrepreneurial firms. However, how underlying strategic logics influence entrepreneurs' leadership behavior has not yet been analyzed, although entrepreneurship literature found that entrepreneurs' decisions reflect different strategic logics than decisions of leaders in established firms.

Why Causation and Effectuation Influence Employees

We assume that relying on causation or effectuation not only influences entrepreneurial firms' overall business strategy, but also the leadership behavior and employees' individual-level outcomes for several reasons. Whether entrepreneurs apply causation or effectuation might influence: (1) how employees perceive their job characteristics, (2) if specific goals are set for employees, (3) whether employees experience role clarity, and (4) employees' job crafting opportunities. In the following sections, we explain why we expect differences due to the logics that entrepreneurs apply.

How employees perceive their job characteristics is dependent on the entrepreneurs' leadership behavior (Piccolo & Colquitt, 2006; Purvanova et al., 2006). First, perceived job characteristics are dependent on structural aspects of the job (Hackman & Oldham, 1976). Particularly in entrepreneurial firms, structures might be directly affected by the entrepreneur's way of decision making. Thus, entrepreneurs shape employees' job characteristics by influencing the structures within the firm. Second, perceptions of job characteristics are dependent on how employees perceive the meaning of their work (Piccolo & Colquitt, 2006). Entrepreneurs can influence perceptions of job characteristics by managing the meaning of work and in so doing shaping the reality of employees (Piccolo & Colquitt, 2006; Smircich & Morgan, 1982). The logics underlying entrepreneurs' decisions might determine how they

frame employees' work. Thereby, they could change employees' perceptions of their autonomy, task significance, and task identity as follows.

Entrepreneurs applying causal logics try to predict how the market and the firm will change. They try to align the internal structures with their expectations and objectives. The entrepreneurs who apply causal logics are likely to set concrete goals for employees, and their goal setting will shape employees' job characteristics in several ways. First, the goal-setting method shapes employees' autonomy. For example, participative goal-setting procedures allow more autonomy than assigned goals (Shalley, Oldham, & Porac, 1987). Second, goals help employees to see how their task integrates with the overarching company goals (Umstot, Mitchell, & Bell, 1978). Therefore, goal setting will enhance perceived task identity. Third, goals provide a sense of meaningfulness for employees' tasks, which in turn increases task significance (Umstot et al., 1978). Fourth, when goals allow employees to structure their tasks themselves, goals might here help to increase autonomy (Umstot et al., 1978). Fifth, performance feedback appears almost necessarily with goal setting. As soon as employees can observe their progress towards a goal, this serves as feedback. Thus, clear goals make it easy for employees to experience feedback, whereas without goals it might be unclear whether they performed well or not. Besides specifically-defined goals, clear plans can influence how employees perceive their job characteristics. Accurate planning of the entrepreneur might lead to low autonomy and skill variety of employees (Umstot et al., 1978) because their plans will make them restrict employees' actions to ensure that they stick to their plan. These arguments indicate that when entrepreneurs rely on causation, employees will have jobs characterized by task identity, task significance, and feedback, and will influence autonomy depending on the goal-setting strategy.

Conversely, entrepreneurs who rely on effectuation will be reluctant to set specific goals. Still, we do not expect that their employees will have jobs with low identity and significance. When entrepreneurs apply effectual logics, they try to control evolving processes without prediction, and thus react creatively to emerging opportunities by adapting structures in a flexible manner. Thus, employees will be seen as partners who co-create the firm, while their competencies are leveraged as means for the firm. By these means, employees are likely to perceive their jobs high in task significance and task identity. Furthermore, employees can participate in structure development, which requires doing different activities and applying different skills. In this case, employees' jobs are likely to have a high skill variety and high autonomy.

Besides job characteristics, causation and effectuation might also determine employees' perceptions of role clarity, which is influenced by entrepreneurs' leadership behavior (Meyer & Allen, 1991). Role clarity depends on sufficient information regarding the expectations associated with one's role within the organization (Ivancevich & Donnelly, 1974). When entrepreneurs rely on effectuation, contingencies are leveraged, and contingencies shape actions and goals. In this process, roles need to be adapted and changed again and again, regardless of employees' expectations. This might lead to role ambiguity for employees (Humborstad & Kuvaas, 2013). When employees are allowed or expected to co-create the venture, which is likely when entrepreneurs rely on effectuation, they might define their roles themselves. On one hand, this could lead to employee confusion. On the other hand, it allows employees to create roles that fit their preferences.

Effectuation might furthermore enhance employees' job-crafting opportunities; effectuation might allow different kinds of job crafting than causation. Berg, Wrzesniewski, and Dutton (2010) show that job crafting differs due to ranks because of different job descriptions and different levels of autonomy. We expect that job descriptions for employees differ due to entrepreneur strategy. In the case of causation, employees are more likely to have a job description (formal or informal) that says what they are expected to do. On the one hand,

these job descriptions are borders that employees need to come across when they want to align their job with their identity. Thereby, causation increases employees' need to craft their job. On the other hand, effectuation provides increased perceived job-crafting opportunities and freedom for job crafting (Wrzesniewski & Dutton, 2001). This implies that job crafting is likely in either case, but may look differently.

Thus, whether entrepreneurs follow causal or effectual logics for creating leadership structures will influence what kind of work environment evolves for the new venture's employees. We draw on these mechanisms while deriving our propositions in the following sections.

3.3 HOW CAUSATION AND EFFECTUATION INFLUENCE EMPLOYEES

We discuss influences on employees' commitment, motivation, and creativity, exemplifying important predictors for employees' performances (Piccolo & Colquitt, 2006; Purvanova et al., 2006). We concentrate on commitment, motivation, and creativity as employee individual-level factors, which entrepreneurs can influence by their leadership behavior, and which predict employees' work performance. However, we acknowledge that several additional factors (for example employees' identification) are important predictors of work performance as well.

Following Mowday, Steers, and Porter (1979), we define commitment as relative strength of an individual's identification with and involvement in a particular organization. We focus on affective commitment, since entrepreneurs' leadership behavior influences organizational structures and work experiences, which primarily affect this commitment dimension (Meyer & Allen, 1991). Normative commitment is more dependent on perceived social pressure and norms, and continuance commitment is dependent on job alternatives (Meyer & Allen, 1991). These are both less dependent on leadership behavior.

Motivation can be distinguished as intrinsic motivation, 'which refers to doing something because it is inherently interesting or enjoyable,' and extrinsic motivation, 'which refers to doing something because it leads to a separable outcome' (Ryan & Deci, 2000: 55). Employees' performances can vary tremendously depending on whether they experience intrinsic or extrinsic motivation (Ryan & Deci, 2000). Therefore, we consider the effects on both types of motivation separately.

Besides commitment and motivation, we decided to include creativity as employee-level outcome. We assume that all tasks involving complex and ill-defined problems that require the generation of novel, useful solutions require creativity (Ford, 1996; Mumford, 2000). Creativity seems particularly important in the entrepreneurial context since employees are mostly doing new and ill-defined tasks, often in a new market, and without pre-defined structures. The influence of goals, and therefore of causation and effectuation, on creativity is a rather complex one and there is a vivid discussion whether goals facilitate or hinder creativity (Ordóñez, Schweitzer, Galinsky, & Bazerman, 2009; Shalley, 1995). To shed light on these mechanisms, we discuss how the strategic logics might influence employees' creativity.

To focus on commitment, motivation, and creativity appears particularly interesting because these factors are influenced by causation and effectuation differently. A focus on commitment and motivation was also chosen in previous literature that examines the link between leadership and work performance (Piccolo & Colquitt, 2006). As stated above, the most protruding difference between causation and effectuation leadership is whether or not entrepreneurs set specific, pre-defined goals. Goals play an important role for commitment, motivation, and creativity (Wood, Mento, & Locke, 1987) (and not so much for other individual-level employee outcomes). Commitment is dependent on goal clarity (Panaccio & Vandenberghe, 2011; Sawyer, 1992), and motivation is argued to be dependent on the challenging, but not overstraining, nature of goals (Carton, Murphy, & Clark, 2014; Crossley,

Cooper, & Wernsing, 2013; Locke & Latham, 2002; Shalley et al., 1987). Furthermore, employees' commitment appears particularly important for entrepreneurs because replacing one of their probably few employees is, for them, particularly challenging. Often, they cannot offer high salaries and job security, but are strongly dependent on their key employees. Motivation appears substantial for employees in entrepreneurial firms because they often have to work long hours, have broad responsibilities right from the beginning, and have very demanding tasks. Success of a newly-founded firm is highly dependent on the first employees, as they are an expensive investment for entrepreneurs and thus need to contribute significantly to firm performance.

3.3.1 How Causation Influences Employees

Applying causation means relying on mechanisms such as prediction, setting goals, drawing on an expected return rationale, seeing outsiders as competitors, and avoiding contingencies (Sarasvathy, 2001).

Prediction will determine to what extent entrepreneurs expect employees to work creatively and independently (Read & Sarasvathy, 2005). Entrepreneurs relying on prediction will concentrate on planning. Thus, their venture's development is determined by a concrete pre-defined plan.

Entrepreneurs applying causation will set concrete goals (Sarasvathy, 2001). Most leadership literature argues that all leaders should set goals (Ordóñez et al., 2009). We expect that entrepreneurs relying on causation, and thus showing a strong goal orientation, implement a clear and structured task and role allocation. These entrepreneurs can set different goals for each employee and thereby facilitate task and role assignments. Formulating an entrepreneurial vision includes goal setting as well, since a vision should reflect the entrepreneur's goals (Ruvio, Rosenblatt, & Hertz-Lazarowitz, 2010). Thus, a goal-oriented vision is more likely to be

formulated when entrepreneurs rely on causal logics. For example, entrepreneurs who focus on causal logics will choose trainings and other personnel development activities for their employees for specific pre-defined purposes and will define learning goals. They will define what knowledge, skills, and abilities their employees need and will set learning objectives that employees learn what the entrepreneurs think is important for performing the job.

Entrepreneurs applying causation handle their resources on the basis of an expected return rationale (Sarasvathy, 2008). This means they provide employees resources for a specific purpose aligned to their plan. They will provide resources when they expect that what employees are asked to do with the resources will bring in more money than it costs. In the example of creating human capital, when an expected return rationale is applied, trainings and other learning activities are only implemented when entrepreneurs think that outcomes exceed costs.

Further, entrepreneurs relying on causation focus on competition (Sarasvathy, 2008). Therefore, we expect that entrepreneurs who apply causation will stimulate competition between their employees. They could, for example, provide incentives or use peer pressure to enhance involvement.

These entrepreneurs will also try to avoid contingencies (Sarasvathy, 2001). Thus, they are likely to tell employees exactly what to do and will provide resources exclusively for a specific purpose. In the example of training choice, entrepreneurs who avoid contingencies will try to predict what their employees will learn and base their decision on these predictions.

Ultimately, we expect that entrepreneurs applying causation will formulate pre-defined goals, formulate a goal-oriented vision, set incentives, and focus on concrete planning. We now discuss how this influences employees' commitment, motivation, and creativity.

Causation and Commitment

Many authors find building a vision to be one important part of effective leadership in entrepreneurial firms (Ensley et al., 2006; Ensley et al., 2003). Gupta et al. (2004) even include visionary scenarios in their definition of entrepreneurial leadership. When these visions should be based on concrete goals, as the literature suggests (Baum et al., 1998), they refer to causal mechanisms. Through a vision, entrepreneurs can communicate their goals in an inspirational way. In entrepreneurial firms, vision has significant implications for entrepreneurial venture growth (Baum et al., 1998), as it inspires employees' confidence in uncertain situations (Cogliser & Brigham, 2004); this will enhance their commitment (Dvir, Kass, & Shamir, 2004).

For entrepreneurs applying causal logics, it might be easier to communicate an attractive goal-orientated vision, as they have predictions and set goals. Baum et al. (1998) observe visions that combined mixtures of mission, strategies, values, and goals, and argued that, especially in small firms, result-focused company goals become the equivalent to task-specific goals. These goals trigger employees' satisfaction and thereby their commitment, but only when they are clear and unambiguous (Sawyer, 1992). Conscious goal setting should be more likely when they rely on causation. Further, when employees are exposed to a vision, they are more likely to see the significance and meaningfulness of their tasks (Purvanova et al., 2006). These job characteristics also increase commitment (Piccolo & Colquitt, 2006).

Breugst et al. (2012) find goal clarity to be a mediator between entrepreneurs' passion and employees' affective commitment. Without goals, the target of commitment might be rather vague. Thus, goal clarity might increase commitment because employees can get committed to the venture's goals (Breugst et al., 2012). In addition, goals help entrepreneurs to show employees in what way work goals are congruent with employees' personal values. This alignment is also likely to increase employees' commitment (Colbert, Kristof-Brown, Bradley, & Barrick, 2008).

Entrepreneurs who mainly apply causal logics will focus on goal-setting procedures, which are based on predictions as accurate as possible. These entrepreneurs will, based on these goals, formulate concrete plans for the future. These plans can also enhance employees' commitment, as they draw a concrete picture of the future. This might also enhance employees' perceptions of the identity of their task, as plans help to see how each task in the plan contributes to firm performance (Umstot et al., 1978). Furthermore, plans and goals can increase employees' role clarity, which would also increase commitment (Panaccio & Vandenberghe, 2011). Consequently, entrepreneurs applying causal logics might be able to stimulate their employees' commitment by formulating concrete goals for employees' tasks, a goal-oriented vision, and detailed plans. This leads to our first proposition.

Proposition 1: Causation enhances employees' affective commitment by

- (a) setting pre-defined goals,
- (b) creating a goal-orientated vision, and
- (c) providing detailed plans.

Causation and Motivation

We expect that entrepreneurs who apply causal logics will stimulate competition between their employees. This competition can cause rivalry, which enhances employees' motivation (Kilduff, Elfenbein, & Staw, 2010). In addition, an entrepreneurial vision plays an important role in motivating employees toward the future described in the vision (Ruvio et al., 2010). As this vision mostly reflects entrepreneurs' goals, as discussed above, causation is likely to facilitate formulating a motivating vision.

Nevertheless, goals are not only important to motivate to an overall vision, but also to stimulate motivation for employees' individual tasks. In this context, previous research suggests that specific and challenging goals motivate better than 'do your best' exhortations (Locke & Latham, 2006; Ordóñez et al., 2009). Ordóñez et al. (2009) summarize the argumentation of goal setting proponents such that motivating goals should be set at the most challenging level, but should not be so challenging that employees will not start trying to attain them. Locke and Latham (2006) propose that goals' difficulty increases performance as long as employees are committed to the goal, have the necessary abilities to attain it, and when no conflicting goals are present. On the other hand, conflicting goals and unclear priorities would rather reduce employees' motivation (Locke, Smith, Erez, Chah, & Schaffer, 1994). Thus, motivation is strongly dependent on goal setting, which is only consciously applied when entrepreneurs rely on causal logics. Thereby, entrepreneurs can stimulate their employees' motivation individually. They could set specific goals for each employee, such that the goal motivates the employee best, due to their predictions. Then, they are able to tie their specific goals to incentives that individually motivate employees. These incentives can provide task and goal clarity, which would increase employees' motivation.

However, goals trigger the psychological costs of goal failure. The probability of goal failure is particularly high in entrepreneurial settings, as entrepreneurs cannot predict accurately what will happen (Sarasvathy & Dew, 2008) and are thus likely to set goals that might be reached (Ordóñez et al., 2009). Further, goal setting only increases extrinsic motivation, and intrinsic motivation could even be reduced by goal setting (Ordóñez et al., 2009; Rawsthorne & Elliot, 1999). Hence, we propose that entrepreneurs who apply causal logics are able to stimulate only extrinsic motivation.

Proposition 2: Causation enhances employees' extrinsic motivation by

(a) setting incentives,

(b) stimulating competition between employees, and

(c) formulating a goal-oriented vision.

Causation and Creativity

When entrepreneurs want to foster their employees' creativity, they need to support their employees while they are generating, structuring, or promoting ideas (Mumford et al., 2002). Therefore, entrepreneurs need to provide individual support as well as indirect structuring activities (Mumford et al., 2002). Mumford et al. (2002) explain that leading creative people requires not only technical expertise, but also creativity of the leader. This implies that entrepreneurs who see the future in a creative view – instead of predicting it – are more likely to succeed in stimulating employees' creativity. Thus, causation, which is based on predictions, appears to not be instrumental in facilitating employees' creativity. Supervisors are also important as role models for creative self-efficacy, or the belief one has the ability to produce creative outcomes (Tierney & Farmer, 2002). However, entrepreneurs who apply causation are unlikely to engage in creative work themselves. This might hamper employees' creative self-efficacy, as they have no role model for their creative work.

Furthermore, employees' expectations about the work environment in entrepreneurial firms might influence whether they engage in creative work. Tumasjan et al. (2011) find that the main motives for working in entrepreneurial firms are the communal team climate and the early assignment of responsibilities. Employees in entrepreneurial firms mostly appreciate the lack of routines and the innovative climate (Cardon & Tolchinsky, 2006; Ensley et al., 2006). Thus, due to a self-selection mechanism, entrepreneurial firms will attract applicants who

expect to receive a broad range of responsibilities and who expect to be allowed to experiment on their own and co-design the venture. These expectations fit better with the work environment that effectuation creates. Employees of entrepreneurs who apply mainly causal logics, and thus try to avoid contingencies, will probably not be granted the possibility for experimentation, which is necessary for creative work (Mumford et al., 2002).

However, Mumford et al. (2002) also highlight some structures that refer to causal logics that stimulate creativity. They explain that leaders of creative people should allow freedom for experimentation only as long as clarity about goals and goal attainment strategies remains. Furthermore, they highlight the importance of employee involvement, which entrepreneurs could stimulate by defining challenging goals or peer pressure. These tactics would reflect causal logics.

Incentives that are tied to goals are less important in tasks that require unconstrained creativity (Charness & Grieco, 2013), which is likely to be required from employees in entrepreneurial firms. In addition, causal tactics are expected to be only efficient for stimulating creativity when the work environment is consistent with employees' motives (Mumford et al., 2002; Spenner, 1990). Employees in entrepreneurial firms are likely to expect a lot of freedom for their decisions and close communication. We expect that causal logics will not fit these expectations. Further, creativity requires flexibility and flexibility is also less likely when entrepreneurs rely on causation.

In addition, research suggests that goals, which entrepreneurs who rely on causation will set, focus attention (Ordóñez et al., 2009). Employees who are focused on a specific goal are less likely to try alternative methods that could help to find a creative solution to a problem (Ordóñez et al., 2009). Thus, goals can focus employees' attention so strongly that they overlook information and additional features of a task, which are not part of the goal (Ordóñez et al., 2009). In this manner, goals might hinder employees' creative thinking.

Providing support for this notion, Shalley, Gilson, and Blum (2000) find a negative effect of organizational control on employees' creativity. Control is likely to be high when entrepreneurs rely on causation, as these entrepreneurs will want to make sure that employees stick to their plan. Further, Shalley et al. (2000) argue that creative work environments need to be complemented by creativity requirements. These creativity requirements include employees' autonomy, job complexity, and work demands (Shalley et al., 2000). These factors are more likely to be high when entrepreneurs rely on effectuation rather than causation. Thus, we expect causation to be hindering for creativity of employees in entrepreneurial firms.

Proposition 3: Causation reduces employees' creativity by

- (a) hindering experimentation,
- (b) creating a work environment that does not perfectly fit employees' motives, and
- (c) formulating narrowly-defined goals.

3.3.2 How Effectuation Influences Employees

Effectuation includes mechanisms relying on creativity, using the means at hand, seeing stakeholders as partners, drawing on an affordable loss principle, and leveraging contingencies.

Entrepreneurs relying on effectuation see the future in a creative way (Sarasvathy, 2001). Since creativity is leveraged best when many people bring in their ideas, they are likely to provide their employees a great level of agency. Thus, entrepreneurs who see the future in a creative way might be more likely to delegate and assign broad responsibilities (Read & Sarasvathy, 2005). Employees might then be allowed to bring in their ideas and thereby shape the firms' opportunities; that way the venture develops aligned to employees' interests and competencies, rather than determined by a concrete pre-defined plan.

Furthermore, entrepreneurs applying effectuation will start with their means instead of goals (Sarasvathy, 2001). This appears appropriate for guiding employees in early stages of a venture's formation process. Setting concrete goals for employees might be difficult because strategies often change several times. We expect that entrepreneurs who apply effectual logics will look for means in their employees. They might try to leverage employees' competencies and interests to create opportunities for the firm. Employees of these entrepreneurs might create learning opportunities themselves. As an example, entrepreneurs will create human capital by letting employees choose trainings, courses, or workshops in which they are interested. Thereby, employees create new, valuable knowledge, skills, and attitudes for the firm that are not pre-defined.

Entrepreneurs who apply effectuation will handle their resources on the basis of an affordable loss principle (Sarasvathy, 2008). Relying on this principle, entrepreneurs might provide the resources that they can afford for employees' experimentation and just see what happens (see Sonenshein (2014) for a discussion on autonomous resourcing). In the example of creating human capital, trainings might be chosen as long as money is available, even when only the employee thinks that participating is worth it.

Entrepreneurs relying on effectuation see their stakeholders as partners. Sticking to this principle, they might also invite their employees to see their colleagues as partners and learn from each other. Thus, entrepreneurs who think in partnerships will help their employees to use their own network and will encourage teamwork between their employees. Additionally, these entrepreneurs might see their employees as partners who co-create the venture. Their principle will be to balance decisiveness, which is needed when goals change, with a culture of consensus (Read & Sarasvathy, 2005). Therefore, we expect that they will leave their employees with a broad range of responsibilities.

Entrepreneurs who apply effectuation try to leverage contingencies (Sarasvathy, 2008). These entrepreneurs are likely to share all the knowledge they have with their employees and just try to control what happens. Entrepreneurs who leverage contingencies might facilitate a lot more creative learning opportunities, such as learning-by-doing, and provide employees the freedom to choose trainings themselves, based on their personal interest.

In sum, we expect that entrepreneurs who apply effectuation influence their employees differently than entrepreneurs who apply causation. When entrepreneurs apply effectual logics, they see their employees as partners and leverage their knowledge and skills as important means of the firm. They will assign their employees broad responsibilities and allow them to experiment. We now discuss how these leadership behaviors influence employees' commitment, motivation, and creativity.

Effectuation and Commitment

When entrepreneurs view their employees as partners who co-create the venture, their employees might be allowed to design structures of the firm on their own and are thereby an essential part of the development process of the firm. As a result, these employees will feel important to the firm, and will subsequently experience job satisfaction. Additionally, entrepreneurs who rely on effectuation might see their employees as partners (Sarasvathy, 2008) and might therefore encourage employees to think in partnerships themselves. In this manner, social support might be particularly high among employees of entrepreneurs relying on effectuation. Job satisfaction (Mathieu, 1991), as well as social support (Marique, Stinglhamber, Desmette, Caesens, & Zanet, 2013; Rousseau & Aubé, 2010), in turn, increase commitment.

Entrepreneurs who see their employees as partners might also be more likely to allow them to participate in strategic decisions. This will make employees experience significance and meaningfulness of their tasks, factors that make them more likely to show extra role behavior in favor of the organization's goals (Purvanova et al., 2006). Miao, Newman, Schwarz, and Xu (2013) suggest that this participation enhances employees' commitment. Thus, entrepreneurs who apply effectual logics might be able to generate commitment from their employees when they allow employees to shape structures of the firm. Employees then have the possibility to participate in the firm creation process whereby they are likely to feel committed.

Cardon (2008) argues that employees can experience entrepreneurial passion, similar to entrepreneurs, when entrepreneurs successfully stimulate their positive feelings towards the organization and their organizational meaningfulness. This is more likely when entrepreneurs apply effectual logics, as these entrepreneurs are more likely to let their employees participate in the firm creation process. As a reciprocal effect, employees are likely to see their employer as part of their identity (Cardon, 2008). This would also enhance their commitment. This leads to our next proposition.

Proposition 4: Effectuation enhances employees' affective commitment by

- (a) allowing them to co-create the venture and
- (b) stimulating them to view the entrepreneurial firm as part of their identity.

Effectuation and Motivation

Entrepreneurs who rely on effectuation – by definition – do not set any goals. Thus, entrepreneurs cannot stimulate extrinsic motivation by using incentives, as these would need to be linked to goals. However, entrepreneurs who rely on effectual logics might be able to stimulate their employees' intrinsic motivation. Entrepreneurs who apply effectual logics might

see their employees' competencies as means at hand. This appreciation of their competencies can stimulate their intrinsic motivation. Additionally, this will make employees experience meaningfulness in their work, which will also stimulate intrinsic motivation (Michaelson, 2005).

Furthermore, we expect that entrepreneurs who apply effectual logics will provide their employees with a broad range of responsibility (Read & Sarasvathy, 2005) and allow them to define their roles and structure their tasks on their own. We expect that their creative view will make them allow their employees to decide on their own how to cope with tasks and problems. Their employees might not need concrete operational goals. Particularly in demanding jobs, this high job control is likely to produce positive outcomes (Van Yperen & Hagedoorn, 2003). Structuring their tasks on their own might better fit their work environment and thereby increase their intrinsic motivation (Ardichvili et al., 1998). This means that employees of entrepreneurs who apply mainly effectual logics are more likely to work with a high level of self-responsibility. By allowing employees to co-create the venture, entrepreneurs place high trust in their employees. This again demonstrates appreciation of their competencies and their work in general. We expect that entrepreneurs relying on effectuation can thereby stimulate their employees' intrinsic motivation without formulating goals.

Proposition 5: Effectuation enhances employees' intrinsic motivation by

(a) appreciating and leveraging their competencies and

(b) assigning them broader responsibilities.

Effectuation and Creativity

Innovation processes are complex and non-linear (Rosing, Frese, & Bausch, 2011), and creative work is uncertain (Mumford et al., 2002). This implies that effectuation, which accounts for non-linear processes and uncertainty (Sarasvathy, 2001; Sarasvathy et al., 2008), is more efficient for innovation and creative processes.

As creative work requires expertise (Mumford et al., 2002), learning mechanisms appear particularly important. Thus, entrepreneurs who facilitate learning-by-doing, exchange in the network, and other ongoing learning opportunities, help employees to acquire necessary expertise. This also implies that social support is likely to be high when entrepreneurs rely on effectual logics. What is more, social support is an important predictor of creative performance (Madjar, Oldham, & Pratt, 2002).

Employees in entrepreneurial firms need to define problems and gather necessary information themselves, which requires them to combine and reorganize information in a new way (Mumford et al., 2002). These tasks appear to be complex and to require creativity. Wood et al. (1987) find a less strong influence of goal setting when tasks were complex, compared to less complex tasks. This indicates that goals might be less important in the work environment in entrepreneurial firms.

Employees will be able to work more creatively when they are allowed to experiment and leverage contingencies. Employees in entrepreneurial firms need to think 'outside the box' and put assumptions in question. Entrepreneurs who apply effectual logics provide the therefore necessary flexibility. Further, the work autonomy that entrepreneurs who apply effectuation are more likely to provide, increases creativity, at least when it is combined with feedback (Zhou, 1998).

Sonenshein (2014) discusses two strategies for entrepreneurs to regulate resources while fostering creativity: 'directed resourcing' and 'autonomous resourcing.' While applying

autonomous resourcing, employees are given permission to use the resources at hand autonomously. While applying directed resourcing, resources are provided or withheld with the goal of fostering employees' creative use of resources. Both strategies suggest to provide resources for employees' tasks without predicting what will happen, as long as resources are available. That means that outcomes are unclear because employees define on their own how they use resources or even which resources they use. Thus, both strategies rely on an affordable loss principle which is part of effectuation. And both strategies will stimulate employees' creativity because employees are expected to apply own problem solving (Sonenshein, 2014).

Sonenshein (2014) furthermore observes that employees' creative use of resources in early stages of firm development comes along with them feeling as owner-managers. Thereby, employees frame decisions on how available objects should be used, themselves. He further demonstrates that when entrepreneurs shape employees' identities to a 'creative owner,' they develop a 'resourcing identity' (Sonenshein, 2014). This is likely when entrepreneurs see their employees as partners, as they do when they apply effectual logics. Then, employees are likely to create original solutions (Sonenshein, 2014).

Proposition 6: Effectuation stimulates employees' creativity by

- (a) stimulating learning processes,
- (b) allowing employees to experiment with resources, and
- (c) helping employees to view themselves as co-creators.

3.4 A CONCEPTUAL MODEL ON ENTREPRENEURIAL LOGICS, ENTREPRENEURS' LEADERSHIP BEHAVIOR, AND EMPLOYEE OUTCOMES

From the thoughts and arguments above, we can draw a model showing how causation and effectuation determine employee individual-level variables. Figure 3-1 provides an overview over the pathways described above.

We propose that causation and effectuation cause different kinds of leadership behavior.

We expect that these differences in entrepreneurs' leadership behavior – that arise when they focus on causal vs. effectual logics – will differently influence employees' motivation, commitment, and creativity.

Entrepreneurs who apply causal logics while leading their employees are likely to set predefined goals, formulate a goal-orientated vision, set incentives, and plan for the future. Goals and a goal-orientated vision will evoke an optimistic view of the future and trust in the success of the firm (Baum et al., 1998). Thus, entrepreneurs who apply causation will be able to commit and motivate their employees to the firm's vision and its goals. By formulating a concrete plan, entrepreneurs can communicate where they want the venture to go. This might help employees to know what they have to do, and thereby fosters their extrinsic motivation. However, employees' creativity might be hindered rather than fostered by causation. Strict specifications can hinder employees' experimentation, narrow their attention, and counteract learning-bydoing, which facilitate creative work. Consequently, causation appears as an appropriate strategy to foster employees' commitment and extrinsic motivation, but not to facilitate their creativity.

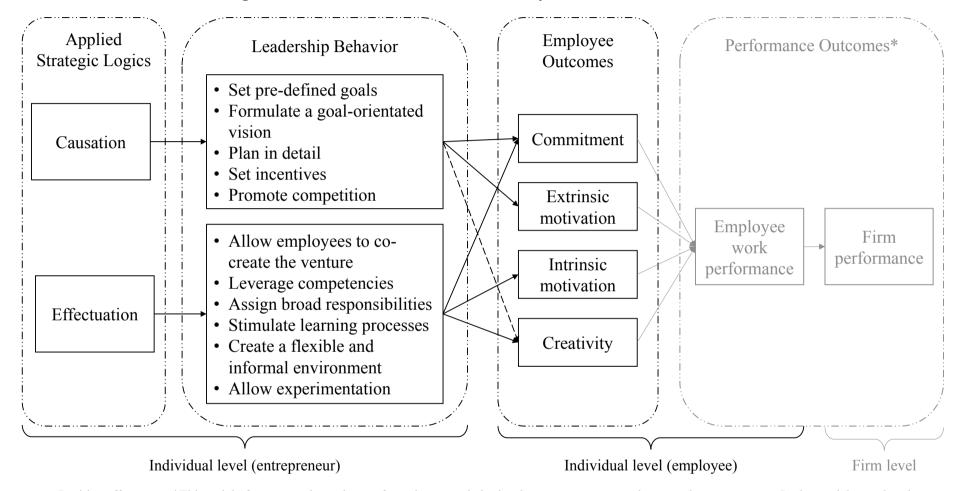


Figure 3-1: Firm Internal Processes Caused by Causation and Effectuation

[→] Positive effect--> Negative effect

^{*}This article focuses on the pathways from the strategic logics that entrepreneurs apply to employee outcomes. In the model, we also show how these pathways might influence performance outcomes to better integrate the described mechanisms with previous research.

Entrepreneurs who apply effectual logics while leading their employees are likely to see their employees as co-creators of their firm, leave them with broad responsibilities, try to leverage their competencies, and allow experimentation. Thus, entrepreneurs put a lot of trust in employees' competencies, ideas, and decisions. They leverage employees' abilities by letting them work in a self-regulated manner. Because of their creative view toward the future, entrepreneurs who apply effectuation might allow learning-by-doing and experimentation. Employees are then allowed to be part of the venture formation process. In this case, employees face challenging and creative tasks for which they will be allowed to create coping strategies on their own. As they might then experience positive feelings towards the firm and organizational meaningfulness while they work, they are likely to integrate the firm into their self-concept. This can foster their commitment and intrinsic motivation, and their creativity is stimulated.

In a next step, we expect that employees' commitment, motivation, and creativity will positively influence their work performance. Previous research provides support for this argument (Battistelli et al., 2013; Purvanova et al., 2006). Siders, George, and Dharwadkar (2001) find commitment to enhance job performance, Amabile (1993) suggests that extrinsic as well as intrinsic motivation, and best in combination, contribute to employees' performance. Moreover, as employees in entrepreneurial firms need to cope with ill-defined tasks and work on new products in new markets, they need to show creative performance (Jong & Den Hartog, 2007). Thus, they need to be able to use their creativity to show high work performance (Madjar et al., 2002).

Subsequently, greater work performance of employees should lead to enhanced firm performance. In entrepreneurial firms, each of the (probably few) employees is likely to be affected by the entrepreneur's decisions directly (Cogliser & Brigham, 2004). Further, the link between employees' work performance and the performance of the whole firm might be

particularly strong in entrepreneurial firms. The firm's strategy does not only determine how the firm as a whole should make its decisions, but entrepreneurs' decisions influence each of the employees' tasks and goals. In addition, each employee might contribute significantly to firm performance. In most young firms, each task done by any employee is critical for the firm's success, or even its survival. Thus, fostering employees' commitment, motivation, and creativity appears particularly important as these enhance employees' work performance and, as a consequence, firm performance.

3.5 LIMITATIONS, IMPLICATIONS, AND CONCLUSION

3.5.1 Limitations and Implications for Future Research

Although we shed light on several aspects referring to causation and effectuation and their effects on leadership behavior in entrepreneurial firms, there are several related aspects that could be analyzed in greater detail in future research. We focused on commitment, motivation, and creativity as employee-level outcomes. However, causal and effectual leadership might also unfold different effects on other employee-level outcomes. In addition to employees' job performance, their organizational citizenship behavior could also be affected by entrepreneurs' way of making decisions. Furthermore, causation and effectuation could trigger different mechanisms that increase burnout probability. Feedback might be vague in case of effectuation, as no goals are set, but employees' work requires creativity and creativity requires feedback (Zhou, 1998). This mismatch could lead to strain and, in turn, burnout. Perry, Witt, Penney, and Atwater (2010) find that exhaustion increases with goal-focused leadership for some employees, which is likely when entrepreneurs rely on causation. On the other hand, effectuation could increase job demands as well because employees have more responsibility and autonomy. This would mean effectuation could also lead to increased burnout probability (Schaufeli & Bakker, 2004). On the other hand, burnout is less likely when employees

experience control and autonomy over their work (Schaufeli & Bakker, 2004), which is likely when entrepreneurs apply effectuation. Future research could clarify these effects to provide an understanding of how causation and effectuation affect burnout probability.

We also did not focus on team mechanisms. In the design of the current model, we implied that the entrepreneur is one lone leader. Most new ventures, however, are founded by teams. Thus, analyzing mechanisms in teams, especially when different logics are applied, would provide additional insights. Some authors find shared leadership (Carland & Carland, 2012; Ensley et al., 2003) or distributed leadership (Cope et al., 2011) to be most efficient in entrepreneurial firms that are founded by a team. For example, Carland and Carland (2012) proposed a model of shared leadership to combine processes of command and control. Ensley et al. (2003) explain that shared leadership enhances top management team cohesion and development of a shared vision in the entrepreneurial firm. They expect that these have a positive effect on top management team effectiveness. Thus, it could be worth studying effects of strategic logics when these are applied in entrepreneurial teams instead of by one lone leader. West (2007) proposes that differences in perspective within entrepreneurial teams could have exhaustive effects on a new venture's strategy. Consequently, interactions between entrepreneurs applying effectual and/or causal logics in one team would be interesting. In entrepreneurial teams, a distribution of strategic decisions could be an effective vehicle to make the most out of applying effectual as well as causal decision making without losing plausibility. Lewis, Welsh, Dehler, and Green (2002) provide support for this notion as they argue for an interwoven approach of emergent and planned management styles for product development.

Other aspects that we did not focus on in this article, but that could influence the proposed effects, are age and size of an entrepreneurial firm. Observing life cycle differences could help to understand when which strategic logic is most efficient (Cope et al., 2011; Lewis et al., 2002), especially as some studies already argued for a shift from effectuation to causation in the

ventures' growth process (Sarasvathy, 2001). Positive effects of effectuation on creativity could be particularly important in early stages of venture formation because idea generation is most important in this phase of venture development (Mumford et al., 2002). In later stages, idea structuring and promotion are more important (Mumford et al., 2002), which can be facilitated by both causation and effectuation. In addition, the level of uncertainty might influence the appropriateness of an approach (Lewis et al., 2002). Further research is necessary to examine moderating influences of contextual variables in more detail.

Moreover, not only might characteristics of the firm determine effects of causation and effectuation on employee individual-level factors, but employees' skills and attitudes might as well. We argued that causation and effectuation influence employees' job crafting. Job crafting literature emphasizes the dependence of job-crafting behaviors on employees' skills and attitudes (Berg et al., 2010; Wrzesniewski & Dutton, 2001). Some employees will welcome the possibility to co-create their job and the entrepreneurial firm, while others might prefer a predefined work setting. Thus, employees' characteristics influence their reaction to entrepreneurs' decisions and will influence how these decisions influence their motivation, commitment, and creativity. However, the first employees in entrepreneurial firms are usually not very heterogeneous. Due to self-selection processes, a particular group of job seekers will apply and be hired by entrepreneurial firms. Once the firm grows and more employees are hired, variance in their characteristics might increase. Therefore, studying a moderating effect of employee characteristics in the growth phase would be interesting. Furthermore, via selfselection processes, characteristics of employees might be different in firms of causal-versus effectual-leading firms. Job seekers apply to firms that meet their preferences in terms of structure and formality, or expectations on creativity and taking over responsibilities. Future research could discuss how this influences outcomes of effectuation and causation.

Additional factors that might influence the effects in our model could stem from entrepreneurs' prior experience. Experience in the entrepreneurship domain and experience in a leadership position might help entrepreneurs to leverage positive effects and avoid negative effects of their strategy.

Although we have outlined several factors that could influence the mechanisms that we discuss in our paper in the latter paragraphs, we think that moderating effects of external variables might be less important for our model. The context of entrepreneurial firms is a very specific one. We assume that employees in entrepreneurial firms have similar expectations and characteristics and that the environment is very specific, characterized by dynamism and uncertainty. This is why moderating effects of external factors might be less important.

3.5.2 Implications for Entrepreneurs

Entrepreneurs can foster their employees' commitment and motivation by applying causal or effectual logics. We would recommend to entrepreneurs that they decide whether they want their employees to co-create the firm and whether they are willing to change the strategy of their firm due to ideas of their employees. When entrepreneurs focus on effectual logics, they can leverage employees' competencies and can profit from their network. Creative work becomes possible when employees are given broad responsibilities and are allowed to deal with complexity themselves. Nevertheless, entrepreneurs who apply effectuation need to be careful that they do not lose employees' trust when plans and strategies change very often. When employees lose their trust in the future of the firm, commitment is lost as well. Thus, for entrepreneurs who apply effectual logics, communicating why a strategy is changing and communicating backgrounds of decisions is essential to retain employees' commitment and motivation (Mumford et al., 2002). They furthermore need to put a strong emphasis on

reflection. Reflection enables entrepreneurs to recognize when they need to align employees' initiatives.

Entrepreneurs who apply causal logics and thus provide more strict guidelines for their employees can motivate their employees individually through goals and incentives. They can try to set goals for every person in a way that motivates this person most – due to their predictions. Predicting and planning for the future allows the formulation of a concrete, goal-orientated, and long-term-oriented vision. Such a vision helps to commit and motivate employees. However, causal logics harm employees' creativity. Goals and competition can help to direct creative work. Still, avoiding contingencies and relying on accurate predictions will hinder all evolving creativity. Consequently, when entrepreneurs hinder employees' creativity, they are themselves responsible for the generation of all new ideas. As entrepreneurs mostly need employees who are able to learn and collaborate with each other, and goals can inhibit learning as well as cooperation (Ordóñez et al., 2009), entrepreneurs must be particularly cautious while setting goals.

3.5.3 Implications for Entrepreneurship Education

There is an ongoing discussion how entrepreneurs can be educated best. Although the literature on entrepreneurship education provides several ideas how business schools can teach entrepreneurs the knowledge and skills that they need to found and manage a business, the entrepreneurs' role as a leader for their employees is neglected in the discussion. Entrepreneurs need to deal with different challenges than leaders in established firms, and thus need to be trained by adapted leadership development concepts. We call for ideas how to integrate appropriate leadership skills in entrepreneurship education courses. These could focus on how (future) entrepreneurs can efficiently apply effectual logics while leading employees. Participants should be aware of the pros and cons of applying a causal or an effectual approach

so that they know about potential arising difficulties and can react adequately. In addition, entrepreneurs need to learn how to set adequate goals, especially since setting motivating goals (not too narrow, not too challenging, etc.) is a very challenging process, particularly in novel settings like in an entrepreneurial firm (Ordóñez et al., 2009), or, how to motivate and commit employees without setting goals.

3.5.4 Conclusion

In this article, we theorized how the strategic logics of effectuation and causation influence entrepreneurs' leadership behavior and thereby their employees. Until now, only a few studies have investigated entrepreneurs' leadership behavior, although several researchers highlight the importance of the first employees for new venture success (Cope et al., 2011; Phelps et al., 2007; Vecchio, 2003). We discuss potential positive and potential negative effects that causal as well as effectual logics could have for the new venture's evolving work environment. This also demonstrates why we should be careful when we transfer findings from studies conducted in established firms to the context of entrepreneurial firms. Entrepreneurs apply not only causal, but also effectual logics (Dew et al., 2009). We discuss in what way these logics determine their leadership behavior. We conclude that applying effectual logics influences, through entrepreneurs' leadership behavior, firm internal processes in entrepreneurial firms. We propose that this influences employees' commitment, motivation, and creativity, and thereby their performance, and as a consequence, the entrepreneurial firms' performance.

CHAPTER 4 DOES EFFECTUATION ENHANCE OR DECREASE EMPLOYEES' INTRINSIC MOTIVATION? THE CONTINGENT ROLE OF ENVIRONMENTAL DYNAMISM⁴

Abstract

In entrepreneurial firms, firm success is not only dependent on entrepreneurs' but also on employees' performances. In this study, we empirically analyze whether entrepreneurs stimulate or diminish their employees' intrinsic motivation when they rely on effectual logics. Further, we analyze whether the effect of effectuation on employees' intrinsic motivation is contingent on environmental dynamism. To do so, we apply a multi-level field study among entrepreneurs and their employees. Our findings suggest that the effect of effectuation on employees' intrinsic motivation is negative when the firm's environment is dynamic.

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⁴ Chapter four is co-authored by Prof. Dr. Matthias Baum.

4.1 INTRODUCTION

As Van Yperen and Hagedoorn (2003: 339) articulated more than a decade ago: 'In order to become successful or even more successful, today's work organizations need to maximize the use of their employees' actual and potential skills'. This statement is particularly true for entrepreneurial firms given the relative impact of individuals work performance on firm success. Thus, motivation enhancing human resources practices appear essential for new ventures' survival (DeGeest et al., 2015; Rauch & Hatak, 2016). Notwithstanding its importance, empirical attempts to increase understanding on what drives motivation of employees in entrepreneurial firms remained limited. This lack of knowledge is especially alarming because of idiosyncrasies in the entrepreneurial context differentiating the work environment in entrepreneurial firms from traditional work organizations (Barrett & Mayson, 2008a; Hayton, 2003). One important difference engenders the entrepreneurs' way of decision making (Sarasvathy, 2001).

Previous entrepreneurship research shows that entrepreneurs tend to make their decisions based on a particular strategic logic called effectuation (Sarasvathy, 2001). Effectuation encompasses actions based on means at hand rather than by pre-defined goals. Further, effectuation tries to leverage contingencies, uses an affordable loss principle and sees outsiders as partners rather than competitors. Entrepreneurs relying on effectuation might be able to stimulate employees' intrinsic motivation because these entrepreneurs are more likely to see employees as partners, acknowledge competencies as means and allow creative experimentation (Hubner & Baum, in press). However, this approach appears to be very flexible and unstructured. Thus, effectuation might also produce unclear expectations and confusion which might counter a development of employees' intrinsic motivation. Thus, although positive effects of effectuation on employees' intrinsic motivation are possible, some mechanism might complicate stimulating employees' intrinsic motivation while relying on effectual logics.

Previous effectuation literature suggests that effects of effectual logics are dependent on the dynamism of the firm's environment (Sarasvathy, 2001). Effectuation appears to be more appropriate in dynamic environments than in more stable environments. Leadership literature suggests that leadership efficiency is dependent on the firm's environmental dynamism, showing that employees need clear goals and a plan for the future, especially in dynamic situations (Sarasvathy et al., 2010; Zhang et al., 2014). Thus, environmental dynamism appears to be an important moderator for the effect of effectuation on employees' intrinsic motivation.

This study aims to clarify when effectuation affects employees' intrinsic motivation in what way. We apply a multi-level survey study with 203 employees and 152 entrepreneurs to detect effects of entrepreneurs' usage of effectual logics on employees' intrinsic motivation.

Our study makes several contributions. Our study addresses calls for research on outcomes of human resources-enhancing, including motivation-enhancing, practices in entrepreneurial and dynamic contexts (Rauch & Hatak, 2016). Additionally, we fuel the ongoing discourse about how entrepreneurs can leverage their employees' potential. In such, we expand the discussions in previous effectuation and leadership literature, as we conceptually link effectuation to employees' intrinsic motivation and empirically test this relationship. This complements previous studies which focused on firm level effects of effectuation, but neglected employee-level effects. In this regard, we point out opportunities but also potential risks of applying effectuation, which most previous studies ignored. We explore contingencies of effectuation's effect on employees. We shed light on the moderating role of environmental dynamism for the effectuation-motivation link. In doing so, we highlight challenges that entrepreneurs face while leading their employees. This allows a more nuanced picture on the situational factors that influence the development of intrinsic motivation in entrepreneurial firms.

4.2 THEORETICAL BACKGROUND

We begin this section by describing different decision-making logics of entrepreneurs. Then, we explain how effectuation could influence employees, positively or negatively. Finally, we discuss moderating influences of the dynamism of a firm's environment.

4.2.1 Effectuation and Causation

Sarasvathy (2001) introduced effectuation, contrasted to causation, to describe how entrepreneurs make strategic decisions. Both, causal as well as effectual logics were observed in entrepreneurs' decision making in previous effectuation studies (Sarasvathy, 2008).

Causation is defined as a goal orientated, predictive approach which uses an expected return calculation as basis for investment decisions (Sarasvathy, 2001). Entrepreneurs who apply mainly causal logics see individuals outside the firm as competitors, try to avoid contingencies, and try to overcome the unexpected by predictions, accurate analyses, and plans.

In new ventures, making accurate predictions and analyses is often difficult (Wiltbank et al., 2009). When the venture's market, its business model, and the organizational structures are still evolving, defining a concrete objective or strategy is not yet possible (Wiltbank et al., 2009). The development of the environment is often uncertain and dynamic. In these situations, entrepreneurs have been shown to use effectual logics to control rather than predict the future (Fisher, 2012; Read et al., 2009). Effectual decision making characterizes a creative approach that allows coping with dynamic and uncertain challenges (Sarasvathy, 2001). Effectuation starts with the means at hand, uses those creatively and thus allows leveraging contingencies and acknowledging the unexpected. Drawing on an affordable loss principle, entrepreneurs applying effectual logics invest whenever they detect an opportunity and think that the investment does not threaten the firm's survival. Entrepreneurs using effectual logics further see outsiders as partners, rather than competitors, and try to learn from others in their network.

Moreover, contingencies are seen as possibilities to create opportunities for the firm (Sarasvathy et al., 2010).

We expect that entrepreneurs will apply the logics of effectuation and causation not only while creating their business strategy. Entrepreneurs need to create firm internal structures without knowing how fast the firm will grow and what kind of processes the firm needs. Most entrepreneurs probably do not exactly know what kind of knowledge, skills, and abilities their employees need. Roles and tasks of employees are not yet defined and communication processes are not yet established or structured. While creating structures and processes, entrepreneurs could apply effectuation or causation logics. On the one hand, they could try to predict how the market and the firm will change and subsequently align the internal structures to their expectation and objectives. On the other hand, entrepreneurs could try to control evolving processes without prediction, and thus could react creatively to emerging opportunities by adapting structures in a flexible manner. Whether entrepreneurs follow causal of effectual logics for creating these structures and while leading the firm, will affect employees' work environment. In line with previous work (Hubner & Baum, in press), we propose that this will affect employees' intrinsic motivation.

Previous effectuation research predominantly analyzed opportunity recognition and creation or exploration and exploitation processes (Dew et al., 2009) Some researchers furthermore analyzed how applying causal vs. effectual logics influences firm creation and design, especially under resource constraints and under uncertainty (Sarasvathy, 2001; Sarasvathy et al., 2010). Read et al. (2009) analyzed effectuation's effect on overall firm performance. Berends et al. (2014) analyzed effects of effectuation on product innovation processes, and Brettel et al. (2012) studied differences in effects of effectuation and causation on process output and efficiency in R&D projects. Effectual logics were also transferred to investment (Wiltbank et al., 2009) and marketing decisions (Dew et al., 2009).

Only recently some authors proposed that effectuation might also relate to employee-level outcomes. In a qualitative study, Hubner, Baum, & Hofmuth (2014), find that entrepreneurs apply effectual logics also for developing human resources. In a conceptual paper, Hubner & Baum (in press) propose that causation influences extrinsic motivation while effectuation influences intrinsic motivation. While these studies provide some preliminary support that effectuation could influence employees' intrinsic motivation, we still lack quantitative-empirical evidence on this relationship. Our present study seeks to contribute to the emerging literature on employees' perspective in entrepreneurial firms and more specifically on the role of effectuation as a means to stimulate – or reduce – intrinsic motivation. In the following, we first develop the potential upside of effectuation on employees' intrinsic motivation before we turn to the potential negative consequences of effectuation.

4.2.2 Potential Positive Effects of Effectuation on Employees' Intrinsic Motivation

When entrepreneurs apply effectual logics, they are likely to rely on these logics also while interacting with their employees and while making decisions on their HRM. We expect that applying effectual logics releases several mechanisms that positively influence employees' intrinsic motivation. In the following, we will outline how each decision making principle that underlies effectuation (means orientation, affordable loss principle, partnership, and acknowledging the unexpected) might increase intrinsic motivation.

First, entrepreneurs relying on effectuation are likely to make decisions based on their means at hand. Employees' competencies are such means. When entrepreneurs want to leverage these competencies as their means, they are likely to adapt the employees' work environment and tasks to employees' competencies. This should stimulate their intrinsic motivation.

Second, entrepreneurs applying effectuation, and thus an affordable loss principle, will provide the necessary flexibility and allowance for experimentation that employees in

entrepreneurial firms probably need. This should stimulate employees' motivation because motivation is dependent on a fulfillment of these requirements (Oldham & Cummings, 1996).

Third, entrepreneurs who apply effectual decision-making logics are likely to see their employees, like other stakeholders (Sarasvathy et al., 2010), as partners who co-create the firm. This again demonstrates appreciation of their competencies and their work in general. We expect that employees of entrepreneurs who apply mainly effectual logics are more likely to be allowed to work with a high level of self-responsibility and autonomy. By allowing employees to co-create the venture, entrepreneurs place high trust in their employees. These opportunities to bring in their own ideas and to shape the firm's future is likely to further increase employees' intrinsic motivation (Miao et al., 2013; Zhang & Bartol, 2010).

Fourth, we expect that entrepreneurs who apply effectual logics, and thus who try to acknowledge rather than overcome the unexpected, will provide their employees with a broad range of responsibility (Read & Sarasvathy, 2005). They are likely to allow their employees to define their roles and structure their tasks on their own. We expect that their creative view will make them allow that their employees decide how to cope with tasks and problems on their own. This autonomy and high personal job control is likely to produce positive outcomes for employees (Richer & Vallerand, 1995; Schaubroeck & Merritt, 1997; Van Yperen & Hagedoorn, 2003). Structuring their tasks on their own might better fit the work environment in entrepreneurial firms and will also better match expectations of individuals hired by entrepreneurs (Tumasjan et al., 2011). This will in turn increase intrinsic motivation (Ardichvili et al., 1998). Thus, we expect in our first hypothesis that entrepreneurs can stimulate their employees' intrinsic motivation by relying on effectuation.

Hypothesis 1a: Effectuation is positively related to employees' intrinsic motivation.

4.2.3 Potential Negative Effects of Effectuation on Employees' Intrinsic Motivation

Although the above outlined arguments suggest several positive effects of effectuation on employees' intrinsic motivation, some mechanisms complicate these effects.

Motivation is argued to be primarily depending on goals (Ordóñez et al., 2009). Goals should be challenging but not overstraining to stimulate employees' motivation. Entrepreneurs who rely on effectuation – by definition – do not set any goals. The literature has continually ignored potential difficulties that entrepreneurs, who rely on effectuation, might face in their role as leaders. Only entrepreneurs who apply mainly causal logics are able to motivate their employees by goals and a goal-orientated vision because entrepreneurs who apply mainly effectual logics do not set concrete goals.

Furthermore, employees might mistrust entrepreneurs when plans are constantly changing (Read & Sarasvathy, 2005). Entrepreneurs themselves might still feel in control while employees cannot understand their changing decisions. Additionally, when entrepreneurs seem to over-trust (Goel & Karri, 2006; Karri & Goel, 2008) employees might lose their faith for the firm's success. This might counter the above proposed positive effects of effectuation.

Thus, we formulate a second competing hypothesis that suggests a negative effect of effectuation on employees' intrinsic motivation.

Hypothesis 1b: Effectuation is negatively related to employees' intrinsic motivation.

4.2.4 Moderating Effects of Environmental Dynamism

Whether effectuation shows its positive or its negative effects might be dependent on the firm's environmental dynamism. Several mechanisms might cause this moderating effect of environmental dynamism.

Employees facing changing external conditions are particularly receptive to leader's behavior and style (Milliken, 1987; Waldman, Ramirez, House, & Puranam, 2001). At the same time, highly dynamic work environments reduce leadership effectiveness (Zhang et al., 2014). For example, leaders' reduced recombination efforts (Karim, Carroll, & Long, 2016), complicated resources management (Sirmon, Hitt, & Ireland, 2007), and inhibited visionary and inspirational behaviors (Zhang et al., 2014) inhibit effectiveness.

In a dynamic environment, entrepreneurs are likely to perceive the environment as highly uncertain because they cannot predict the direction in which their environment is changing (Waldman et al., 2001). They cannot foresee the potential impact of those changes on their organization, and whether or not particular responses to the changes in their environment will be successful (Waldman et al., 2001). Thus, dynamism complicates a definition of specific tasks and activities that employees should perform (Williamson, 1975).

Additionally, dynamism increases organizational demands and the organizations' options how to respond to competitive pressures (Lepak, Takeuchi, & Snell, 2003). While coping with these demands and pressures, dynamic changes in organizational structures become necessary, which again complicate leadership effectiveness (Waldman et al., 2001). With high dynamism, an integration of strategic decisions on different levels is essential (Crossan, Vera, & Nanjad, 2008). In this integration process, coping with arising paradoxes will further complicate entrepreneurs' decision making (Smith, 2014), particularly in dynamic environments (Crossan et al., 2008; Havermans, Den Hartog, Keegan, & Uhl-Bien, 2015).

Empirical analyses lend support for a moderating effect of environmental dynamism by showing that it moderates effects of entrepreneurial (Huang et al., 2014) as well as transformational and transactional behaviors (Ensley et al., 2006) on new venture performance.

Jansen et al. (2009) also suggest a moderating effect of environmental dynamism for the effect

of leadership behaviors on organizational learning and innovation, which is particularly important in entrepreneurial firms.

Thus, we expect that effects of effectuation on employees are dependent on a firm's dynamism. In the following, we outline two competing perspectives: effectuation appears to be appropriate in dynamic environments; but effectuation might also counter cob control in dynamic environments.

Appropriateness of Effectuation in Dynamic Environments

Effectual logics were previously argued to be particularly appropriate in dynamic environments (Wiltbank, Dew, Read, & Sarasvathy, 2006). Thus, they could also be appropriate for leading employees in dynamic environments. This would be in line with Lepak et al. (2003) who argue that resource flexibility, the ability to cope with variance in the demands placed on employees (Wright & Snell, 1998) is likely to be of enhanced value in highly dynamic environments. Resource flexibility is most likely when effectuation is applied. Further, the preparedness to alter the organizational work environment, which is also more likely when entrepreneurs apply effectuation, could facilitate adjustments to changing environmental demands (Gilley & Rasheed, 2000). In the case of effectuation, positive change expectation are more likely. These were shown to increase intrinsic motivation (Hui & Lee, 2000). Thus, effectual logics could be appropriate for increasing employees' motivation in dynamic environments.

Additionally, causal logics could be more appropriate under conditions of less environmental dynamism because predictions are more accurate. In that case, entrepreneurs can predict the demands of their employees with more confidence (Lepak et al., 2003) and make appropriate plans. This would suggest causation as a meaningful approach in less dynamic environments. Taking these arguments together leads to our first moderator hypothesis.

Hypothesis 2a:

The relationship between effectuation and employees' intrinsic motivation is positively moderated by environmental dynamism, in such that effectuation has a stronger positive relationship with intrinsic motivation in a dynamic environment.

Vanishing Job Control when Effectuation is Applied in Dynamic Environments

There are several arguments which suggest that causal logics are particularly important in a dynamic environment and that effectual logics show their positive effects only in a more stable environment. The potential negative effects of effectual logics could be amplified by environmental dynamism because a combination of effectuation and dynamism is likely to inflate perceptions of uncertainty and, in turn, increase employees' anxiety (Waldman et al., 2001). While entrepreneurs might still feel in control (Wiltbank et al., 2009), their decisions might be difficult to understand for employees. Relying on effectuation, entrepreneurs do not set goals, allow flexibility, and change their strategy again and again. They will not make concrete plans or formulate a goal-oriented vision. This will increase confusion and uncertainty for employees which are in dynamic environments already at a high level. This experience is likely to make them feel lost and out of control. Since these feelings are not preferable for most people, these will unfold negative effects on employees (Hui & Lee, 2000; Parker & Sprigg, 1999; Van Yperen & Hagedoorn, 2003). Most people possess an intrinsic need to be in control of their own destiny (Deci & Ryan, 1987). Extremely uncertain environments generate a high degree of stress, anxiety, and a lack of assuredness (Waldman et al., 2001), which impact attitudinal and physiological outcomes (Ganster, 1991).

Additional support for this mechanism provide Schweiger and De Nisi (1991) who find that increased uncertainty perceptions decrease satisfaction, commitment, intentions to remain with an organization, and perceptions of the organization's trustworthiness, honesty, and caring.

Thus, dynamism and uncertainty perceptions, which are inflated by entrepreneurs who rely on effectual logics, are likely to have negative implications for employees in entrepreneurial firms, including a lack of intrinsic motivation.

Accordingly, a clear direction, which entrepreneurs who apply causal logics arrange, might be particularly important in uncertain environments. Waldman et al. (2001) provide support for this notion as they find that charismatic leadership positively influences performance under uncertainty, but does not matter without uncertainty. Further, Leung, Zhang, Wong and Foo (2006) find that especially in the growth phase of entrepreneurial firms, when functional diversity is established and thus dynamic changes are likely, a shared business vision among employees becomes particularly important. They argue that the assuredness, confidence, and vision of charismatic leaders is a source of psychological comfort for employees, reducing their stress by showing how uncertainty can be turned into an opportunity and success (Leung et al., 2006). House and Shamir (1993) point in the same direction by suggesting that crises, and the associated stress and uncertainty, may foster the emergence of and a need for charismatic leadership. Therefore, we propose that causal logics, that provide a clear direction, are more effective for stimulating employees' intrinsic motivation in dynamic environments.

On the other hand, in stable environments, effectuation might unfold its positive effects. In a stable environment employees are not distressed by risk, anxiety, and a lack of control. Thus, employees might be better able to appreciate the flexibility and the value of their skills, which they get by effectual leaders under limited dynamism. Further, longer lasting attitudes to employees, which entrepreneurs who rely on effectuation try to establish, can better emerge in less dynamic environments. Following transaction theorists, Lepak et al. (2003) argue that environmental uncertainty is inversely related with the ability of firms to develop long-term contracts. Thus, the positive effects of effectuation, which are due to their partner-like attitude towards employees, might occur rather in stable than in dynamic environments. At the same

time, causation might even produce adverse effects in stable environments. A similar effect was expected by Jansen et al. (2009) who say it with the words of Ensley et al. (2006: 259): 'The same unconventional brilliance that saves the day during a crisis is likely to be interpreted as 'simply wacky' in a stable environment.'

Building on these arguments, we formulate our second moderator hypothesis as follows.

Hypothesis 2b:

The relationship between effectuation and employees' intrinsic motivation is negatively moderated by environmental dynamism, in such that effectuation has a stronger negative relationship with intrinsic motivation in a dynamic environment.

4.3 METHOD

We test the effects of effectuation on employees' intrinsic motivation in a multi-level field study which uses matched samples of entrepreneurs and their key employees. This is necessary because (1) entrepreneurs' strategic logics can be best reported by entrepreneurs, (2) employees' intrinsic motivation can only be reported by employees, and (3) effects of effectuation on intrinsic motivation of employees can only be calculated when we observe the intrinsic motivation of employees who are matched to entrepreneurs showing effectual logics, in varying intensity. This multi-level approach also has the advantage to be less prone to common method bias (CMB) than other cross-sectional survey studies.

4.3.1 Sample

In order to identify suitable firms (firms which are still young or small, but have employees), we used a database that provides contact information and additional data about ventures in Germany. We invited young firms (firm age <= 10 years and number of employees >= 2) and small firms (firm age >= 10 years and number of employees <= 50) in the technical

industry to participate in our study. We asked entrepreneurs plus 1-4 employees who work closely with this entrepreneur to complete the questionnaire. A token in the survey link allowed us to match employees with the entrepreneur they are working for. After sending the invitation and two remainder emails, we additionally called 800 firms and explained the purpose of the study to enhance their willingness to answer our questions. In total, we were able to match answers from 203 employees with answers from 152 entrepreneurs (1-5 employees per entrepreneur).

Entrepreneurs in our sample were on average 49.43 years old (SD = 10.00 years), 9.1 % were female. Employees were on average 39.48 years old (SD = 6.77 years), 48.2 % were female. Employees were on average 7.60 years employed by the current employer (SD = 12.10 years). Firms were on average 9.83 years old (SD = 7.19 years) and had 18.80 employees (SD = 14.55 employees).

4.3.2 Measures

the items developed by Brettel et al. (2012) (a semantic differential ranging from -4 to 4). For developing our scale, we used the German version of their items, which we received from the second author. We adapted those for the use in entrepreneurial firms (instead of R&D departments). The scale contrasts effectuation (for example 'Rather given means than concisely given project targets have been the starting point for our business') to causation (for example 'A concisely given project target has been the starting point for our business'). Cronbach's alpha for means vs. goals (7 items) was .876, for affordable loss vs. expected return (5 items) .795, for partnerships vs. competitive market analysis (4 items) .839, and for acknowledge vs. overcome the unexpected (7 items) .766. We created an index of the four dimensions as indicator for the entrepreneurs' use of effectual logics.

Intrinsic motivation was measured on the employee-level. To measure intrinsic motivation, we used 3 items of a scale from Tremblay, Blanchard, Taylor, Pelletier, & Villeneuve (2009) that asks participants to indicate to what extent the items correspond to the reasons why they presently are involved in their work. One sample item reflecting intrinsic motivation is: 'For the satisfaction I experience from taking on interesting challenges'. Cronbach's alpha for this scale was .748.

For measuring *environmental dynamism*, we used 4 items developed by Jansen et al. (2009). These items were answered by the entrepreneur. One sample item is 'Environmental changes in our local market are intense'. Cronbach's alpha for this scale here was .701. Both environmental dynamism and intrinsic motivation were measured on a 7-point Likert scale.

Controls. We included employees' age, gender (1 = female, 2 = male), and education (0 = without higher education, 1 = with higher education) as control variables because those could predict intrinsic motivation and thus confound our findings. Additionally, we included a dummy variable that indicated whether the firm is in the high-tech (= 1) or low-tech (= 0) industry because this might influence the appropriateness of effectual logics and might thus influence its effects on employees' intrinsic motivation. For creating these variables, we used information that firms provide on their website.

4.4 RESULTS

Because of the multi-level structure of our data, we tested our hypotheses in a Generalized Estimating Equation (GEE) model. Table 4-1 displays the descriptive statistics and correlations of all variables.

4.4.1 Test of Hypotheses

Table 4-2 shows the results of the regression analysis with effectuation, environmental dynamism, and the interaction term as independent variables and employees' intrinsic

motivation as dependent variable. Effectuation's relationship with employees' intrinsic motivation was non-significant (b = -.013; p = .828). Thus, none of our competing hypotheses that predicted a direct effect of effectuation (hypothesis 1a and 1b) is supported. Nonetheless, the coefficient of the interaction term was significant (b = -.186; p = .000). In Figure 4-1 we plot this relationship. A simple slope analysis showed that the relationship between effectuation and employees' intrinsic motivation was significantly negative in a highly dynamic environment (b = -.199; p = .029). This finding supports Hypothesis 2b. The slope in case of a less dynamic environment was non-significant (b = -.013; p = .826).

Table 4-1: Inter-Correlations and Descriptive Statistics

	Variables in the survey	Mean	SD	1	2	3	4	5	6
1	Effectuation	4.50	1.09	1.00					
2	Environmental dynamism	4.45	1.28	.15	1.00				
3	Intrinsic motivation	6.07	.92	.30	.44	1.00	07	.08	.18
4	Employees' age	39.48	6.77	.00	.19	.01	1.00	11	39**
5	Employees' gender	1.48	.17	13	03	.40	.30	1.00	.09
6	Employees' education	.59	.49	.26	.09	.24	.58 [†]	.18	1.00
7	High-tech industry	.23	.42	02	07	.20	.01	.39	11

Note: Coefficients are standardized. Between cluster correlations below the diagonal, within cluster correlations above the diagonal. ** Coefficient is significant at the .01 level (2-tailed). [†] Coefficient is significant at the .10 level (2-tailed).

Abbreviation: SD: Standard Deviation

Table 4-2: Generalized Estimating Equation Analysis

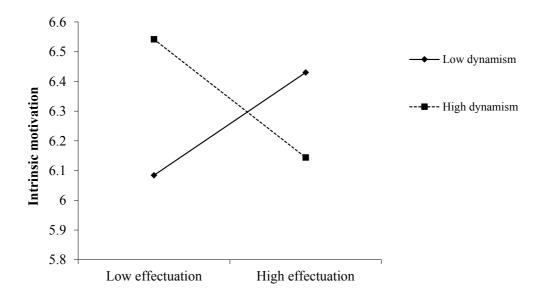
Dependent Variable: Employees' Intrinsic Motivation

		Model 1		Model 2		Model 3	
		Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Step 1: Control,	Gender	.05	.51	.05	.58	.05	.57
independent and	Age	07	.38	04	.61	05	.60
moderator variables	Employees' education	.10	.14	.07	.35	.10	.12
	High-tech industry	.02	.76	05	.58	05	.58
	Effectuation			.05	.48	01	.83
	Environmental dynamism			.08	.28	.04	.49
Step 2: Interaction variables	Effectuation X environmental dynamism					19***	.00
QIC		94.74		58.66		55.33	

Note: Unstandardized coefficients are reported; *** Coefficient is significant at the .001 level (2-tailed).

Abbreviations: GEE: Generalized Estimating Equation; QIC: Quasi-Likelihood under the Independence Model Criterion

Figure 4-1: The Moderating Effect of Environmental Dynamism



4.4.2 Common Method Bias

Although we used self-report survey measures, CMB should not unleash strong effects in our study, due to the multi-level structure of the data. The independent variable and the moderator were reported by entrepreneurs whereas the dependent variable was reported by their employees. We still evaluated CMB's effect on our study. First, we ran Harman's single factor test. The extracted single factor explained 21.53 % of the variance, whereas the expected six factors explained 64.36 % of the variance. Second, we used the unmeasured latent factor approach as described by Podsakoff, MacKenzie, Lee, and Podsakoff (2003) where we compared our standard measurement model with a model, in which we added one common latent factor equally influencing all used items. This factor represents the influence of CMB (Podsakoff et al., 2003). In the model including the CMB factor, levels of significance remained stable and none of the regression weights differed more than .11 from the model without the CMB factor. Thus, both tests suggest that CMB is not a problem in our study.

4.4.3 Robustness Checks

To analyze the robustness of our findings, we additionally calculated our model in a multi-level path model. In this model, effectuation as well as environmental dynamism (reported by entrepreneurs) were modeled to have variance only on the between level, whereas intrinsic motivation was modeled on the within level and thus had variance on both levels. We were interested in whether average intrinsic motivation differed due to entrepreneurs' strategic logic and the firms' environmental dynamism. Thus we analyzed and report effects on the between level.

The χ^2 -test for the model was non-significant ($\chi^2 = 32.941$, df = 34, p = .637) and fit indices (CFI = 1.000, RMSEA = .000) met goodness-of-fit criteria as suggested by Hu and Bentler (1999). Thus, our data showed a good fit with our model. Effectuation's effect on employees' intrinsic motivation again was non-significant. The interaction effect here was significant at the 10 % level (b = -.177; p = .062). We interpret this as still 'marginally significant' (Aguinis, Werner, Abbott, Angert, Park, & Kohlhausen, 2010) as other researchers did (see for example: Bidwell & Keller, 2014; Broschak & Block, 2014; Godart, Maddux, Shipilov, & Galinsky, 2015; Nandkeolyar, Shaffer, Li, Ekkirala, & Bagger, 2014). Thus, our finding that the effect of effectuation on employees' intrinsic motivation is negative, in the case of a highly dynamic environment, receives further support.

4.5 DISCUSSION, LIMITATIONS, AND IMPLICATIONS

This study is, to the best of our knowledge, the first that analyzed effects of applying effectual logics on employees empirically. We hypothesized potential positive as well as potential negative effects while suspecting that positive effects could outweigh the negative effects. Moreover, we expected that environmental dynamism moderates the effect of effectuation on employees' intrinsic motivation. We suggested that effectuation's effects could

become stronger positive or stronger negative in dynamic environments. We discussed why environmental dynamism might inhibit potential positive effects of effectuation.

Applying a multi-level field study, we found that whether effectuation is rather positively or negatively related to intrinsic motivation depends on the dynamism of a firm's environment. Effectuation seems to release a negative effect in highly dynamic environments. This appears particularly interesting because effectuation literature suggests applying effectual logics to be most appropriate in dynamic environments (Wiltbank et al., 2009). Thus, although there are several potential positive effects of effectuation for entrepreneurs' exploration and opportunity recognition, some negative effects should be considered, particularly in dynamic environments.

We consider our study to provide some important insights regarding firm internal outcomes of effectuation, however, our empirical study has some limitations. In our multi-level survey, we had to deal with a low response rate. Especially matching the data from entrepreneurs and employees reduced our sample size. Still, our findings contribute to entrepreneurship literature in several ways.

By now, effectuation literature did not appropriately acknowledge that effectuation might have any effects, positive or negative, on employees. Our study enhances the understanding of effectuation by pointing out and empirically showing negative effects of effectuation on employees, at least in highly dynamic situations.

Moreover, our findings reveal potential difficulties for entrepreneurs while leading their employees, which are specific to the entrepreneurial context. Potential negative effects of applying effectual logics might particularly occur in entrepreneurial firms because entrepreneurs tend to rely on effectual logics. Studies which apply previous leadership theories to the entrepreneurial context might not detect these difficulties because previous leadership theories did not consider entrepreneurial ways of decision making. This should encourage

entrepreneurship researches to not only analyze whether leadership theories built and proven in established firms hold true in the entrepreneurial context. We should also think about potential consequences of characteristics of the entrepreneurial context, which are discussed in entrepreneurship literature, for leadership mechanisms.

Based on our findings, we suggest to explore the mechanisms underlying the effect of effectuation on employees' intrinsic motivation in more detail. Future research could analyze mediators in this mechanism. Effectuation might make entrepreneurs show specific leadership behaviors, such as empowering leadership or ill-defined goals, which might influence employees' intrinsic motivation, positively or negatively. Furthermore, employees' trust and confidence could mediate this effect, since these might be influenced by whether or not entrepreneurs apply effectuation and might be important for an emergence of intrinsic motivation.

Our findings also have some implications for entrepreneurs. Knowing of potential negative effects of applying effectuation, they should be cautious while applying effectual logics. Trust building and developing an overarching vision might help to cope with the negative effects. Entrepreneurs applying effectual logics, whether or not they do that purposefully, should be aware of the effects that the way they make decisions might have on their employees.

CHAPTER 5 CONTAGION OF ENTREPRENEURIAL PASSION AND ITS EFFECTS ON EMPLOYEES' COMMITMENT AND WORK PERFORMANCE⁵

Abstract

Does entrepreneurial passion influence the entrepreneurs' employees? And which role do emotion and identity play in this process? In this paper, we seek to resolve these questions by multiple empirical studies. First, we develop and empirically test a multi-level model showing that entrepreneurs' passion enhances employees' passion which in turn positively relates to their commitment (study 1). In an additional experimental study (study 2), we delve deeper into the underlying mechanisms in order to test how different aspects of passion – identity and emotion – separately and jointly cause effects on employees' perceptions of entrepreneurs' passion and subsequently influence their commitment and work performance. Our studies provide empirical support for positive effects of entrepreneurial passion on employees and contribute to a better understanding of the underlying mechanisms.

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⁵ This chapter is co-authored by Prof. Dr. Matthias Baum and Prof. Dr. Michael Frese.

5.1 INTRODUCTION

In entrepreneurial firms, not only entrepreneurs but also their employees contribute to the firms' performance and survival probability (Cardon & Stevens, 2004; Hayton, 2003). Entrepreneurs, particularly those leading growth oriented firms, usually cannot cope with all required tasks in their firms themselves but are dependent on the support of their employees (Kuratko, Ireland, Covin, & Hornsby, 2005). In larger, well-established firms, the human resource function cares for employees' commitment and tries to enhance employee performance with sophisticated concepts like incentive systems, sophisticated education programs or other high-performance work practices (Jiang et al., 2012). In contrast, entrepreneurial firms often are resource constrained and, therefore, cannot afford to employ human resources professionals. Despite the importance of human resources for entrepreneurial firms, our knowledge on potential remedies for these firms remains limited.

Recently, literature at the interface between entrepreneurship and psychology has begun to stress the importance of entrepreneurial passion and how it influences employees' performances in entrepreneurial firms (Cardon et al., 2012). Entrepreneurial passion is defined as a 'consciously accessible, intense positive feeling experienced by engagement in entrepreneurial activities associated with roles that are meaningful and salient to the self-identity of the entrepreneur' (Cardon et al., 2013: 517). It is discussed as a central driving force underlying entrepreneurs' efforts, persistence, creativity, opportunity recognition, and performance (Cardon et al., 2005; Chen et al., 2009; Liu et al., 2011). Accordingly, scholars have recently suggested additional studies to deepen our understanding of entrepreneurial passion's influence (Cardon, et al., 2012; Cardon, Post, & Forster, 2016; Gielnik et al., 2015). While the entrepreneur-centric perspective has received strong empirical support (Drnovsek, Cardon, & Patel, 2016; Huyghe, Knockaert, & Obschonka, 2016; Murnieks, Mosakowski, & Cardon, 2014), the question if and how entrepreneurial passion is contagious to employees and

how this relates to employees' commitment and work performance, received far less empirical attention (Breugst et al., 2012). In this paper, we investigate whether entrepreneurial passion is contagious and whether this provides one way to increase employees' commitment and work performance.

More specifically, we first show in a multi-level field study (study 1) (1) whether entrepreneurs' passion can transfer to their employees, and (2) whether this contagion effect translates to employees' commitment. To investigate this process in more detail, we investigate in an experimental study (study 2) (3) whether entrepreneurs' emotions or identity determines whether an entrepreneur is perceived as passionate, (4) whether employees' own passion influences whether they are effected by entrepreneurs' passion, and (5) whether entrepreneurial passion also enhances employees' productivity and creativity.

Our research makes several contributions to the existing literature. First, our studies focus on the underrepresented perspective of employees in entrepreneurial firms, given that literature on entrepreneurial passion largely focuses on entrepreneurs themselves (Cardon et al., 2009; Cardon et al., 2005; Gielnik et al., 2015). Accordingly, we show how entrepreneurs can effectively use their expressed passion to leverage employees' potential. Second, to the best of our knowledge, this is the first study to empirically examine a contagion effect of entrepreneurial passion, although several researchers have proposed this effect (Breugst et al., 2012; Cardon, 2008). Third, we untangle the effect of emotion and identity that underlie entrepreneurial passion. This is important because not only the display of positive emotions but also communicating the salient identity underlying these positive emotions might determine whether employees can observe entrepreneurs' passion, and thus whether passion can transfer. Fourth, we investigate effects of entrepreneurial passion by a combination of a multi-level field study and an experimental design, which are in combination less prone to methodological

problems such as CMB. Additionally, this approach allows ruling out some alternative explanations.

This study extends knowledge (1) on passion (Cardon, 2008; Cardon et al., 2009; Gielnik et al., 2015; Vallerand et al., 2007) by untangling the effects of emotions and identities in the passion contagion process, (2) on leadership in entrepreneurial firms (Ensley et al., 2006; Hmieleski & Ensley, 2007) by focusing affective displays of entrepreneurs instead of leadership styles as predictors of employee-level outcomes, and (3) on the role of identities in leadership mechanisms (Van Knippenberg, Van Knippenberg, Cremer, & Hogg, 2004) by showing a compensatory effect of an identity display when no emotions are displayed.

5.2 STUDY 1 – MULTI-LEVEL FIELD STUDY

5.2.1 Theoretical Background Study 1

Passion is a positive, intense, long term feeling towards a particular activity (Vallerand et al., 2007). Passion arouses a flow-like feeling while doing this particular activity (Csikszentmihalyi & LeFevre, 1989). When people observe their positive feelings towards this activity, they over time internalize this activity as part of their self-concept. This internalization distinguishes passion from other positive emotions such as joy or happiness.

Entrepreneurial passion is a positive, intense, long term feeling that is tied to one or more specific entrepreneurial activities (Cardon et al., 2013). Entrepreneurial activities could include inventing which refers to searching for new and innovative ideas or identifying and exploring new opportunities, or founding which focuses on establishing a venture by assembling necessary financial and human resources, or developing which includes nurturing, growing and expanding the business (Breugst et al., 2012; Cardon et al., 2013). Thus, entrepreneurial passion develops when at least one of these entrepreneurial activities is of the most relevance for an entrepreneur (Cardon et al., 2013). Therefore, entrepreneurs are considered as passionate when

they experience consciously accessible, intense, positive feelings while engaging in entrepreneurial activities which are associated with roles that are meaningful and salient to their self-identity as an entrepreneur (Cardon et al., 2009). For these entrepreneurs being the inventor, founder, and/or developer of their firm becomes part of their self-concept (Cardon et al., 2009).

Additionally, passionate entrepreneurs integrate the venture into their self-concept (Cardon et al., 2005). Their passion contains love for the venture itself. This implies a deep emotional connection between entrepreneurs and their ventures (Cardon et al., 2005). Thereby, entrepreneurial passion commits entrepreneurs to their firm and induces the interests of the venture to be of primary importance (Cardon et al., 2005). Thus, passionate entrepreneurs continue their activities even in the event of major difficulties (Cardon et al., 2009).

How Entrepreneurs' Passion Influences Employees' Passion

Drawing on mechanisms of primitive emotional mimicry (Hatfield et al., 1994), activation of the mirror-neuron system (Rizzolatti & Craighero, 2004), affect diffusion (Peters & Kashima, 2015), and social comparison processes (Sullins, 1991), we expect that passion is contagious to employees for the following reasons.

In primitive emotional mimicry (Hatfield et al., 1994) people mimic facial expression, body language, and movements of others, automatically and subconsciously. This process of primitive emotional mimicry is one way how entrepreneurs' passion can arouse positive emotions in employees. However, this emotion is here not necessarily tied to a specific target. Contagion of entrepreneurial passion requires the emotion of the observing person to be tied to entrepreneurial activities. Primitive emotional mimicry will, therefore, start a contagion process but not be sufficient to create passion, commitment, productivity or creativity in employees.

For understanding contagion of emotions, the human mirror-neuron system plays an important role. It is involved in understanding others' action and emotion, and determines the capacity to imitate (Rizzolatti & Craighero, 2004). Mirror neurons represent the neural basis of a mechanism that creates a direct link between the sender of a message and its receiver. Through this mechanism, people are likely to represent an action. This might happen even when they do not observe an action, but listen to someone describing that action. Thus, employees who listen to entrepreneurs, who talk with passion about doing entrepreneurial activities, are likely to mirror their behavior and emotions. In this case, they will also mimic entrepreneurs' passion.

While emotional mimicry and mirroring emotions, employees experience a congruent emotion to the entrepreneur's emotion. However, the target of the emotion, its intentionality, is different. For entrepreneurs, doing an entrepreneurial activity is the target of the emotion. For employees, the entrepreneur who is expressing the emotion is the target. Some evidence suggests that entrepreneurs' positive emotion might also trigger employees' positive emotion towards the same target, in this case the entrepreneurial activity: Peters and Kashima (2015) highlight that affect diffusion can include both, congruence in flavor and in intentionality. Congruence in intentionality occurs when the person who observes the emotion has an understanding that someone's emotion has a specific target or cause. This understanding induces an emotion in the observing person which is connected to the same specific object or here activity. Consequently, if employees understand that entrepreneurs' passion is an emotion toward doing entrepreneurial activities intentional affect diffusion is possible.

While observing entrepreneurs' passion, employees might not only understand that the emotion that they observe is tied to a specific target, but might also understand why this target arouses the entrepreneur's emotion. This process is also known as social appraisal. Hereby, entrepreneurs' emotions inform employees' appraisal of the entrepreneurial activity (Peters & Kashima, 2015). Thus, when entrepreneurs show positive emotions towards an entrepreneurial

activity, their employees are likely to appraise this activity as joyful as well. Via this mechanism, employees are more likely to experience positive emotions while pursuing entrepreneurial activities themselves because they have learned that entrepreneurial activities arouse positive emotions by seeing the entrepreneurs' positive emotions. Consequently, witnessing entrepreneurs' passion helps employees to experience entrepreneurial passion themselves.

These mechanisms can also be supported by social comparison processes (Sullins, 1991) which are not caused by the observed person or emotion but by social pressure. In a social comparison process, which is less unconscious than the above explained mechanisms, people compare their emotions with relevant others around them and use this as social information to understand how they should be feeling themselves (Barsade, 2002). When employees identify with the entrepreneurial firm, they are likely to compare themselves to the entrepreneur (Cardon, 2008; Dutton & Dukerich, 1991). Thus, employees are trying to understand why the entrepreneur is experiencing an emotion (like entrepreneurial passion), and if it would be appropriate for themselves to experience a similar emotion. When employees are in a similar situation as entrepreneurs, or believe that they are, they will think that they should feel the same emotions. Thus, when they are involved in entrepreneurial activities themselves, and observe that the entrepreneur is passionate about those, they are likely to feel the passion themselves.

Considering all these mechanisms leads to our first hypothesis:

Hypothesis 1a: Entrepreneurs' passion is positively related to their employees' passion.

How Entrepreneurial Passion Influences Employees' Commitment

Strong affective commitment towards the entrepreneurial firm is crucial for a firm's success (Baron & Hannan, 2002; Breugst et al., 2012). At the same time, a lack of organizational legitimacy, limited financial resources for paying high salaries, and the unknown future of the firm makes developing affective commitment a particularly difficult task for entrepreneurs (Breugst et al., 2012; Cardon & Stevens, 2004; Hayton, 2003). Thus, stimulating their employees' affective commitment appears challenging but very important for entrepreneurs.

We expect that affective commitment of employees in entrepreneurial firms will increase with their entrepreneurial passion. Comparable to passionate entrepreneurs, employees who are passionate for entrepreneurial activities should attend to and be deeply engrossed in these activities (Cardon et al., 2009). This will make them experience a 'flow'-like feeling (Csikszentmihalyi & LeFevre, 1989; Vallerand et al., 2003). These employees will also experience meaningfulness in and identification with their work in the entrepreneurial firm, which will increase their affective commitment. Trying to maintain this state, passionate employees will be persistent, continue their engagement even in the face of obstacles, and be committed to reaching their goals (Cardon et al., 2009). As a result of reaching their goals, employees will experience strong positive affect (Csikszentmihalyi & LeFevre, 1989) which is related to an enhanced affective commitment as shown in a meta-analysis by Thoresen et al. (2003).

Furthermore, passion literature suggests that experiencing passion-like positive emotions influences employees' work motivation and behavior (Cardon, 2008; Thoresen, Kaplan, Barsky, Warren, & Chermont, 2003). Passion stimulates positive emotions towards an organization and its organizational identity (Cardon et al., 2009), and these emotions cause a strong cognitive attachment, and increase job motivation and satisfaction (Dutton & Dukerich, 1991).

Combining these mechanisms with the contagion effect suggests that entrepreneurs' passion arouses employees' passion which is positively related to employees' affective commitment. Breugst et al. (2012) provide support for this notion because they find that employees who perceive the entrepreneurs' passion experience increased affective commitment. Therefore, we expect that employees' own passion, stimulated by the entrepreneur's passion, is positively related to their affective commitment. Figure 5-1 shows the proposed mechanism. These arguments lead to the following hypotheses:

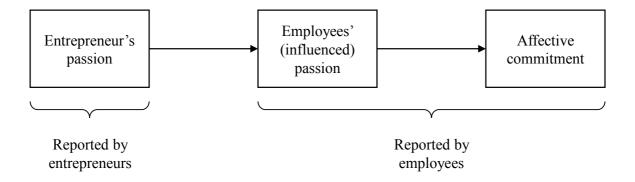
Hypothesis 1b: Employees own passion is positively related to their affective

commitment.

Hypothesis 1c: Employees own passion mediates the relationship between

entrepreneurs' passion and employees' affective commitment.

Figure 5-1: Entrepreneurial Passion and Employees' Affective Commitment (Study 1)



5.2.2 Method Study 1

In study 1, we used a multi-level field study in which we analyzed answers from entrepreneurs as well as their employees.

Sample

We decided to contact young and small firms because we expect that contagion of entrepreneurial passion can be best observed in these firms. In young firms, many entrepreneurs, who are the founders of the business they are working in, are likely to be highly passionate. This should increase variance in passion which allows an analysis of effects of passion. In small firms, entrepreneurs are likely to work closely with their few employees which creates possibilities for passion contagion mechanisms. Further, we decided to choose firms in a similar industry in order to exclude a high variance due to industry differences. To find firms that fit these criteria, we used a database that provides contact information and additional data about ventures in Germany. From the population of young firms (firm age <= 10 years and number of employees >= 2) and small firms (firm age >= 10 years and number of employees <= 50) operating in technical industries, we selected 800 firms, which we called and asked for their participation in our study. Finally, we could match answers from 203 employees to answers from 152 entrepreneurs (1-5 employees per entrepreneur).

Entrepreneurs in our sample were on average 49.43 years old (SD = 10.00 years), 9.1 % were female. Employees were on average 39.48 years old (SD = 6.77 years), 48.2 % were female. Employees were on average 7.60 years employed by the current employer (SD = 12.10 years). Firms were on average 9.83 years old (SD = 7.19 years) and had 18.80 employees (SD = 14.55 employees).

Measures

All items that were used in the survey of the field study were measured on a 7-point Likert-scale and translated to German. To ensure content alignment of the translation, we used a back-translation procedure.

To measure *entrepreneurial passion* we used the scale from Cardon et al. (2013). The affective part of each passion dimension (inventing, founding, and developing) was measured by 4-5 items. The dimensions were then combined to one composite passion variable. The items ask *entrepreneurs* whether they are passionate for entrepreneurial activities. One sample item is 'I am excited to create something out of nothing'. Due to results of confirmatory factor analyses, we excluded one item (the second item of the founding dimension). Cronbach's alpha for the remaining scale was .918. Additionally, we asked *employees* whether they experience passion while being involved in entrepreneurial activities. A sample item for this measurement is 'I am excited to help to create something out of nothing'. Here, Cronbach's alpha was .917.

Employees' *affective commitment* was measured by 3 items of the commitment scale developed by Allen and Meyer (1990). This scale measures commitment towards the entrepreneurial firm which we chose for study 1 because we were here interested in a longer-lasting emotional attachment to the entrepreneurial firm which develops while continuously interacting with the entrepreneur. We focused affective commitment, rather than normative or continuance commitment, because we are investigating effects of emotions and emotions are most relevant for affective commitment. One item of this scale reads 'This organization has a great deal of personal meaning for me'. Cronbach's alpha in our study was .785.

Controls. We controlled for entrepreneurs' age and gender, employees' age and gender, firm size, and firm age. Each of these control variables was measured in the survey. Additionally, we gathered information on the firms' industry by an online search within our

data base and by searching the firms' websites. Thus, we could control for whether the firm was in the high- or low-tech-industry and whether it offers a product or service.

To evaluate our measurement model, we conducted a confirmatory factor analysis in MPLUS. For this model, passion, the entrepreneurs' as well as the employees', is modeled as latent second order factor, reflected by the three dimensions that were modeled as latent factor by the items outlined above. The second order passion factors were allowed to correlate, also with the latent factor that represents employees' affective commitment. Although the χ^2 -test for this model was significant (χ^2 (df) = 345.753 (200), p < .000), other fit indices indicated an acceptable fit (CFI = .929, RMSEA = .021, SRMR = .080). Additionally, computing average variance extracted (AVE) suggested sufficient convergent and discriminant validity of the used constructs (entrepreneurs' passion AVE = .73; employees' passion AVE = .71; employees' affective commitment AVE = .56).

5.2.3 Results Study 1

To test hypotheses 1a-1c, we ran a multi-level path model in MPLUS. A multi-level approach allows accounting for variance that occurs between and within the firms in our sample. In this model, entrepreneurs' passion (and all firm level controls) was measured and has variance on the between level, all other variables operate on both levels. The direct and indirect effects that include entrepreneurs' passion (and the firm level controls) are modeled on the between level, all other proposed effects are modeled on both levels.

We are interested in effects of entrepreneurs' passion, which operates on the between level only. We are here not interested in differences that occur within each entrepreneurial firm but differences between firms that occur due to differences in entrepreneurs' passion. Thus, we discuss the effects that we find on the between level. Table 5-1 displays the descriptive statistics and correlations of all variables used in study 1.

Table 5-1: Inter-Correlations and Descriptive Statistics (Study 1)

Variables in the survey	Mean	SD	1	2	3	4	5	6	7	8	9
1 Entrepreneurs' passion	5.58	1.03	1.00								
2 Employees' passion	5.16	.57	.65	1.00	.62**			03	.12		
3 Employees' commitment	5.19	.63	.46	.07	1.00			04	.33*		
4 Entrepreneurs' age	49.43	10.00	13	49	06	1.00					
5 Entrepreneurs' gender	1.91	.28	.09	.15	.15	.11	1.00				
6 Employees' age	39.48	6.77	12	44	11	.75***	.26	1.00	03		
7 Employees' gender	1.48	.17	02	.42	32	.25	.14	.08	1.00		
8 Firm age	9.83	7.19	18	31	.01	.43***	.04	.50**	06	1.00	
9 Number of employees	18.80	14.55	06	.28	31	.06	02	.07	.45	.24	1.00
10 High-tech industry	.23	.42	01	.18	.12	09	.08	03	.33	12	.08

Note: Between cluster correlations below the diagonal, within cluster correlations above the diagonal. *** Correlation is significant at the .001 level (2-tailed).

^{**} Correlation is significant at the .01 level (2-tailed). * Correlation is significant at the .05 level (2-tailed).

Abbreviation: SD Standard Deviation

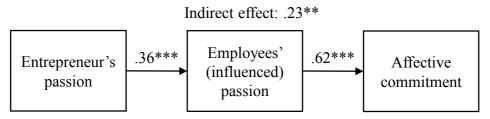
Figure 5-2 summarizes the findings of study 1. For the fully mediated model, the χ^2 -test is non-significant (χ^2 (df) = 1.729 (2), p > .05) and other fit indices indicate a good fit as well (CFI=1.000, RMSEA=.000). The model with a partial mediation shows a slightly weaker fit than the model without the direct effect from entrepreneurs passion on employees' affective commitment (CFI= .988, RMSEA= .064, the χ^2 -test is still non-significant (χ^2 (df) = 1.728 (1), p > .05). Thus, our findings support that employees' passion fully mediates the effect from entrepreneurs' passion on employees' affective commitment. We re-calculated both models while controlling for entrepreneurs' and employees' age and gender, firm age, and high-tech industry, with all effects staying stable⁶.

In each model, the effects of entrepreneurs' passion on employees' own passion as well as on their affective commitment are significant and thus support hypotheses 1a and 1b. Furthermore, the indirect effect of entrepreneurs' passion on employees' affective commitment is significant in each model, supporting hypothesis 1c.

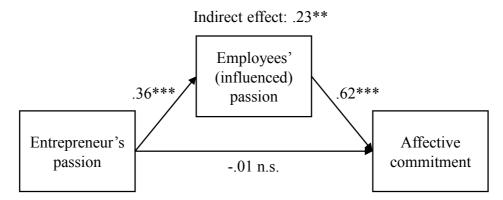
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⁶ We re-calculated both models while controlling for effects of entrepreneurs' and employees' age and gender, firm age, number of employees in a firm, and whether the firm operates in the high-tech industry on the dependent variables. In the model without the direct effect, the number of employees showed an effect on affective commitment (b = -.03, p < .01). Although the model fit was not as good as in the model without controls (CFI = .861, RMSEA = .042), the χ^2 -test was still non-significant (χ^2 (df) = 41.925 (31), p > .05), and relations between constructs remained stable. In the model with the direct effect, the number of employees (b = -.03, p < .01) and firm age (b = .05, p < 05) showed an effect on affective commitment. The model fit was again not as good as in the model without controls (CFI = .856, RMSEA = .043), but the χ^2 -test was still non-significant (χ^2 (df) = 41.373 (30), p > .05), and relations between constructs remained stable.

Figure 5-2: Direct and Indirect Effects of Entrepreneurs' Passion (Study 1)⁷



In this model, the χ^2 -test was non-significant (χ^2 (df) = 1.729 (2), p > .05) and other fit indices indicated a good fit as well (CFI = 1.000, RMSEA = .000).



This model showed a slightly weaker fit than the model without the direct effect: CFI = .988, RMSEA = .064, the χ^2 -test was still non-significant (χ^2 (df) = 1.728 (1), p > .05).

5.2.4 Discussion Study 1

We hypothesized that several mechanisms facilitate passion contagion (Hatfield et al., 1994; Peters & Kashima, 2015; Rizzolatti & Craighero, 2004; Sullins, 1991). Our field study supports the hypothesis that contagion of entrepreneurial passion from entrepreneurs to their employees is possible. These findings extend our understanding of employees' perspective in entrepreneurial firms because literature on entrepreneurial passion by now largely focused on entrepreneurs themselves. Some researchers already proposed a contagion effect of entrepreneurial passion (Breugst et al., 2012; Cardon, 2008) which we empirically tested in this study. We find that entrepreneurs' passion is positively related to their employees' passion,

⁷ Reported are effects on the between level. *** Coefficient is significant at the .001 level (2-tailed).

^{**} Coefficient is significant at the .01 level (2-tailed).

lending support for propositions of Cardon (2008) who suggests that entrepreneurial passion is indeed contagious.

Further, we find that employees' entrepreneurial passion can translate into their affective commitment towards the entrepreneurial firm. This is in line with and extends findings of Breugst et al. (2012) who find effects of employees' perceptions of entrepreneurs' passion on affective commitment. We complement their findings because we studied effects of passion that entrepreneurs felt themselves instead of effects of employees' perceptions of the entrepreneurs' passion. This appears particularly interesting because true passion contagion requires the entrepreneur to be passionate (Peters & Kashima, 2015), which we can better observe by asking entrepreneurs about their own passion than by observing perceptions of employees. Thus, our findings extend previous knowledge by showing that not only employees' perceptions of entrepreneurs' passion but also entrepreneurs' self-reported passion predicts employees' passion and affective commitment. Additionally, our findings suggest that employees' passion fully mediates the effect from entrepreneurs' self-reported passion on employees' affective commitment.

Summing up, the findings of study 1 provide preliminary evidence that entrepreneurs' passion can transfer to their employees and give a new and better understanding of how entrepreneurs' passion influences employees' affective commitment. However, some questions remain. By the findings of study 1 we cannot tell which part of passion (the emotion or the identity) accounts for its effects and how or whether these two facets are intertwined. Further, while our multi-level field study offers important advantages, such as external validity and reduced propensity of CMB, it also suffers some limitations. For instance, the causality between entrepreneurs' passion and employees' passion remains questionable because we did not manipulate entrepreneurs' passion. Self-selection mechanisms, in which passionate entrepreneurs attract passionate employees, could be an alternative explanation for our findings.

Furthermore, we only investigated effects on commitment, an affective outcome, but do not yet know whether the effects also translate into other outcomes like productivity and creativity, which might be even more interesting for entrepreneurs. We address these questions and limitations in study 2.

5.3 STUDY 2 – AN EXPERIMENTAL DESIGN

5.3.1 Theoretical Background Study 2

In study 2, we analyze processes that underlie passion contagion and investigate effects on additional outcomes. Since contagion of entrepreneurial passion requires employees to observe the entrepreneurs' passion (Breugst et al., 2012), it is important to understand what it is that makes employees perceive entrepreneurs as passionate. Employees' perception of entrepreneurs' passion could be dependent on observing entrepreneurs' emotion display or on observing their identity. In the following, we first outline the effects that entrepreneurs' emotion displays will have on employees' passion perception, and then discuss how displays of their identity might influence these effects.

Entrepreneurs' Emotion Displays and Employees' Passion Perceptions

Cardon et al. (2009), after reviewing the passion literature, notice that definitions of entrepreneurial passion invariably involve feelings that are hot, overpowering, and suffused with desire. They explain that passionate entrepreneurs' 'fire of desire' contains enthusiasm, zeal, and intense longing (Cardon et al., 2009). Most, although not all, passionate entrepreneurs will show these intense positive emotions to the people around them (Cardon, 2008). Then, entrepreneurs' positive emotions, that underlie their passion, can be easily observed and understood by employees who work for them (Hatfield et al., 1994; Sullins, 1991). Thus, we expect that observing the entrepreneurs' emotions, rather than understanding their cognitive attachment, identity, and self-concept, primarily makes employees perceive the entrepreneurs'

passion. Breugst et al. (2012) provide empirical support for the claim that effects of entrepreneurial passion predominantly depend on the underlying emotions: they find that entrepreneurial passion influences employees' affective commitment primarily via an affective path. Thus, we expect in our next hypothesis that employees' perception of entrepreneurs' passion is dependent on the entrepreneurs' emotion displays.

Hypothesis 2a: Entrepreneurs are perceived as passionate when they show positive emotions.

Emotions and Identities Determine Passion Perceptions: Two Competing Views on the Interaction between Emotion and Identity Displays

The reinforcing perspective. As explained above, most previous literature considered passion to be primarily a positive emotion (Cardon et al., 2009). However, positive emotions might not account for the complete influence that passion can have (Cardon, 2008; Cardon et al., 2005). Entrepreneurial passion also relates to a meaningful and salient self-identity as an entrepreneur. That means that passionate entrepreneurs have internalized the expectations that people hold as central, distinctive, and enduring for the role as an entrepreneur (Burke & Reitzes, 1991). Thus, for understanding the effects that are triggered by entrepreneurial passion not only considering the entrepreneurs' emotion but also considering their identity appears essential (Cardon, 2008; Cardon et al., 2009). Entrepreneurial passion incorporates an interaction between the emotion and the identity underlying the entrepreneurs' passion (Cardon et al., 2013). Cardon et al. (2013) find a positive multiplicative effect of the experienced emotions and the salient entrepreneurial identity. They find that entrepreneurs' passion unfolds the strongest positive effect, on entrepreneurs themselves, when they experience strong positive emotions and additionally have a strong entrepreneurial identity (Cardon et al., 2013).

Accordingly, entrepreneurs might also be perceived as most passionate when they show positive emotions plus display the entrepreneurial identity that is part of their passion. These arguments lead to our next preliminary hypothesis which predicts that an identity display reinforces the effect of emotion displays on passion perceptions:

Hypothesis 2b:

Displaying an entrepreneurial identity positively moderates the effect of emotional displays on employees' passion perceptions such that the effect of displaying positive emotions on employees' passion perception becomes stronger when the entrepreneur displays an entrepreneurial identity.

The compensatory perspective. As discussed above it is useful to untangle the effects of the emotion and the identity that underlie an entrepreneur's passion. An entrepreneur showing how important her firm is for herself might motivate employees even without showing the emotions of passion. Such an effect of the identity that underlies entrepreneurs' passion would go beyond emotional contagion which was suggested by the previous literature.

Emotional contagion is contingent on what entrepreneurs' express rather than what they actually feel. Some so called 'closed' entrepreneurs (Cardon, 2008) might be passionate but either low in extraversion or very effective at response-focused regulation (Gross, 1998) and thus might not show their strong positive emotions. These entrepreneurs might experience positive emotions while engaging in entrepreneurial activities although they do not show those. These entrepreneurs can nevertheless display their entrepreneurial identity. In this case, entrepreneurs do not display their positive emotions but still show that the role as entrepreneur is meaningful and salient to them.

We expect that employees of these passionate but 'closed' entrepreneurs are aware of the entrepreneurs' passion although they cannot observe their positive emotions. Since they work closely with the entrepreneur, they will understand the importance of entrepreneurial activities

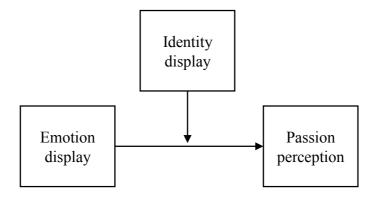
for the entrepreneur and will know why the entrepreneur puts so much time and effort in the development of her firm. In this case, employees might be able to suspect the entrepreneurs' positive emotions towards entrepreneurial activities. Showing their strong entrepreneurial identity might then serve as sufficient indicator for their passion and allow contagion via cognitive mechanisms like social comparison (Peters & Kashima, 2015; Sullins, 1991). Thus, when entrepreneurs state why they pursue entrepreneurial activities, and that this is an important part of who they are, they should be perceived as passionate, even though they do not display positive emotions. Then, the effect of the entrepreneurs' emotion display on employees' passion perception vanishes because stating the meaningful and salient identity then compensates for the lack of emotion display.

That means, employees perception of the entrepreneur's passion might be mostly caused by the entrepreneur's emotion display but the emotion display could be less important when the entrepreneur shows her identity. This explanation predicts an effect that is in the opposite direction to what we expected in Hypothesis 2b. Accordingly, we formulate an additional competing hypothesis where we expect a compensatory effect of displaying an entrepreneurial identity for employees' passion perception. Figure 5-3 shows the hypothesized effects.

Hypothesis 2c:

Displaying an entrepreneurial identity negatively moderates the effect of emotional displays on employees' passion perceptions such that the effect of displaying positive emotions on employees' passion perception becomes weaker when the entrepreneur additionally displays an entrepreneurial identity.

Figure 5-3: The Moderating Effect of Identity Displays (Study 2)



How Perceived Passion Influences Employees' Commitment and Work Performances

We expect that entrepreneurs' passion will not only influence employees' own passion and their affective commitment, as suggested in study 1. We also expect that entrepreneurs' passion influences outcome variables that are stronger connected to employees' work performances. Study 2 takes the next step and analyzes effects on employees' goal commitment, productivity, and creativity.

We this time analyze effects on goal commitment, instead of affective commitment towards the entrepreneurial firm, because study 2 aims to focus on outcome variables that are more closely tied to employees' tasks. Employees who experience goal commitment feel attached to the goal, consider it as significant or important, are determined to reach it, and are willing to tenaciously pursue goals even in the face of setbacks and obstacles (Klein, Wesson, Hollenbeck, & Alge, 1999; Latham & Locke, 1991). Drnovsek et al. (2016) find that entrepreneurs' passion is related to their goal commitment. This might also be true for employees, such that their passion, stimulated by the entrepreneur's passion, might also be related to their goal commitment. That means, when perceptions of entrepreneurs' passion translate into employees' passion, due to contagion mechanisms, entrepreneurs' passion will increase employees' goal commitment. Therefore, we expect that perceiving entrepreneurs'

passion will make employees more committed to the goals of their tasks. This leads to our next hypothesis:

Hypothesis 3a: Perceived entrepreneurial passion positively influences employees' goal commitment.

Additionally, we expect that observing entrepreneurs' passion influences less emotion-related outcomes such as productivity and creativity. Baron (2008) show that positive affect can function as an activator. We discuss entrepreneurial passion as an activator for employees' productivity and creativity. To do this, we build on the arguments and empirical findings that indicate that work passion increases employees' performances (Vallerand et al., 2007).

First, employee passion was shown to be a predictor for heavy work investment, an extensive investment of resources into one's job, including time and effort (Houlfort, Philippe, Vallerand, & Ménard, 2013). People who experience passion are likely to spend extra effort to identify solutions, which helps to reach goals (Vallerand et al., 2007).

Second, employees who experience passion are more likely to set challenging goals for themselves (Vallerand et al., 2003). They tend to be more conscious about their capabilities because they have a greater willingness to use their resources, especially time and effort. They are more confident and capable to forecast the outcomes of their behavior which will make them believe in the feasibility of their ideas (Vallerand et al., 2003). Their higher expectations of better outcomes will increase their effort (Houlfort et al., 2013).

Third, while experiencing the flow-like feeling that passion arouses (Vallerand et al., 2003), people get highly involved with their activities and seem to do their tasks voluntarily and effortlessly (Csikszentmihalyi & LeFevre, 1989). Thereby, they are likely to stretch their skills and abilities to their limits (Csikszentmihalyi & LeFevre, 1989).

Fourth, positive affect acts as filter that helps to decide which information should be noticed and entered into memory and which information will be retrieved from memory (Fredrickson & Branigan, 2005). Thereby, positive affect supports the identification of cognitive strategies that enable coping with stress (Vallerand et al., 2007), which is likely to be necessary in entrepreneurial environments. Hereby, avoidance behavior is reduced whereas efforts for problem solving increase and an adaption of strategies that are useful and beneficial becomes more likely (Vallerand et al., 2007).

Consequently, employees who perceive the entrepreneur as passionate and are thus more likely to be passionate themselves should invest increased and focused effort in entrepreneurial tasks. Thus, we predict in our next hypothesis that perceived entrepreneurial passion should increase productivity.

Hypothesis 3b: Perceived entrepreneurial passion positively influences employees' productivity.

Furthermore, the positive emotions underlying passion can stimulate employees' creativity (Baron, 2008; Liu et al., 2011). Positive affect facilitates people's cognition and increases flexibility and generality in their thoughts (Fredrickson & Branigan, 2005). This enhances their capabilities for problem solving and for producing creative ideas. Therefore, employees who observe, and in turn experience, passion are more likely to come up with new ideas by expanding or combining their available knowledge. They also tend to show greater alertness, which supports active search for new opportunities. Cardon et al. (2009) find that entrepreneurial passion enhances engagement in entrepreneurial activities, which is shown in persistence, absorption, and also creative problem solving. Additionally, an affective shift, which occurs when employees experience entrepreneurial passion for the first time, increases

creativity (Bledow, Rosing, & Frese, 2013). Hence employees who witness an entrepreneur's passion are not only more likely to develop greater commitment to their goals and be more productive, but are also likely to be more creative. This leads to our next hypothesis.

Hypothesis 3c: Perceived entrepreneurial passion positively influences employees' creativity.

Considering Employees' Own Passion

Employees' passion could also be dependent on their own feelings towards entrepreneurial activities, which they had at the outset, before 'meeting' the entrepreneur. Every individual has a unique sense of self-identity developed over time and experience (Stryker & Burke, 2000). Before interacting with the entrepreneur, employees' own identity might determine whether or not they think that they would enjoy entrepreneurial activities. Thus, employees' own identity might define whether or not they enjoy doing entrepreneurial activities. Even before starting to work in an entrepreneurial firm, for example at the time of hiring, employees probably had a disposition towards entrepreneurial activities (Tumasjan et al., 2011). While considering to work for an entrepreneur they are likely to ask themselves whether they enjoy inventing, founding, and/or inventing, as these are activities that they will most likely be involved in when they work in an entrepreneurial firm. They might try to put themselves in the role of the entrepreneur and realize how they would feel as an entrepreneur. Thereby, employees could have positive emotions towards entrepreneurial tasks that originate in their own interest and identity, like it is expected for employees who pursue entrepreneurial activities in established firms (Lumpkin & Dess, 1996; Moriano, Molero, Topa, & Lévy Mangin, 2014). Employees' emotions are then independent of the entrepreneurs' emotions. We expect that these own emotions of employees, their entrepreneurial passion at the outset, will unfold distinct effects on outcomes like goal commitment, productivity, and creativity.

We expect that passion contagion is less effective when employees were already passionate at the outset, before they met the entrepreneur. When employees already had positive emotions towards entrepreneurial tasks, and have already been willing to invest time and effort, seeing the entrepreneur's passion cannot change a lot. In this case, employees might get a confirmation of the appropriateness of their state but a confirmation will not change their behavior. Thus, entrepreneurs' passion can arouse the highest influence when employees have not already been passionate. Emotions of employees who came into the firm without any passion for entrepreneurial activities can be stimulated by entrepreneurs' passion. For those employees the effect of the entrepreneurs' passion is much stronger because it might change their disposition and behavior. They experience an emotional shift, which has been shown to stimulate creativity (Bledow et al., 2013). Consequently, the effect of entrepreneurs' passion on employees' goal commitment, productivity, and creativity is likely to be stronger, when employees have not been passionate before they started to work for the entrepreneur. In figure 5-4, we summarize the proposed effects. These lead to our next hypotheses which predict an interaction between perceptions of the entrepreneurs' passion and employees' own passion.

Hypothesis 4a: The effect of perceived entrepreneurial passion on employees' goal

commitment is stronger when employees are less passionate at the outset,

before interacting with the entrepreneur.

Hypothesis 4b: The effect of perceived entrepreneurial passion on employees'

productivity is stronger when employees are less passionate at the outset,

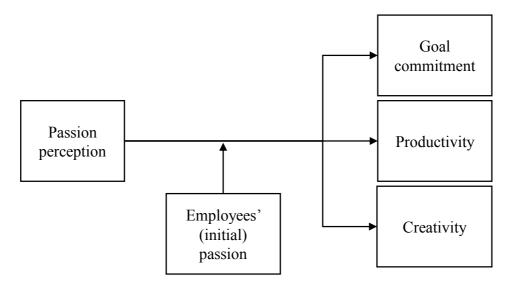
before interacting with the entrepreneur.

Hypothesis 4c: The effect of perceived entrepreneurial passion on employees' creativity

is stronger when employees are less passionate at the outset, before

interacting with the entrepreneur.

Figure 5-4: How Passion Perceptions Influence Employees' Goal Commitment, Productivity, and Creativity (Study 2)



5.3.2 Method Study 2

In study 2, we tackled our research questions using an experimental setting. We chose to recruit our sample from people offering their work on the online freelance platform Mturk. Recruiting participants from online freelance platforms, including Mturk, was suggested as suitable sampling tool (Aguinis & Lawal, 2012) and is increasingly done in research studies (Aguinis & Lawal, 2013). On Mturk, we posted a task which appeared as if it was offered by an entrepreneur. Before working on the task, all participants were informed about the task's procedure: the task will take them about 1 hour, and we will pay 10 \$. Participants were randomly assigned to different conditions in which we manipulated entrepreneurial passion via a video.

In the video, all participants were primed to understand that they were working for a certain type of entrepreneur. Thus, they became an employee of the entrepreneur whom they saw in the video. In each of the manipulating videos, the entrepreneur introduced himself and the company and explained the task. They were asked to work on a task that is likely to be done by employees in entrepreneurial firms. The task was to write down ideas for a marketing

concept for the main product of the entrepreneur's company. The video provided enough details about the product and company to do so.

After watching the video, participants wrote down their ideas for the marketing concept. Finally, they answered some survey questions. After completing the task and the survey questions, participants were informed that the entrepreneur and the company were fictional and that the task was posted on behalf of a scientific study. They could withdraw and deny participating at any point in the study.

Manipulating Entrepreneurial Passion

We manipulated entrepreneurial passion by a video showing an entrepreneur who (1) displays (or does not display) positive emotions and (2) displays (or does not display) a salient entrepreneurial identity. Detailed information on the manipulation is shown in table 5-2. The entrepreneur was played by a professional actor. In half of the videos the entrepreneur showed positive emotions, in the other half he did not. Thereby, we manipulated the entrepreneur's positive emotions. A manipulation check showed that participants who saw the videos with the entrepreneur showing positive emotions perceived him to be significantly more enthusiastic, interested, determined, excited, and inspired. Additionally, the entrepreneur did or did not show his identity. In 6 videos he stated that he was passionate for either inventing, founding, or developing (3 entrepreneurial identity conditions X 2 emotion conditions). In the 2 videos for the no-identity condition (still 2 emotion conditions), we excluded this identity statement. Thus, we ended up with 8 different videos.

Table 5-2: Manipulating Entrepreneurial Passion (Study 2)

	Definition	Words and Phrases Used for the Manipulation in the Video			
Passion as Positive Emotion	A strong inclination toward an activity that individuals like (or even love)	Enjoy, love, it's great fun, it's a great experience, it's what drives us every day, wouldn't change it for anything in the world			
	Individuals find the activity important, in which they invest time and energy	It's top priority, working enthusiastically every day			
	Persistence, even in the face of obstacles	It's a challenge but it's worth it, it's a challenging adventure			
Passion is Tied to an Entrepreneurial Activity	A passionate persons' identity includes: 1) inventing: searching for new and innovative ideas and identifying and exploring new opportunities 2) founding: establishing a venture by assembling necessary financial and human resources 3) developing: nurturing, growing and expanding the business	Doing activities related to inventing, founding or developing (there are three versions of this manipulation) is of the most importance for me, is part of who I am, I'll continue doing this for the rest of my life			

(Cardon et al., 2013; Vallerand et al., 2003; Vallerand et al., 2007)

Sample

In total, 321 individuals participated in our study. We had to exclude 15 participants who filled out our survey but couldn't watch the video due to technical problems. In the resulting sample, 39.9 % were female, and they were on average 33.04 years old (SD = 9.53 years). All participants were US citizens from diverse occupational backgrounds.

Measures

The *employees' own (initial) entrepreneurial passion* was measured before they had seen a video or started the task. To create a scale, we adapted the scale from Breugst et al. (2012), which uses 6 items for each passion dimension. As our participants were no entrepreneurs themselves, their enthusiasm for entrepreneurial activities needed to be measured hypothetically. Therefore, we used items like 'I would be excited to create something out of

nothing'. Cronbach's alpha for this scale was .960. This measurement instrument allowed us to include employees' own (initial) passion for entrepreneurial activities as a moderating variable.

To measure perceived *entrepreneurial passion*, we again relied on the scale developed by Breugst et al. (2012). The entrepreneur in the video introduced himself as 'Marc Miller', thus we used items like 'Marc Miller seems to be excited to create something out of nothing'. Cronbach's alpha for this scale was .977.

Goal commitment. While measuring commitment, we were here interested in whether participants were committed to the task that they had to work on. Therefore, we used the goal commitment scale created by Klein, Wesson, Hollenbeck, Wright, & DeShon (2001). One sample item was 'I was strongly committed to pursuing this goal'. Cronbach's alpha for this scale was .827.

Productivity. A measurement of participants' productivity should reflect how much they produced in a given amount of time. The time that our participants invested for this task should be about equal because we asked all participants to invest about 1 hour, and payed them for 1 hour. Other researchers for example used the number of policies and commission to measure the productivity of salespersons (MacKenzie, Podsakoff, & Fetter, 1991), or asked researchers for example how many manuscripts they have written and published to get indicators of their productivity (Kahn & Scott, 1997). To measure the productivity of our participants, we counted the words that they produced.

Creativity. We define creativity as a formative construct containing the novelty and the quality of an idea (Dean, Hendler, Rodgers, & Santanen, 2006). To measure participants' creativity while working for the entrepreneur, we coded the marketing ideas that they came up with in our experiment. Two researchers screened participants' ideas. First, the best idea was chosen. For some participants, these researchers had to discuss which idea is the best one, before they agreed which idea they should choose. Next, following an approach of Dean et al. (2006),

the same two researchers rated the novelty (originality and paradigm relatedness) (ICC = .844), feasibility (acceptability and implementability) (ICC = .794), relevance (applicability and effectiveness) (ICC = .836), and specificity (implicational explicitness, completeness, and clarity) (ICC = .889) of each 'best idea'. To facilitate and clarify the coding, we defined anchor examples for each level of each of these factors (see appendix B), as suggested by Dean et al. (2006). The average of all nine factors was used as indicator for participants' creativity.

Controls. We controlled for participants' age and gender. Additionally, we controlled for the attractiveness of the product that the entrepreneur's company offered. This way we were able to parcel-out any effect which did result from the product instead of the entrepreneur. Even though the product was constant in all experimental conditions, it is well possible that some participants feel more (or less) attracted to the product because of i.e. being more acquainted with the product family or being enthusiastic for using this product. The attractiveness of the product thus might unfold a separate effect on participants' passion, goal commitment, productivity, and creativity. We controlled for this effect with a single item ('Would you buy the Houseplant Guard?'; 'Houseplant Guard' was the name of the fictional entrepreneur's product in our videos), measured on a Likert-scale ranging from 1 to 7.

5.3.3 Results Study 2

Table 5-3 displays the descriptive statistics and correlations of all variables used in study 2. Product attractiveness shows a significant correlation with most outcome variables. As explained above, we controlled for its effect. Additionally, we controlled for participants age and gender. Calculating variance inflation factors indicated that there is no multicollinearity between our variables.

Table 5-3: Inter-Correlations and Descriptive Statistics (Study 2)

Variables in the experiment	Mean	SD	1	2	3	4	5	6	7	8	9
1 Age	33.04	9.53	1.00								_
2 Gender	1.60	.49	20**	1.00							
3 Product attractiveness	5.22	1.71	.04	08	1.00						
4 Emotion manipulation	.54	.50	.04	.04	08	1.00					
5 Identity manipulation	.76	.42	.03	.02	.00	08	1.00				
6 Entrepreneur's passion perceived by employees	5.96	1.10	.07	06	.28**	.34**	.02	1.00			
7 Employees' passion	5.69	1.05	.05	.07	.37**	14*	.00	.20**	1.00		
8 Employees' commitment	6.40	.79	.11*	08	.39**	.03	03	.48**	.36**	1.00	
9 Productivity	358.46	191.73	.08	.01	.13*	.06	10	.17**	.08	.25**	1.00
10 Creativity	5.81	.69	.14*	.06	06	.03	.10	.12*	.05	.19**	.32**

Note: ** Correlation is significant at the .01 level (2-tailed). * Correlation is significant at the .05 level (2-tailed).

Abbreviation: SD: Standard Deviation

We used hierarchical regressions to test our hypotheses in study 2 (tables 5-4 and 5-5). Table 5-4 shows our results for testing Hypotheses 2a-2c. In these regressions with perceived entrepreneurial passion as dependent variable, we included the controls alongside the emotion and passion manipulation dummies (each scoring '1' if emotion/identity was displayed and '0' otherwise) in a first step. In the second step, we included the interaction effect between emotion and identity displays.

The emotion manipulation significantly predicted whether the participants perceived the entrepreneur in the video as passionate. This provides support for hypothesis 2a which predicted that entrepreneurs are perceived as passionate when they show positive emotions. In addition, the interaction effect between the emotion and identity manipulation on passion perceptions was significant. Figure 5-5 visualizes this interaction effect. The entrepreneur's emotion display showed a positive effect on employees' passion perception when he did not display his identity. This positive effect vanished when the emotion display was combined with an identity display. Thus, hypothesis 2b, which predicted a reinforcing effect of an identity display, was not supported by our data. Nevertheless, our findings lend support for hypothesis 2c that predicted a compensatory effect. Our data showed that the display of positive emotions is less important for employees' passion perception when entrepreneurs state their entrepreneurial identity. Simple slope analysis confirmed the effect of the emotion manipulation being significantly positive at low levels of identity display but being non-significant for high levels of identity display. Thus, our findings indicate that an identity display compensates for a lack of emotion display.

Table 5-4: Effects of the Emotion and Identity Manipulation (Study 2)

Dependent Variable: Entrepreneur's Passion Perceived by Employees

		Model 1a	Model 1b
Step 1: Control,	Age	.04	.04
independent and	Gender	04	04
moderator variables	Product attractiveness	.30***	.31***
	Emotion manipulation	.37***	.59***
	Identity manipulation	.05	.19*
Step 2: Interaction variables	Emotion X identity		28*
$\overline{\mathbb{R}^2}$.21***	.23***
Change in R ²			.01*

Note: Standardized coefficients are reported; *** Coefficient is significant at the .001 level (2-tailed). * Coefficient is significant at the .05 level (2-tailed).

Figure 5-5: Interaction Effect between the Entrepreneurs' Emotion and Identity (Study 2)

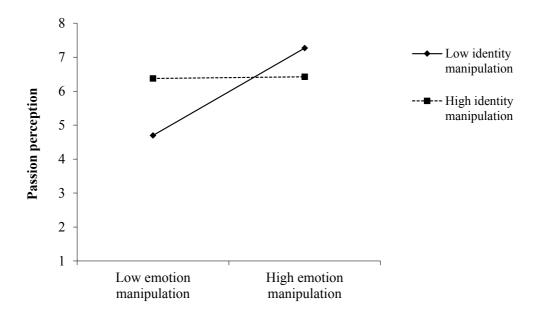


Table 5-5 shows results of the regressions with participants' goal commitment, productivity, and creativity as dependent variables. These allowed to test hypotheses 3a-3c and hypotheses 4a-4c. Similarly to the previous regressions, we first included controls and independent variables. Then, in a second step, we included the interaction effect.

Whether participants perceived the entrepreneur as passionate, showed a significant effect on participants' goal commitment (measured as self-report), their productivity (measured as the word count in the marketing concept that the participants wrote), and their creativity (rated by two researchers). This supports hypotheses 3a, 3b, and 3c which predicted positive effects of passion perceptions on employees' goal commitment, productivity, and creativity.

The interaction effect on goal commitment is plotted in figure 5-6, on productivity in figure 5-7, on creativity in figure 5-8. Each of the effects of passion perceptions on participants' goal commitment, productivity, and on creativity were stronger positive, when participants had not been passionate before seeing the entrepreneur in the video. Thus, our findings support hypothesis 4a, 4b, and 4c, which predicted that effects of perceptions of entrepreneurs' passion on employees' goal commitment, productivity, and creativity are stronger positive when employees have not been passionate at the outset. This indicates that entrepreneurs' passion can compensate for a lack of employees' passion.

Table 5-5: Effects of Entrepreneurs' Passion and Employees' Own Passion (Study 2)

		Dependent Variable: Commitment		Dependent Variable: Productivity		Dependent Variable Creativity	
		Model 2a	Model 2b	Model 3a	Model 3b	Model 3a	Model 3b
Step 1: Control,	Age	.06	.05	.08	.07	.15**	.14*
independent and	Gender	04	04	.04	.04	.09	.09
moderator variables	Product attractiveness	.20***	.21***	.09	.09	12	11†
	Entrepreneur's passion perceived by employees	.38***	.40***	.14*	.15**	.13*	.15*
	Employees' passion	.21***	.21***	.01	.01	.05	.06
Step 2: Interaction variables	Entrepreneur's passion X employees' passion		17***		10†		18**
R^2		.35***	.38***	.04*	.03*	.05**	.08***
Change in R ²			.03***		01†		.03**

Note: Standardized coefficients are reported; *** Coefficient is significant at the .001 level (2-tailed). ** Coefficient is significant at the .01 level (2-tailed). * Coefficient is significant at the .10 level (2-tailed).

Figure 5-6: Interaction Effect between Entrepreneurs' Passion and Employees' Passion on Commitment (Self-Report) (Study 2)

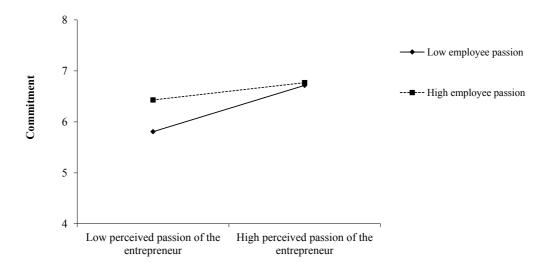


Figure 5-7: Interaction Effect between Entrepreneurs' Passion and Employees' Passion on Productivity (Word Count) (Study 2)

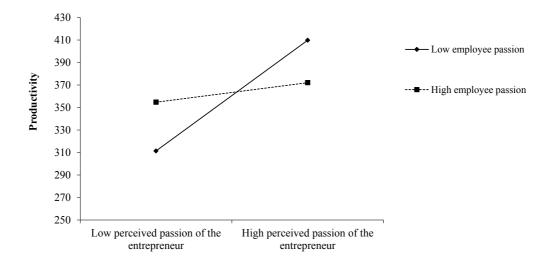
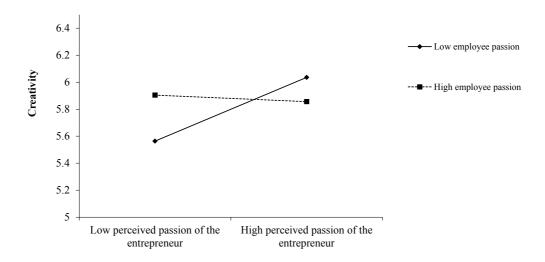


Figure 5-8: Interaction Effect between Entrepreneurs' Passion and Employees' Passion on Creativity (Rated by Two Researchers) (Study 2)



5.3.4 Discussion Study 2

The experimental study provided further support for our previous findings but also showed new interesting insights into the passion contagion process. In study 2, we found that perceived entrepreneurial passion is dependent on the interplay of emotion and identity displays. Although some researchers have already highlighted the importance of the identity underlying entrepreneurial passion (Cardon et al., 2013; Cardon et al., 2005; Murnieks et al., 2014), evidence on the interplay between emotion and identity on employee outcomes was missing so far. Our findings indicate that effects of emotions, which previous passion research focused (Cardon et al., 2012), become less important, when entrepreneurs state their identity. This means that when they explain why doing entrepreneurial activities is enjoyable for them and an important part of their identity, showing positive emotions is less important. Thus, for entrepreneurs who do not feel convenient with showing their strong emotions, stating their identity can compensate. These findings inform literature on passion and identities, as we show the importance of untangling effects of emotions and identities, which was proposed for effects on entrepreneurs' own performance (Cardon et al., 2013), but not yet for a contagion process.

In our experiment, we moreover show how employees' perceptions of entrepreneurs' passion, triggered by the emotion or identity manipulation, influence employees' goal commitment, productivity, and creativity. This extends previous research that shows that perceptions of entrepreneurs' passion can influence employees' affective commitment (Breugst et al., 2012). We show that not only emotion related outcomes can be stimulated but that also other performance relevant factors such as employees' productivity and creativity are affected. We find that showing their passion can help entrepreneurs to increase their employees' goal commitment, productivity, and creativity. In addition, we find that effects of perceived entrepreneurial passion on goal commitment, productivity, and creativity are particularly strong when employees have not already been passionate before interacting with the entrepreneur. This indicates, on the one hand, that passion contagion effects are stronger when employees have not been passionate at the outset. On the other hand, this suggests that entrepreneurs' passion can compensate for a lack of passion among employees. These findings highlight the importance of entrepreneurs' emotion and identity displays towards their employees. Via increased commitment and work performance of employees, entrepreneurs' passion can contribute to their firms' success.

5.4 OVERALL DISCUSSION, LIMITATIONS, AND IMPLICATIONS

The two studies outlined in this paper indicate that entrepreneurs' passion can have positive effects on employee-level outcomes. Our findings suggest that when entrepreneurs show their passion, this releases positive effects on their employees' own passion, commitment, productivity, and creativity. Furthermore, our findings indicate that entrepreneurs can be perceived as passionate even without showing their strong positive emotions, as long as they state their identity. Additionally, we show that employees' own passion moderates the effect of perceived passion on employee-level outcomes.

Our multi-study design holds several methodological advantages because the two studies presented in this paper could account for some of each other's limitations. Thus, the multi-level field study and the experiment can complement each other as follows.

First, in study 1 we cannot ensure that the observed effects are triggered by the measured variables rather than a non-observed external factor, like it is in all cross-sectional survey studies. We can compensate for this in study 2. Here passion is manipulated, decomposed in emotion and identity, which secures internal validity.

Second, our field study leaves unclear what distinguishes effects of passion from effects caused by any other positive emotion. The experiment allowed to untangle emotions and identities, by separately manipulating these as distinct factors. Thereby, the experiment shows that it is entrepreneurial passion, an emotion that is tied to entrepreneurial activities, that drives the mechanisms.

Third, the experiment allowed to observe effects of employees' own passion at the outset, while the field study only considered employees that were already working for an entrepreneur. Employees who participated in our field study might have already been passionate before starting to work in the entrepreneurial firm. As entrepreneurs who are passionate are likely to attract employees that are passionate as well, self-selection mechanisms inflate this possibility. This would be an alternative explanation for finding contagion effects. In the experiment, we can measure the passion that individuals had before interacting with the entrepreneur. Observing an interaction effect of employees' own passion allowed for ruling out this alternative explanation.

Fourth, even more interesting than showing an effect of entrepreneurial passion on employees' passion and affective commitment, which we did in the field study, is analyzing whether entrepreneurial passion also translates to less emotion-related and objectively measurable outcomes such as productivity, measured as a word count variable, and creativity,

rated by two researchers. The design of the field study did not allow a valid measurement of employees' productivity or creativity. In the experiment, we could include employees' productivity and creativity as additional outcome variables.

Fifth, our multi-level field study provided evidence that the mechanisms that we observed in our experiment are likely to occur also in real entrepreneurial firms because entrepreneurs and employees who answer our questions are recruited from the field. Thus, the field study can compensate for potentially questionable external validity of the experiment.

In sum, the two studies presented in this paper were designed to complement each other and to compensate for each other's limitations. Still, some limitations remain.

5.4.1 Limitations and Implications for Future Research

In the field study, we had a very low response rate which resulted in a small sample size and small groups on the lower level, i.e. only few employees per firm. Additionally, the entrepreneurs who participated in the field study might have influenced which of their employees answered the survey. When they have systematically chosen employees to which passion is more likely to transfer, this might have biased our results. Although this limits the trustworthiness of our findings, we tried to increase the validity of our results by combining to studies with different methodology. We suggest that future research should replicate these findings with larger sample sizes.

Nevertheless, our findings have several implications for the current literature. Our studies add to an understanding how employees contribute to entrepreneurial firms' performance and survival. We introduce a way how entrepreneurs can use their expressed passion to leverage employees' potential.

We contribute to literature on entrepreneurial passion (Cardon, 2008; Cardon et al., 2009) as we empirically investigate whether entrepreneurial passion is contagious. Our findings show that entrepreneurs' passion is positively related to their employees' passion, which indicates a

contagion effect. This furthermore shows that employees can experience entrepreneurial passion as well. Our findings complement research that found that perceptions of entrepreneurs' passion stimulate employees' affective commitment (Breugst et al., 2012). We find that perceived entrepreneurial passion also increases employees' goal commitment, productivity, and creativity. However, although our experiment suggests positive effects of entrepreneurial passion on productivity and creativity, we did not test these effects in our field study. Thus, these effects could be investigated in future studies within entrepreneurial firms. Additionally, future research could complement our findings by analyzing effects of other outcomes on the individual level, like self-efficacy and personal initiative, or on the firm level, like firm performance and innovativeness. Furthermore, future research could investigate additional predictors and outcomes of entrepreneurial passion of employees.

Moreover, our study has implications for literature on work passion (Vallerand et al., 2007). By untangling effects of emotions and identities in the passion contagion process, our study lends support for the notion that passion should not be solely considered as positive affect. We find that effects of passion are not only caused by emotions but also by the underlying identity. By indicating an effect of identity displays that compensates for a lack of emotion displays, our findings suggest that entrepreneurs' emotions and underlying identities stimulate separate mechanisms. Therefore, we suggest to untangle emotions and identities in future research on passion.

Additionally, we find that passion contagion only occurs when employees have not been passionate themselves. Thus, researchers studying contagion effects should take the receiver's emotions into account, which were omitted in previous analyses. Not doing so complicates detecting contagion effects that are contingent on receivers' emotions.

Our findings furthermore complement literature on leadership in entrepreneurial firms (Ensley et al., 2006; Hmieleski & Ensley, 2007) because we investigate affective displays of

entrepreneurs instead of leadership styles as predictors of employee-level outcomes. By our analyses, we show that not only entrepreneurs' leadership styles but also affective displays and displays of entrepreneurial identities are important predictors of employee-level outcomes. As empirical research analyzing these effects is still limited, we encourage other researchers to study in more detail how displays of entrepreneurial passion can help to increase employees' performances.

We also contribute to literature on the role of identities in leadership mechanisms (Van Knippenberg et al., 2004) by showing a compensatory effect of an identity display that releases passion perceptions, when no emotions are displayed. As we find interaction effects of emotions and identities, we suggest that effects of emotions should be considered in future studies on leader identities. This might help understand the role of identities for followers' performance.

5.4.2 Implications for Entrepreneurs and Leaders

Understanding how their passion might influence their employees holds several important implications for entrepreneurs. First of all, entrepreneurs should be aware that they can use their passion to enhance their employees' passion, commitment and performance. When entrepreneurs are passionate and show their passion, their employees are likely to be passionate themselves which in turn increases their commitment and performance. Particularly interesting is that this is possible even when they do not show their positive emotions. This is good news for entrepreneurs who feel uncomfortable when they show emotions, for example because they are shy or introverted. When employees are aware of the importance and relevance that doing entrepreneurial activities has for the entrepreneur, they can observe the passion, which can then unleash its positive effects.

Additionally interesting for entrepreneurs might be that their own passion can compensate for a lack of their employees' passion. Particularly when their employees are not already

passionate themselves, entrepreneurs' passion can transfer and thus increase employees' passion, commitment, productivity, and creativity.

CONCLUSION

The aim of this dissertation was to answer two research questions. The analyses, first, aimed to explore how entrepreneurs develop their employees to qualify them for their tasks in entrepreneurial firms, and second, to analyze in what way effectuation and entrepreneurial passion determine how entrepreneurs influence their employees. The five chapters of this dissertation contribute to answering these questions as follows.

Chapter one elaborated theoretical concepts that help to illustrate how entrepreneurs develop and influence their employees. The chapter transferred perspectives and findings from the literatures on human capital, HRM, leadership, job characteristics, and emotional contagion to the entrepreneurial context. Integrating these perspectives with the entrepreneurship literature allowed noting contributions of the previous literature and knowledge gaps. Perspectives of HRM and leadership literature have already been transferred to the entrepreneurial context. The emergence of human capital processes has been analyzed among entrepreneurs but rarely among employees in entrepreneurial firms. Job characteristics of employees in entrepreneurial firms have not yet been examined. Emotional contagion has been proposed to happen in entrepreneurial firms but was not yet analyzed empirically. In chapter one, specific cognitions and emotions of entrepreneurs – that have been largely ignored in this context – were suggested to influence internal firm mechanisms. Drawing on these elaborations, this chapter called for future studies that deepen the current understanding of how entrepreneurs develop and influence their employees.

Based on a qualitative study, chapter two presented an HRD process that can be observed in entrepreneurial firms. This process was proposed to be suitable in entrepreneurial firms. The study indicated that entrepreneurs rely predominantly on effectuation. By suggesting an HRD process that includes effectual logics, this study challenges the assumptions of the HRD literature that focused on causal mechanisms. Thereby, this study suggests possibilities

for HRD processes that fit uncertain and dynamic environments. Furthermore, the findings contribute to the current discussion on human resources in entrepreneurial firms because the chapter focused on an internal way of accumulating human resources, whereas the previous literature focused predominantly on external ways, such as recruitment. The presented HRD process might be interesting not only for researchers but also for entrepreneurs who are working in such uncertain and dynamic environments. These entrepreneurs might find this HRD process more suitable for their situation than suggestions from the conventional HRD literature. Additionally, entrepreneurship educators could consider suggesting that this HRD process is an appropriate approach in uncertain and dynamic environments.

Chapters three and four analyzed the effects of effectuation on employees. Chapter three described how effectuation might determine entrepreneurs' leadership behaviors. On one hand, entrepreneurs who apply causal logics while leading their employees are likely to set predefined goals, formulate a goal-orientated vision, set incentives, and plan for the future. Via these leadership behaviors, causation is expected to foster employees' commitment and extrinsic motivation but to be unable to facilitate employees' creativity. On the other hand, entrepreneurs who apply effectual logics while leading their employees are likely to see their employees as co-creators of their firms, leave them with broad responsibilities, try to leverage their competencies, and allow for experimentation. This is expected to foster employees' commitment and intrinsic motivation, as well as their creativity. Based on these expectations, chapter three proposed that effectuation and causation influence employees' commitment, motivation, creativity, and, in turn, their individual performance and entrepreneurial firms' performance. Considering these findings, entrepreneurs can obtain a better understanding of how their leadership behavior influences their employees' performance and, thus, how they can increase their firms' performances via their leadership behavior.

In chapter four, the effect of effectuation on employees' intrinsic motivation was analyzed empirically, and the dynamism of a firm's environment was introduced as a moderator. Based on an analysis of multi-level data, chapter four suggested that whether effectuation is positively or negatively related to intrinsic motivation depends on the dynamism of a firm's environment. In our data, effectuation was negatively related to employees' intrinsic motivation in highly dynamic environments. Entrepreneurs who apply mainly effectual logics in dynamic environments seem to fail to stimulate their employees' intrinsic motivation. They do not set pre-defined goals, which might be particularly problematic in dynamic environments because employees are more likely to become confused and feel insecure, and they might thus mistrust entrepreneurs' ever-changing plans. Thus, effectuation seems to unleash negative effects on employees in dynamic environments, which indicates that entrepreneurs who rely on effectuation and operate in a dynamic environment should be cautions while leading their employees. For these entrepreneurs, implementing motivation-enhancing HRM practices appears to be good advice.

Chapter five complemented these analyses of the effects of entrepreneurs' cognitions with analyses of effects of their emotions: It analyzed effects of entrepreneurial passion. The combination of a multi-level field study with an online experiment allowed an investigation of whether and how entrepreneurial passion can transfer to employees and how this, in turn, influences employees' commitment, creativity, and productivity. The field study indicated that employees of entrepreneurs who are passionate are more passionate themselves and that employees' own entrepreneurial passion translates into their affective commitment to the entrepreneurial firm. Additionally, the experimental study indicated that perceptions of entrepreneurial passion are not only influenced by entrepreneurs' displays of emotion. The findings showed that entrepreneurs who do not display emotion can still be perceived as passionate when they show their entrepreneurial identity. Furthermore, the study showed that

effects of passion perceptions on employees' goal commitment, productivity, and creativity are dependent on employees' own passion. Effects of entrepreneurs' passion seem to be particularly strong when employees have not been passionate before interacting with entrepreneurs. Thus, chapter five suggested that entrepreneurial passion is contagious and translates into employees' commitment and performance, which demonstrates that entrepreneurs can stimulate their employees' commitment and performance by showing their passion.

In summary, this dissertation indicated a) that entrepreneurs apply, and need to apply, specific approaches to developing their employees and b) that specific cognitions and emotions of entrepreneurs, determined by effectuation and entrepreneurial passion, have distinctive influences on their employees.

These findings have several implications for future research. Several factors influence how entrepreneurs can develop and influence their employees. On one hand, processes in entrepreneurial firms are characterized by reactivity and informality, the work environment is highly dynamic and complex, and employees in entrepreneurial firms need a broad variety of competencies. On the other hand, entrepreneurs apply specific strategic logics and show specific emotional states. These specifics of the entrepreneurial context allow and require entrepreneurs to find specific ways to develop and influence their employees. Accordingly, findings from studies conducted in established firms cannot be transferred to the context of entrepreneurial firms without adaption. Thus, future research should aim to deepen our understanding of what internal mechanisms in entrepreneurial firms look like and how these differ from mechanisms in more established firms. Therefore, research should not neglect the effects caused by effectuation and entrepreneurial passion. Future research should aim for a better understanding of how entrepreneurs' cognitions and emotions help or hinder their attempts to leverage their employees' potential.

The findings of this dissertation also have several implications for entrepreneurs. First, entrepreneurs need to find approaches to develop and influence employees that fit the entrepreneurial work environment. Entrepreneurs should implement processes that contain causal and effectual logics. Integrating effectual logics will allow accounting for the dynamism and flexibility of their environment. At the same time, entrepreneurs who apply effectual logics should be cautious because effectual logics might adversely affect employee outcomes in their firms in some cases. Thus, entrepreneurs should implement processes that, based on situational contingencies, allow reliance on causal or effectual mechanisms. Second, the findings of this dissertation indicate that showing entrepreneurial passion can help entrepreneurs to increase employee-level outcomes. Entrepreneurs should use their passion by showing their emotions or by showing their entrepreneurial identity to enhance their employees' – and, in turn, their firms' – performance.

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APPENDIX

Appendix A: Key Questions in the Individual Interviews (Chapter 2)

Entrepreneurs / HRD Professionals	New Venture Consultants
What is your role in your company?	What is your role when you supervise founders?
How does your company recruit and select employees?	What kind of recruitment process do you observe in entrepreneurial firms?
How do employees learn what they need to do on their job?	How is the initial training for start-up employees organized?
Which development possibilities do employees have?	How important do you think is HRD in entrepreneurial firms?
How do you organize HRD in your company?	What kind of HRD process do you observe in entrepreneurial firms?
How do you / the employees choose trainings?	Which HRD options do you recommend for entrepreneurial firms?
What kind of trainings do you / the employees join?	What kind of trainings are appropriate for employees in entrepreneurial firms?
How are HRD activities evaluated?	How are HRD activities evaluated?
Do you/ the employees use networks for any purpose? With whom?	In what way do entrepreneurs use networks and for what purpose do they use networks?
How is the communication between employees organized?	How is the communication between employees in entrepreneurial firms organized?
Which career options do employees have?	Which career options do employees in start-ups have?
How do you ensure that your company remains innovative?	How do entrepreneurs ensure that their start-up remains innovative?
How do you ensure your company's product's quality?	How do entrepreneurs ensure their company's product's quality?
Which challenges do you face while organizing HRD?	Which challenges do entrepreneurs face while organizing HRD?

Abbreviation: HRD: Human Resources Development

Appendix B: Anchors for Coding the Creativity of the Participants' Ideas for the Marketing Concept (Chapter 5)

	R	ating	Example
Novelty			
Originality	4	Not expressed before (rare, unusual), ingenious, imaginative or surprising; may be humorous	It would be neat to have a commercial where a guy gives a girl a bouquet and she basically kills it with neglect, then he shows up again with another bouquet and the device. Fast forward to a couple of years down the road, and they are still together and the bouquet is still gorgeous.
	3	Unusual (compared to ideas of other participants), interesting, shows some imagination	Compare it to a stoplight. Much like green means go and red means stop, with the Houseplant Guard, blue means it needs water, yellow means it needs light and so on and so forth.
	2	Interesting	You could even go to some agriculture schools.
	1	Common, mundane, boring	Radio and internet ads, as well as social media, would also work well.
Paradigm Relatedness	4	Paradigm breaking	Also, using twitter would be a great idea, people love that thing. IF the plant could also 'tweet' what it needs, I could see people wanting to buy it for that reason (like how people make Facebook/Twitter accounts for their animals, why not for their plants? that would just make it easier.) OR, have an 'advanced' version that does that.
	3	Paradigm stretching	I think this could also be used in the classroom setting to teach children how to care for plants while adding a technology component to the lesson since information can be accessed on the house plant guards app.
	2	Slightly paradigm stretching	Sell it to people owning plant shops, for keeping their flowers in optimal selling condition.
	1	Paradigm preserving (ideas are primarily adaptions)	Make more advertising to get the word around.
Feasibility			
Acceptability	4	Consistent with social norms and law and common	This product could be used as an educational tool, both in schools and at home.
	3	Consistent with social norms and law, but in some way uncommon	I for one think that the medical marijuana industry could benefit from your product
	2	Consistent with laws, but socially, ethically, politically unacceptable	I would have someone on staff to go to all relevant forums and beginning hyping the pocket gardener. They'll have to be discreet about it and come across as an enthusiastic user not an employee of another company.
	1	Radically against laws, business practice (e.g. corruption), social norms	If you recognize copycats try to outrange them and burn their business down.
Implement- ability	4	All dimensions positive, easy to implement	Open up an own website, sell it primarily there and fulfill the orders you are able to.

	3	Probably possible, if you consider all dimensions	Get a professional model for your advertising
	2	Probably not possible, if you consider all dimensions	Another thing that could be of use would be to have the stores use it in their garden sections.
	1	Totally infeasible, too complex	My last suggestion would be to have a companion to the plant guard that would be able to automatically give the plant some water in the event of a dryness emergency.
Relevance			
Applicability	4	Solves an identified problem that is directly related to the stated task	Contact app review sites and bloggers by inviting them to try and review the product. Ask that they link to the app in the review.
	3	Solves an implied problem that is related to the stated task	Provide more than just a raw notice for the app. Have the app act as an adviser as well.
	2	May have some benefit within a special situation and for a small target group and somehow relates to the stated task	Hire models gardening in front of your store in spring.
	1	Idea does not apply to the task at all	n. a.
Effectiveness	4	Reasonable and will solve the stated problem without regarding workability	I believe the best way to advertise is to use social media to get customers' attention, especially blogs. Contact blogs that are based around healthy eating and give them one of your products to use so they can spread the word to their viewer base about just how wonderful of a product you have.
	3	Reasonable and will contribute to the solution of the problem	You can create an Amazon store and have them handle fulfillment.
	2	Unreasonable or unlikely to solve the problem	Advertise the most to would be single 28-40 female and males.
	1	Solves an unrelated problem	n. a.
Specificity			
Clarity	4	Easy to understand, crisp clear complete sentences, good word usage	Sell the product on your own website.
	3	Understandable, but not brought to the point, contains unnecessary details	I also think you really need to have a big social media presence. I can't count the number of times I saw cool ideas/products that I got really invested in, by social media. You need to be on Twitter, Instagram, I also would recommend getting on reddit.com, doing an IAMA (Ask Me Anything), prompts for others to ask questions about any topic. The online community if they love a product would really get behind you.
	2	Somehow understandable, some missing links, some sentences incomplete	I would highlight the most useful feature aspect first, then the second, and so on, but it needs to be done so in laymen's terms that shows the product's simplicity. Marketing works best by using the

K.I.S.S. approach, especially when selling a product worldwide.

1	Vague, ambiguous expression, poor language structure	Where can we get customers' attention? at home and in a car
4	Idea contains four dimensions or more	Now, if you want to increase awareness in the area you live in, contact or have someone contact your local newspaper to write an article about you. It could be about a local citizen who starts his own company and is successful. People love human interest stories.
3	Idea contains three dimensions	I think one of the most convenient features that should be advertised of the product is the ability to send a push notification to a device. For people that live busy lifestyles, like someone who is constantly on-the-go in the city, they may sometimes forget to pay attention to their plants. This product would be able to send them a reminder regarding their plant's health before its too late, and they've ruined another plant.
2	Idea contains two dimensions	Online ads are key as you can use tracking cookies hone in on your target demographics. You can promote it by trumpeting its environmental, entertainment and beautification aspects as developmental, beneficial, selfless, and fun.
1	Idea contains only one dimension	You can get customers' attention by showing the product being used in common, everyday situations
4	Implication is clearly stated and makes sense	Hang up a poster in front of a hardware store to address every potential customer entering the store.
3	Implication is relatively well stated and makes sense	Emphasize how they can get notifications while out and about, such as reminders to buy plant food or even something like a reminder to come home for lunch to move the plant into better light.
2	Implication is vaguely stated or intuitively given	I think it should be in a bright box and showing sort of what's in the product.
1	Implication is not stated, even though relevant	This product could be improved by not only having the push notifications but also adding your own personalized music to play specific songs when the plant is in need of certain care.
	43432	expression, poor language structure 4 Idea contains four dimensions or more 3 Idea contains three dimensions 1 Idea contains two dimensions 1 Idea contains only one dimension 4 Implication is clearly stated and makes sense 3 Implication is relatively well stated and makes sense 2 Implication is vaguely stated or intuitively given 1 Implication is not stated, even

We followed the approach of Dean, Hendler, Rodgers, & Santanen (2006).

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WORK EXPERIENCE

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