

QUALITATIVE STUDY

Entrepreneurs' human resources development

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This study explores how entrepreneurs develop human resources within their firms. Based on an analysis of interviews with entrepreneurs and new venture consultants, we describe entrepreneurs' human resources development (HRD) approaches. We found that entrepreneurs rely on networking and creativity, aim to leverage employees' interest and competencies, and allow cocreation by employees; current requirements and situational conditions shape entrepreneurs' HRD decisions. To elaborate on our findings, we draw on the distinction between causation and effectuation. We describe an entrepreneurial HRD process that combines both a causation-based and an effectuation-based HRD approach.

KEYWORDS

decision-making, employee development, entrepreneurial learning, training/training and development

1 | INTRODUCTION

For entrepreneurs, human resources development (HRD) is a vehicle to create inimitable, valuable human resources, laying the foundation for competitive advantage (Hatch & Dyer, 2004). HRD is repeatedly deemed to be important not only in mature and established firms but also in entrepreneurial firms (Hayton, 2003; Hornsby & Kuratko, 2003; Marvel, Davis, & Sproul, 2016; Unger, Rauch, Frese, & Rosenbusch, 2011). HRD also is an alternative to recruiting and selecting highly qualified employees, which is particularly difficult for new ventures given their lack of a strong reputation, inability to offer high salaries and job security, and high costs associated with recruitment and selection processes (Cardon & Stevens, 2004).

Entrepreneurs, the founders and owner managers of firms in dynamic environments, are usually confronted with resource constraints, their firms are characterized by informality, and they are particularly in high need for ideas and engagement from their employees. In entrepreneurial settings, HRD is usually on-the-job, experiential, reactively chosen, unsophisticated, or nonexistent (Hornsby & Kuratko, 1990, 2003; Nolan & Garavan, 2016). Entrepreneurs often cannot enjoy fully fledged human resource departments; they initially are responsible for the development of employees themselves (Fox, 2013; Katz & Welbourne, 2002). Accordingly, the work setting and resource-constraints in entrepreneurial firms differentiate the possibilities for HRD processes from possibilities in established firms, engendering challenges for entrepreneurs when trying to ramp up a structured HRD architecture (Hornsby & Kuratko, 2003).

Although many studies analyzed the impact of entrepreneurs' competencies on firm-level outcomes (Crook, Todd, Combs, Woehr, & Ketchen, 2011; Man, Lau, & Chan, 2002; Tehseen & Ramayah, 2015; Volery, Mueller, & von Siemens, 2015; Wolff, Pett, & Ring, 2015), previous research neglected the importance of employees' competencies in entrepreneurs' firms. Which HRD approach is appropriate in the dynamic, uncertain, and informal environment of entrepreneurs is unclear so far (Cardon & Stevens, 2004; Marvel et al., 2016; Unger et al., 2011). More specifically, theoretical development of what potentially underlying strategic logic looks like remains lacking (Katz & Welbourne, 2002; Nolan & Garavan, 2016). In this study, we aimed to answer the question of how entrepreneurs develop human resources within their firms, and whether their approaches—although informal—could be considered strategic.

We begin this article by describing the particularities of HRD in small and young firms. Then, we introduce causation and effectuation, decision-making logic applied by entrepreneurs, which we use to develop our theorizing about entrepreneurs' HRD approaches. Next, we describe our qualitative research design and our analysis of interviews with entrepreneurs (i.e., founders and owner managers of firms in dynamic environments) and interviews with new venture consultants. Drawing on an analysis of these data, we explore entrepreneurs' HRD approaches. To investigate differences that occur while a firm matures (Reymen et al., 2015), we contrast the HRD approaches of entrepreneurs whose firms are in earlier (firm age ≤ 6 years) vs., in later ($10 \text{ years} \leq \text{firm age} \leq 25 \text{ years}$) development stages. To expose the specifics of the entrepreneurial context, we also interviewed HRD managers in established firms to contrast their statements to the statements from entrepreneurs and new venture consultants.

In the course of our analysis, we used the distinction between causation and effectuation (Sarasvathy, 2001) to develop our theorizing about entrepreneurs' HRD approaches and moved from an inductive to a more deductive approach of analysis. Effectuation can be described as a creative, means-orientated approach that leverages contingencies, builds on partnerships, and applies an affordable loss principle; Causation, in contrast, is characterized by a goal-orientated and predictive view that avoids contingencies, sees outsiders as competitors, and applies expected return calculations (Sarasvathy, 2001; Wiltbank, Read, Dew, & Sarasvathy, 2009). Causation and effectuation helped us to explain entrepreneurs' HRD decisions.

Our study contributes to the literature in several ways. Based on our empirical findings, we describe an HRD process that accounts for the informal structures, dynamic environment, and resource constraints that usually confront entrepreneurs. Thereby, our study addresses recent calls for a better understanding of the particular issues that make entrepreneurs' HRD initiatives and challenges unique (Garavan, Watson, Carbery, & O'Brien, 2016; Nolan & Garavan, 2016), while also adding to the understanding of what HRD looks like within the entrepreneurship domain. This perspective suggests an extended understanding of what HRD decisions can be considered "strategic" and might be appropriate—although informal—in some contexts. Additionally, we show in what way the distinction between causation and effectuation is a frugal way to understand how HRD processes are designed in entrepreneurial firms and which circumstances shape entrepreneurs' HRD decisions. Our elaboration on entrepreneurs' HRD approaches paves the way for a better understanding of the scope of effectuation and causation processes.

2 | HRD IN ENTREPRENEURS' FIRMS

To situate our investigation in previous research, we first discuss how we define HRD for our investigation and describe what we already know from previous studies about HRD in firms of entrepreneurs. Next, we explain the decision-making logic that previous entrepreneurship research found to describe entrepreneurs' decision-making, effectuation and causation, because we will use this logic to develop our theorizing about entrepreneurs' HRD approaches.

2.1 | Defining HRD

Drawing on the model of Mankin (2001), we see HRD at the intersection between human resource management (HRM), culture, strategy, and structure and define it as a process that stimulates learning and facilitates the emergence of individuals' knowledge (Werner, 2014). Accordingly, HRD not only includes formal training but also informal learning such as unstructured, experiential, and noninstitutional-learning processes (Marsick & Volpe, 1999). In firms of entrepreneurs, HRM, culture, strategy, and structure are closely tied together in the hands of the entrepreneur (Saru, 2007). Thus, processes that foster knowledge and learning are strongly integrated and overlap, maybe even more than in established firms. To understand entrepreneurs' HRD, we aim to investigate their influence on employees' knowledge and learning. Therefore, we take into account entrepreneurs' communication and information, action and behaviors, and their management and leadership style (Mankin, 2001).

2.2 | HRD in small and young firms

The importance of HRD for entrepreneurs has been highlighted repeatedly (Hayton, 2003; Unger et al., 2011), but only a few studies have analyzed its nature and impact. To date, research on HRD processes has been scarce in the entrepreneurship domain but in an emerging state in the literature on small and medium-sized enterprises (SMEs) (for a recent literature review on HRD in SMEs, see Nolan & Garavan, 2016). As entrepreneurs mostly start with a small number of employees, findings of the SME literature might be, at least partially, applicable to their environment. That is why we first present findings generated in small firms and then discuss what is specific in young firms.

Analyzing SMEs, some researchers focus on HRD systems or interventions, some on the HRD climate, and others on obstacles (Nolan & Garavan, 2016). In small firms, training primarily takes place on-the-job and is more informal than in larger firms (Harney & Dundon, 2006b; Hayton, 2003; Hill & Stewart, 2000). Analyzing training and development on an operational level, Harney and Dundon (2006a) found that training is mostly fragmented and inconsistent within SMEs. They observed seminars for quality management, customer orientation, and soft skills. Small firms have been shown to make extensive use of their networks (Skinner, Pownall, & Cross, 2003). Hornsby and Kuratko (1990) found on-the-job training to be more relevant than more sophisticated forms of training, particularly in smaller firms. Training is rarely strategically planned, but instead is chosen reactively, when problems or knowledge gaps are identified, and usually not or informally evaluated (Hill & Stewart, 2000). Learning and development approaches seem to fit best when based on experimentation, reflection, and team learning (Sadler-Smith, Gardiner, Badger, Chaston, & Stubberfield, 2000).

Imitating the best practices from larger organizations appears difficult, because of the lack of resources, the dynamic environment, and ambiguous objectives in entrepreneurial firms (Heneman & Tansky, 2002; Saru, 2007). Another obstacle to training occurs because of restricted human and financial resources (Messersmith & Guthrie, 2010). Although Garavan et al. (2016) found that some formal as well as informal development practices are present in SMEs, training is one of the least common HRM practices in SMEs (Duberley & Walley, 1995). This is surprising and problematic, because many difficulties arise due to untrained staff (Duberley & Walley, 1995).

For entrepreneurs, HRD becomes important right after hiring the first employees because entrepreneurs' success hinges on competent employees and the development of specific human capital (Cardon & Stevens, 2004). In an entrepreneurial setting, dynamism and informality usually is the normal state, because decisions need to be made under continuously changing conditions, without formal plans, and without previously defined objectives (Wiltbank et al., 2009). Thus, the entrepreneurs' HRD approach might also be characterized by informality.

2.3 | The role of informality and strategy

There is a lack of consensus regarding whether informality appears due to entrepreneurs' lack of experience and actually impedes the success of new ventures or if it might be appropriate in an entrepreneurial context (Hayton, 2003). The disagreement demonstrates that the literature is not yet able to explain whether formal practices or a

more informal approach is most appropriate for entrepreneurs. Bacon and Hoque (2005) argue that a lack of sophisticated HRM practices indicates that a firm values its employees. In contrast, Duberley and Walley (1995) observe little strategy in HRM and HRD, but acknowledge that some strategic approaches are simply not considered.

One reason for the informal and unstructured nature of entrepreneurs' HRD might be that a conventional causation-based approach is not possible in their environment. Conventional HRD suggests a causal logic: analyze, plan, select, implement, and evaluate HRD activities (Swanson, 1995). In this approach, HRD goals are derived from previously formulated business goals (Hsieh & Chen, 2011; Torraco & Swanson, 1995) or developed in interaction with business strategy development (van Donk & Esser, 1992). The overarching business strategy then usually defines HRD goals and processes in alignment with the strategy (Hargis & Bradley, 2011). The general requirements are matched with the actual stock of competencies, and HRD activities should fill the competency gap. In this perspective, the HRD approach is closely aligned with a firm's planning, goals, and business strategy (Guest, 2011): The firms' goals and strategies define the required competencies of a firm's employees (Swanson, 1995).

However, entrepreneurs may not yet be able to define target competencies for positions that are not yet assigned. In established firms, HRD activities usually are managed and implemented by an HRD or HRM department that has the required resources to execute the HRD activities in an efficient manner (Lepak & Snell, 1999). However, entrepreneurs usually do not have a formal human resources department that is engaged in stimulating learning and competency development (Cardon & Stevens, 2004). Entrepreneurs themselves need to decide on HRD activities, and have to deal with the dynamic contingencies in the business-creation process at the same time (Fox, 2013; Katz & Welbourne, 2002).

Although research shows that entrepreneurs' HRD builds on training that takes place primarily on the job and is informal in nature (Hornsby & Kuratko, 1990; Nolan & Garavan, 2016), knowledge of what underlying decision-making logic look like is missing (Nolan & Garavan, 2016). *How* HRD is conducted by entrepreneurs and *why* entrepreneurs shape it in that way remains unclear so far. Thus, an explanation of the mechanisms that describe and explain the decision-making logic underlying entrepreneurs' HRD is needed (Mayson & Barrett, 2006). In this study, we suggest that effectuation, a decision-making approach identified as typical for entrepreneurs (Sarasvathy, 2001), explains in what way entrepreneurs' HRD can be considered strategic, although informal. We argue that effectual HRD can account for the informal and ad hoc nature of entrepreneurs' planning. We introduce effectuation (Sarasvathy, 2001) as a theoretical lens in the next section.

2.4 | Decision-making logic applied by entrepreneurs: A distinction between causation and effectuation

Sarasvathy (2001) introduced effectuation by contrasting it to causation. Causation here is the conventional perspective on strategy, as suggested by previous management literature. Causation characterizes 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 (Sarasvathy, 2001). Although this approach, which focuses on planning and prediction, is established as efficient and appropriate in the management literature (Brinckmann, Grichnik, & Kapsa, 2010; Delmar & Shane, 2003), research in the last two decades has discussed whether or not it is also appropriate in entrepreneurial contexts, which are dynamic and informal (Baker, Miner, & Eesley, 2003; Baker & Nelson, 2005; Sarasvathy, 2001). In this discussion, other concepts, including effectuation (Sarasvathy, 2001), were presented as alternatives that may better explain entrepreneurs' decisions. Several researchers even observed that effectual decisions of entrepreneurs outweighed their causal decisions (Dew, Read, Sarasvathy, & Wiltbank, 2009; Fisher, 2012; Read & Sarasvathy, 2005). Nonetheless, effectuation and causation logic can be combined, and entrepreneurs' emphasis on these logics shifts, often repeatedly, over time (Reymen et al., 2015).

For entrepreneurs, 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 (Chwolkla & Raith,

2012; Wiltbank et al., 2009). The development of the environment is mostly uncertain and highly dynamic (Dutta & Crossan, 2005). Thus, entrepreneurs need to be flexible and react to situations that challenge them (Andries, Debackere, & van Looy, 2013). Sarasvathy (2001) described effectuation as a decision-making logic, which is applied by entrepreneurs (Dew et al., 2009; Wiltbank et al., 2009), and which fits the uncertainty and dynamism of entrepreneurial environments (Alvarez & Barney, 2008; Reymen et al., 2015). Expert entrepreneurs have been shown to make a significant use of effectuation (Fisher, 2012; Read, Song, & Smit, 2009).

Although there are still different definitions of and perspectives on effectuation (Arend, Sarooghi, & Burkemper, 2015; Perry, Chandler, & Markova, 2012), there are five categories that characterize the effectuation construct: Effectuation is *means-orientated* in that it focuses the accumulation of commitments and resources. Actions start with an analysis of the means at hand and an exploration of the possible outcomes that could be reached with those means. Effectuation is based on a *creative view* that allows ideas to converge and specific goals to emerge (Sarasvathy & Dew, 2005). The focus is to recognize, discover, or create opportunities from scratch. Even *contingencies are understood as opportunities* that should be leveraged rather than avoided. Instead of predictions of the future, risk is reduced by an emphasis on control while maintaining flexibility. Decisions are based on an *affordable loss principle* rather than expected return. *Outsiders are seen as partners* and cocreators. Partnerships, networks, and precommitments from various stakeholders, including customers, suppliers, and even competitors (Chandler, DeTienne, McKelvie, & Mumford, 2011; Dew et al., 2009), are a source of ideas and used to create possibilities.

We decided to use the distinction between causation and effectuation as a means to develop our theorizing about an entrepreneurial HRD process. Effectuation, as a contrast to the causal reasoning described in the strategic management (and HRM) literature, seemed useful for several reasons. First, effectuation is a specific category of rationality that has been shown to be used by entrepreneurs, for strategic decisions in dynamic and uncertain environments (Wiltbank et al., 2009). Thus, effectuation might better fit the environment of entrepreneurs than causation because it embraces uncertainty and focuses on flexible and adaptive decision-making, instead of developing formal plans (Sarasvathy, 2001). Second, other researchers have already shown that effectuation is an appropriate theoretical lens to analyze learning of individuals (Honig, Davidsson, & Karlsson, 2005; Middleton & Donnellon, 2014). Third, effectuation provides a process perspective (Gupta, Chiles, & McMullen, 2016; Reymen et al., 2015), making it suitable for analyzing HRD processes. Fourth, effectuation can be conceptualized on the individual level or firm level (Werhahn, Mauer, Flatten, & Brettel, 2015), such that it is appropriate to analyze entrepreneurs' HRD decisions, and also the HRD process that manifests on the firm level.

Effectuation has been used to explain learning of individuals in the entrepreneurial context (Honig et al., 2005; Middleton & Donnellon, 2014) but not yet to explain learning on an organizational level. Effectuation is suggested as an efficient learning strategy for entrepreneurs to develop their own competencies. Honig et al. (2005) found that learning processes that are associated with effectuation are positively related to entrepreneurs' progression. In contrast, they did not find an effect of causal-learning approaches, which they link with systematic, institutionalized, and formalized education, on venture development (Honig et al., 2005). Their study suggests incrementalism and continual adjustment, which are part of effectuation, as effective tools for entrepreneurs to accumulate knowledge.

Studies about entrepreneurial training programs that analyze different approaches to foster the development of entrepreneurial competencies suggested effectuation as part of a pedagogy for the learning processes of entrepreneurs (Middleton & Donnellon, 2014). Middleton and Donnellon (2014) highlight the necessity of iterative cycles of experience, reflection, and dialog, which effectuation allows for. Greenberg, McKone-Sweet, and Wilson (2011) show that entrepreneurs need to learn to cope with situations where reliable and relevant data are not available. In these situations, circumstances are unknowable or emerge dynamically (Greenberg et al., 2011). Effectuation accordingly seems to provide an approach that helps entrepreneurs learn to operate in uncertain and ambiguous environments.

Thus, previous research has found that effectuation is appropriate for analyzing processes referring to learning and competency development in the entrepreneurship domain. However, this logic was not yet transferred to learning processes of employees or HRD processes.

3 | METHOD AND SAMPLE

This study explores what entrepreneurs' HRD looks like and analyzes decision-making logic that entrepreneurs apply in their decisions. Furthermore, we aim to highlight characteristics that distinguish entrepreneurs' HRD approaches. We extract a characteristic entrepreneurial HRD process.

To do so, we initially designed an inductive and open-ended study to explore entrepreneurs' HRD approaches and shifted to a more deductive approach when we found effectuation to be an appropriate means to develop our theorizing. A qualitative approach seemed appropriate because we aimed to understand the logic underlying entrepreneurs' subjective understanding (Suddaby, 2006) and wanted to observe the HRD process (Edmondson & McManus, 2007). Furthermore, previous research has yet to explain how human resources are developed within an entrepreneurial context, and has indicated that the occurrence of informality in new ventures' HRM complicates structured analyses (Duberley & Walley, 1995). Thus, we started with category building in an inductive process. The two authors have different backgrounds, with one from the field of Human Resources Education and Management, with a focus on HRD topics, and the other author from the fields of entrepreneurship and HRM. This combination provides a good fit for the research question and paved the way for integrating the HRD and entrepreneurship literature while allowing the authors to challenge each other's point of view in interpreting the data that contributed to in-depth understanding.

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. To validate the context specificity of our findings, we asked HR managers in established firms the same questions as we did the entrepreneurs, which allowed comparison of the decision-making logic of entrepreneurs and that of HR managers in established firms. Additionally, we discussed our findings with HRD consultants, which deepened our understanding of boundary conditions.

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 these entrepreneurs' firms. We included interview partners from different expert groups in the field in a stepwise fashion, following a strategy of theoretical sampling (Glaser & Strauss, 2012). 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. This adaptation and openness to the topics that interviewees mention lead to a wide range in interview length. See Table A1 in the Appendix for the questions that guided the interviews. All participants were informed about our research question, knew at all times that we would use their statements for research purposes, and were informed that, with their permission, we would record and transcribe the interviews.

First, we interviewed 15 entrepreneurs in different technology-oriented industries in Germany, whose firms were either in an early (10 firms: firm age ≤ 6 years) or in a later (5 firms: 10 years $\leq$ firm age ≤ 25 years) development stage. We decided on this demarcation because previous research has argued that particularly the first years within a firm's development are very dynamic and new ventures have higher risks of failure. Previous research also used a 6-year threshold to differentiate new ventures from more established firms (Rosenbusch, Brinckmann, & Müller, 2013; Zahra, Ireland, & Hitt, 2000). After 10 years, dynamism and risk of failure should already be at a lower level, making these firms more established in the sense of HRD processes. Interview length varied between 06:41 and 86:32 minutes (average 34:36 minutes, total: 519:00 minutes). We contacted entrepreneurs in our network who operate in dynamic and uncertain environments and already employ at least five employees. We also asked our interviewees to suggest additional interview partners. The entrepreneurs were asked about HRD activities and their reasons for using these activities. Additional topics in these interviews included decision processes, objectives, plans,

and problems that entrepreneurs have regarding HRD in their firms. Additional questions were asked about the firms' idea-creation processes and employees' learning and development opportunities.

Second, we interviewed four new venture consultants (interviews between 28:51 and 86:32 minutes, average 36:26 minutes, total: 218:36 minutes). We looked for consultants who had comprehensive experience working with new ventures, and thus got a good impression of the structures, processes, and challenges that occur in new ventures. We asked them about the HRD approaches that they observed in the firms that they consult, and whether they found these approaches appropriate. These offered us the possibility to enrich our understanding through their greater knowledge, grounded in long-term consulting experience.

Third, we asked six HRD managers in established firms about their HRD approaches (interviews between 12:17 and 63:17 minutes, average 34:40 minutes, total: 205:00 minutes). They were asked the same questions concerning HRD that we asked the entrepreneurs, which allowed comparison of their decision-making logic with that of the entrepreneurs. We were thereby able to extrapolate the logic that is specific to the entrepreneurial context.

Finally, the findings gathered from the interviews were discussed with HRD consultants in two focus groups. These experts had a general and more holistic point of view on HRD issues. The discussions had different parts: They discussed which HRD approaches they observe, which they think are appropriate, which ones they apply themselves, and, in a last step, we showed them our findings and let them discuss the appropriateness of our model (in the version that we had at that time). These discussions with HRD consultants enabled a superior understanding of the boundary conditions of the applicability of the entrepreneurs' logic. Detailed information about the interview attendees is listed in Table 1.

3.2 | Data analysis

Our data analysis consisted of four phases, similar to approaches that other researchers have applied (Mathias, Williams, & Smith, 2015; Pratt & Rosa, 2003). 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, 2012). We started with an inductive elaboration process. In the beginning, we compared interviewees' descriptions and explanations and identified reoccurring sequences in the interviews (Gioia, Corley, & Hamilton, 2013). In later stages of analysis, we moved to a more deductive research approach, in which we used effectuation as a means to develop theorizing about entrepreneurs' HRD approaches.

We started our analyses (Step 1) focusing on the HRD practices that entrepreneurs chose. The codes that we used stemmed from reoccurring sequences in the interviews, and followed an open and iterative process. This brought us to more strategic issues in the process that show *how* entrepreneurs' HRD looks and *why* (Step 2). During an iterative process of analyzing data and returning to theory, which is common in qualitative research designs (Gioia et al., 2013; Glaser & Strauss, 2012), we found that the logic underlying entrepreneurs' decisions can be linked to 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 training recommendations, 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, one dimension of causation, as defined in the previous entrepreneurship literature. 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.

As Sarasvathy's (2001) framework appeared to be an appropriate means to develop theorizing about the entrepreneurs' HRD approaches, we used 10 basic categories of causation and effectuation (Perry et al., 2012) to code our interviewees' statements. In the next step (Step 3), we conducted additional interviews and also included HRD managers from established firms, which we again coded using the categorization of causation and effectuation. The analyses of the HRD managers' interviews allowed us to compare their approaches with the entrepreneurs'

TABLE 1 Sample

Expert group		Development stage	Firm's age (y)	Number of employees		Interview length (min:s)
Entrepreneur 1	Biotechnology	Start-up	4	14	Phone interview	42:37
Entrepreneur 2	Typography/automation	Start-up	1.5	11	Phone interview	25:14
Entrepreneur 3	Biochemistry	Start-up	3	9	Phone interview	32:51
Entrepreneur 4	Pharma, R&D	Growth	16	100	Personal interview	63:18
Entrepreneur 5	Airbearing	Growth	12	30	Personal interview	59:22
Entrepreneur 6	User interfaces	Start-up	1	6	Personal interview	06:41
Entrepreneur 7	Online translation	Start-up	2	8	Personal interview	10:25
Entrepreneur 8	IT	Start-up	2	5	Phone interview	58:12
Entrepreneur 9	IT	Start-up	3	5	Phone interview	12:17
Entrepreneur 10	IT	Start-up	4	18	Phone interview	25:01
Entrepreneur 11	IT	Start-up	5	10	Phone interview	46:48
Entrepreneur 12	IT	Start-up	6	40	Phone interview	33:09
Entrepreneur 13	IT	Growth	11	15	Phone interview	28:33
Entrepreneur 14	IT	Growth	14	76	Phone interview	58:29
Entrepreneur 15	Automotive	Growth	25	1,000	Phone interview	16:03
HRD manager 1	HR department		15	400	Phone interview	15:08
HRD manager 2	HR department		16	120	Phone interview	12:17
HRD manager 3	HR department		20	97	Phone interview	39:09
HRD manager 4	HR department		102	200,000	Phone interview	24:47
HRD manager 5	HR department		149	110,000	Phone interview	50:22
HRD manager 6	HR department		149	110,000	Phone interview	63:17
NVC 1	High-tech specialization				Phone interview	49:26
NVC 2	High-tech specialization				Phone interview	28:51
NVC 3	HRD expertise				Personal interview	86:32
NVC 4	HRD expertise				Phone interview	53:47
HRD consultants 1	Change management, innovation, leadership, teambuilding				Group discussion, 3 attendees	58:56
HRD consultants 2	Strategy, change processes, teambuilding, questionnaires, training				Group discussion, 4 attendees	126:43

approaches. All individual interviews were recorded and transcribed for our analyses with ATLAS.ti. Two researchers individually coded the transcriptions, the first author of the article and two research assistants, one in each step. We then counted how often particular statements, referring to each dimension of each logic in all individual interviews, occurred. The intercoder correlation (ICC) had a sufficient value (ICC = 0.894 during Step 2 and ICC = 0.811 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 arguments about which decision-making logic might result in which outcome and the advantages and disadvantages that they perceived in applying causal vs., effectual logic. This analysis helped us understand the context dependency of the HRD process.

4 | RESULTS

Drawing on an analysis of qualitative interviews, we could observe what entrepreneurs' HRD approaches look like and which decision-making logic entrepreneurs applied in their HRD decisions. During an iterative process of analyzing data and integration of theory, the distinction between effectuation and causation (Sarasvathy, 2001) appeared to be an appropriate means to develop theorizing about entrepreneurs' HRD approaches and an entrepreneurial HRD process. In the following, we will (a) describe the decision-making logic that we observed in entrepreneurs' HRD approaches, and (b) based on these decision-making logic, describe a characteristic entrepreneurial HRD process.

4.1 | Causation and effectuation in Entrepreneurs' HRD decisions

We analyzed the decision-making logic underlying entrepreneurs' HRD decisions. In the interviews with entrepreneurs, we extrapolated the statements¹ explaining their HRD decisions; in the interviews with new venture consultants, we extrapolated the statements about HRD decisions in firms, which they observed in their consulting. We linked the decision-making logic that we observed with the logics of causation and effectuation (see Figure 1). In the following narrative, we first describe how entrepreneurs' HRD approaches relate to causation, and then how they relate to effectuation.

Table 2 summarizes statements of interviewees, which reflect causal logic, while Table 4 indicates how often we found statements referring to each strategic logic.

4.1.1 | The predictive view on the future

When entrepreneurs explain why they send their employees for training or to conferences, they say that they encourage participation only when they think their employees will learn something about a specific new technology. We found similar logic for an entrepreneur who explained that he only allows employees to visit a fair when he is absolutely sure they will learn a lot. Here, 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 fill a competency gap. Thus, entrepreneurs' HRD decisions reveal a predictive logic when they try to predict the outcome of an HRD activity.

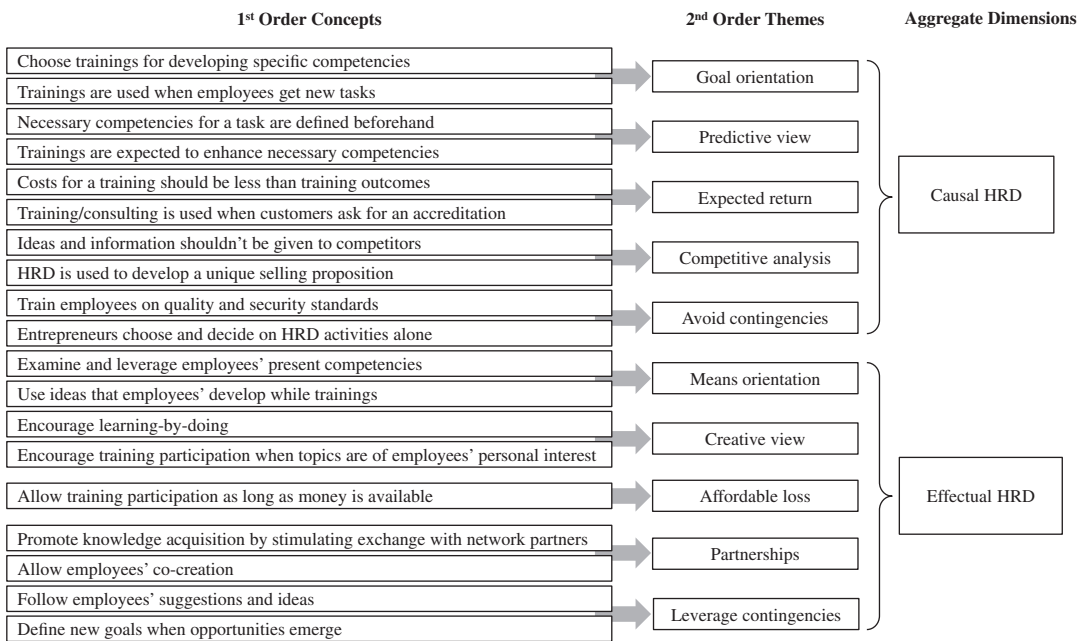


FIGURE 1 Data structure

TABLE 2 Statements referring to causation

Predictive view	Entrepreneur 2	Visiting a fair is senseless if we don't stay in contact with potential customers.
	Entrepreneur 12	There is an ongoing necessity that employees join conferences which are, for example, around new java developments or such things.
Goal orientation	Entrepreneur 3	We send someone on a training and afterward this employee is a multiplier for example, is responsible to distribute all new information in our firm.
	Entrepreneur 13	When I have plans for an employee and his suggestion of a training does not fit my plans, then I am not convinced by the effectiveness of the training.
	Entrepreneur 11	We provide training when we use a new technology. Mostly, these are conducted by the software supplier and mostly in the 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 an employee needs to be qualified for a new task they search for a specific training.
Expected return	Entrepreneur 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.
	Entrepreneur 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.
	Entrepreneur 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 that is internationally acknowledged.
	Entrepreneur 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 afterward, is nonsense in my opinion. We do not do any investment that the market did not request.
	NVC 2	It's important that they focus on networks that are profitable for them
Competitive analysis	Entrepreneur 3	It's a narrow ride between positive exchange and hand over information that is success relevant.
	NVC 2	They need to generate a unique selling position.
Avoiding contingencies	NVC 1	In life science, research quality problems can be a show stopper, therefore, they need to train employees on the common standards.
	Entrepreneur 4	To ensure occupational safety, it is necessary that the employees join safety trainings regularly.
	Entrepreneur 4	Our employees can make suggestions but in the end the manager has to decide what is appropriate for them.

4.1.2 | Goal orientation

When entrepreneurs explain how they plan HRD activities, they seem to encourage and agree on HRD activities only when they contribute to their business objectives. For example, one entrepreneur explains that he chooses trainings with the goal to be in line with governmental regulations:

The pharmacy industry is heavily regulated, so employees need to be trained on the norms and standards of the government. (Ent. 4)

In another example, an entrepreneur explains that he seeks the advice of business consultants when he wants them to develop specific competencies of his employees, so that they can solve a specific problem. In these situations, entrepreneurs show goal orientation in that they decide on employees' training participation based on competency gaps they have identified.

4.1.3 | Expected return

Entrepreneurs base decisions on HRD activities on some type of expected return calculation, in some situations. For example, for investments in a training to obtain a specific certification or a qualification, they expect that this investment will enhance sales to an extent that exceeds 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. This entrepreneur sets restrictions according to firm-level benefits.

4.1.4 | Competitive analysis

Entrepreneurs emphasize that they do not want to compete with outsiders for knowledge acquisition. Only one new venture consultant highlights the importance of a unique selling proposition, and warns against overly close collaboration. The entrepreneurs sporadically mention competition, for example, when an interaction with competitors is labeled as a gray zone between collaboration and idea theft. Overall, entrepreneurs seem to cooperate with outsiders to accumulate knowledge, skills, and abilities rather than to compete regarding their competencies.

4.1.5 | Avoid contingencies

For topics such as occupational safety and quality management, trainings are used to ensure that employees are aware of legal requirements or processes that ensure safety of quality standards. When deciding on trainings for these topics, entrepreneurs try to avoid contingencies by using plans that define the training that employees need to complete.

However, we also found statements referring to effectuation in entrepreneurs' explanations of their HRD approaches (see Table 4). Table 3 summarizes our interviewees' statements, which reflect effectual logic; Table 4 shows how often we found each strategic logic in the interviews.

4.1.6 | The creative view on the future

Entrepreneurs allow training activities for their employees whenever employees express 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 all individuals involved. One entrepreneur highlights that his employees have to come up with ideas regarding what they want to learn.

But currently, as a matter of principle, they are interested. Thus, employees say to themselves: 'I'm interested in that. There is a course. Can I participate?' Yes, we could do that. But we have never imposed something [...] so everyone feels he has the responsibility for his actions, but that they can also develop further, when they want to do something else or want to progress. (Ent. 3)

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 take place.

4.1.7 | Means orientation

Entrepreneurs view their employees' interest, fascination, competencies, and network partners as their own means for HRD activities. They see employees' interest in learning new things as a means to develop knowledge in 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

TABLE 3 Statements referring to effectuation

Creative view	Entrepreneur 2	We take a look at what's interesting and then we just do it.
	Entrepreneur 2	They are learning by doing and the rest evolves by itself.
	NVC 4	Structures initially damage innovation.
	Entrepreneur 3	Basically, everybody can develop himself in a direction that suits him.
	Entrepreneur 15	We do not use evaluation as these would cause pressure on our employees. We do not want that. We want an open end, these courses are for everyone who wants to go.
	Entrepreneur 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.
Means orientation	Entrepreneur 3	We don't have a plan for seminars and workshops, everybody is invited to look for something for himself.
	Entrepreneur 11	When there is a problem and I recognize employee A has the problem, and perhaps also employee B and C, then the only one who was in on the topic talked about it to transfer his knowledge.
	Entrepreneur 5	We try to establish a reflection after a workshop, so that they reflect which things they should take care of.
	Entrepreneur 1	We are very interdisciplinary, hence we can internally learn from each other about different research fields.
	Entrepreneur 8	One time we met on the weekend and someone prepared a presentation on a topic. Like a small workshop.
Affordable loss	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.
	Entrepreneur 1	If an employee thinks he needs a training, we try to make it possible.
	Entrepreneur 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.
	Entrepreneur 4	If something has any sense the question is if it fits in our budget.
Partnerships	Entrepreneur 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.
	Entrepreneur 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.
	Entrepreneur 7	We wondered whether we should send our sales man to a course on networking. Normally, we then start with talking 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.
	Entrepreneur 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.
	Entrepreneur 4	We can learn from each other when we know each other. Even an exchange with firms who have competitive projects is supported.
Leveraging contingencies	Entrepreneur 1	We didn't find the coach, the coach found us.
	Entrepreneur 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.

TABLE 3 (Continued)

Entrepreneur 3	When I hear that somewhere is an interesting speech I will tell my colleagues and then perhaps someone will go.
Entrepreneur 6	Employees get a short introduction and then learning-by-doing, stepwise, with growing tasks and task areas, then they learn new things.
Entrepreneur 2	We are registered at blogs and forums and then infos about workshops and conferences fly in.

issue, becomes very familiar with a topic, and assumes the responsibility, he will become the contact and responsible person for this topic. (Ent. 2)

Network partners represent a means for entrepreneurs because their employees can learn from their knowledge or experience. In addition, training recommendations from entrepreneurs' network partners are seen as means. Several statements indicate that entrepreneurs rely on recommendations because they think they will increase the probability that efficient HRD activities will be chosen. Entrepreneurs also report that their employees teach their colleagues and support them in their learning processes, showing that they use employees' competencies as a means to facilitate learning. Several statements show that entrepreneurs try to 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. (Ent. 4)

4.1.8 | Affordable loss

When entrepreneurs choose interest-guided training, they do not limit employees' initiatives because of financial issues or training time. Accordingly, entrepreneurs try to make training possible whenever an employee shows interest in it. This reflects the affordable loss principle. Here, they trust their employees' assessment of whether a particular training opportunity is appropriate.

4.1.9 | 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 start-up communities. Entrepreneurs suggest that their employees talk to peers and see this as a resource for informal learning without predefined topics. Entrepreneurs also prefer that network partners conduct their firm's training, which again highlights the importance that entrepreneurs place on partnerships. Additionally, entrepreneurs see their employees as partners who cocreate the firm.

4.1.10 | Leverage contingencies

Entrepreneurs 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 contacts them. After training or coaching, entrepreneurs ask themselves or their employees how the firm can profit from new knowledge, abilities, or ideas that were generated. Irrespective of what the purpose of the training was, entrepreneurs try to leverage all the acquired competencies.

4.2 | How contextual factors shape entrepreneurs' HRD decisions

When entrepreneurs explained why they decided on HRD activities the way they did, they highlighted that the context, including current requirements and situational conditions, shaped their decisions. Whether they chose to apply

TABLE 4 Comparing statements of interview partners with different points of view: dimensions of effectuation and causation ranked by frequency of occurrence

	Early development stage		Growth stage		NV consultants		HRD professionals	
	Freq.	Perc.	Freq.	Perc.	Freq.	Perc.	Freq.	Perc.
Creative view	77	18.38	Goal orientation	71	25.82	Goal orientation	59	24.89
Goal orientation	75	17.90	Creative view	36	13.09	Creative view	48	20.25
Means orientation	74	17.66	Means orientation	36	13.09	Means orientation	37	15.61
Partnerships	41	9.79	Expected return	31	11.27	Partnerships	30	12.66
Leverage contingency	31	7.40	Predictive view	27	9.82	Avoid contingency	19	8.02
Expected return	31	7.40	Avoid contingency	26	9.45	Predictive view	12	5.06
Predictive view	30	7.16	Partnerships	23	8.36	Expected return	11	4.64
Competition	25	5.97	Affordable loss	10	3.64	Leverage contingency	11	4.64
Avoid contingency	21	5.01	Leverage contingency	8	2.91	Affordable loss	7	2.95
Affordable loss	14	3.34	Competition	7	2.55	Competition	3	1.27
Causation	182	43.44		162	58.91		104	43.88
Effectuation	237	56.56		113	41.09		133	56.12

Note. We counted the interviewees' statements that reflect the causal and effectual logics. Dimensions are ranked by frequency of occurrence for each group. Then, we aggregated the numbers of statements in each group of interviewees and calculated percentages of effectuation vs., causation for each group of interviewees. The concepts in italics refer to effectuation, the other concepts refer to causation.

causation or effectuation in a specific decision situation seemed to be dependent on employees' traits and tasks, training content, and the firms' growth stage.

4.2.1 | Characteristics of employees and their tasks

Entrepreneurs report that they feel a strong need to consider their employees' personalities and responsibilities. They recognize when their employees are interested in learning new things. Entrepreneurs expect interested employees to acquire the competencies they admire or need by self-imposed information screening, network exchanges, and learning-by-doing. Entrepreneurs see this expectation as an opportunity for personal development for their employees. For example, one new venture consultant says:

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. (NVC 4)

Integrating employees' perspectives helps entrepreneurs to create internal structures, which fit employees' competencies and communication. This approach, which relates to effectual logic, seems to be useful for employees whose tasks require high cognitive abilities, flexibility, and innovativeness. One founder, for example, describes development opportunities for employees who communicate 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. (Ent. 1)

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.

4.2.2 | Training content

When entrepreneurs target specific knowledge, skills, and abilities, entrepreneurs seem to apply causal logic. To decide whether or not a specific certification or a qualification is favorable, an expected return calculation seems appropriate, and for topics such as quality management and safety issues, goal orientation drives the decision. 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 the 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 do not have such strict quality management, but they also reach a point where they need products with a reliable quality. (NVC 1)

This and similar statements indicate causal logic is applied when product quality, occupational safety, and customer orientation are the focus. Accordingly, causation appears conducive when teaching employees to adhere to specific predefined rules in an efficient manner, for example, when employees need to consider strictly defined quality or security standards. For these purposes, the necessary knowledge, skills, and abilities need to be narrowly defined to design appropriate development programs.

Conversely, our findings suggest that entrepreneurs apply effectual logic when they focus not only on enhancing employees' skills but also on stimulating their motivation, their opportunity recognition, and their creative thinking. Entrepreneurs with this focus encourage employees to suggest training themselves and allow employees to be

responsible for their own knowledge acquisition. The importance of innovative thinking in the growth process is emphasized by several interviewees. For example, one entrepreneur explains:

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. (Ent. 4)

4.2.3 | Firm characteristics

Whether entrepreneurs' statements reflect causal or effectual decision-making logic also seemed to depend on the dynamism of internal firm structures. In younger firms, employees' roles and tasks still have to be defined or have to be newly created. We observe that, especially in the early phases, new ventures seem to profit from effectual logic for HRD. Several entrepreneurs link their open structure to their small size; for example, one entrepreneur stated:

[Development opportunities of employees] are of course completely open, because we are so small. (Ent. 9)

Effectuation provides the opportunity to more easily readapt structures and processes if they turn out to be suboptimal. For example, a new venture consultant explains the following:

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 do not work, they can also take things back very quickly. That's not so easily done in larger firms. (NVC 4)

In contrast, firms that have gone through a growth process often have established rather fixed internal structures and processes. Rising age and size of the firm usually bring a shift in the organizational structure, and this shift also changes requirements for HRD activities. 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 convey a lot in an informal way. We arranged these structures and instruments when we reached 20 employees. Then, we began with using consulting and, well, implemented structures. (Ent. 4)

This and similar statements indicate that causation logic appears to be more instrumental for HRD when the firm becomes larger and older. Older firms, larger firms, and firms with less pressure to innovate are likely to have more established processes, such that people who join will be incorporated into these established structures. In these firms, knowledge usually is documented and exchange usually is formalized. Employees in these firms are less often required to come up with novel ideas or new directions.

To analyze the differences that occur due to firm characteristics in more detail, we counted the number of statements from all the individual interviews that reflected effectuation vs., causation logic and separated firms in an early development phase (firm age ≤ 6 years) from firms in the growth phase ($10 \text{ years} \leq \text{firm age} \leq 25 \text{ years}$). Although we cannot interpret the absolute numbers, we can look at the differences within each group of interviewees; we can compare which logic is more or less emphasized (see Table 4). In this analysis, we find that effectuation is applied more often than causation in the early development phases of entrepreneurs' firms. In firms that are already in the growth phase, causation seems to be applied more often than effectuation. Analyzing statements from new venture

consultants, we see that they observe more effectual than causal logic in entrepreneurs' HRD decisions as well. This finding could indicate a shift from an emphasis on effectuation to causal logic during a firm's development process, which is in line with findings about effectuation and causation in business strategy decisions (Reymen et al., 2015). One founder summarizes the related change process in their internal structures as follows:

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. (Ent. 5)

To understand in what way our observations were specific to the entrepreneurial context, we additionally compared the strategic logic underlying entrepreneurs' statements with 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. However, although we found an emphasis on effectuation in early-development phases and on causation in established firms, both groups seem to apply both causal and effectual strategic logic for their HRD. Table 4 shows the categories that we found in the individual interviews, ranked by frequency of occurrence.

4.3 | An entrepreneurial HRD process

Based on our analysis of the logic underlying entrepreneurs' decision-making for HRD in their firms, we developed a process model of entrepreneurial HRD (see Figure 2). We found that each decision either is based on causal or on effectual logic, and that the context in which the decision is made shapes whether causation or effectuation is applied. Thus, the process lines are not followed exclusively, but entrepreneurs combine causation and effectuation.

4.3.1 | Context shapes how entrepreneurs make HRD decisions

Which logic entrepreneurs apply when making HRD decisions is dependent on the training content that is needed, employees' traits and tasks, and the firms' growth stage. When the entrepreneur recognizes that more knowledge or learning is needed, would be favorable, or is demanded by employees, they apply, dependent on these contextual factors, either causation or effectuation. Contextual factors shape requirements and firm internal dynamics, which in turn make either causal or effectual decision-making more appropriate for a specific situation. Entrepreneurs are more likely to apply a causation-based HRD approach when specific and predefined knowledge, skills, and abilities are needed. This is more likely when employees' responsibilities are clear. Clarity of roles and responsibilities usually increases with firms' age and size. In contrast, entrepreneurs prefer to apply an effectuation-based HRD approach when the focus or trigger for HRD lies in stimulating employees' opportunity recognition or creative thinking, when network partners have recommended an HRD activity or when employees have expressed an interest in an HRD activity. This is more likely in young firms in which goals, structures, and processes are not yet defined. In young firms, decisions are made informally, which opens up possibilities for employees to cocreate the structures. Many entrepreneurs emphasized that overly strict structures would harm their employees' creativity and that their employees need a broad scope for development because they are expected to generate their own ideas. Thus, depending on the contextual factors of a specific decision in a specific situation, entrepreneurs apply a different HRD approach, either based on causation or effectuation.

4.3.2 | The causation-based HRD approach

When entrepreneurs apply causation, the process appears linear. Here, entrepreneurs assess which competencies employees need, based on business objectives. They try to predict which competencies are necessary to achieve business goals, and then identify the competencies that are currently missing. Other starting points for HRD activities

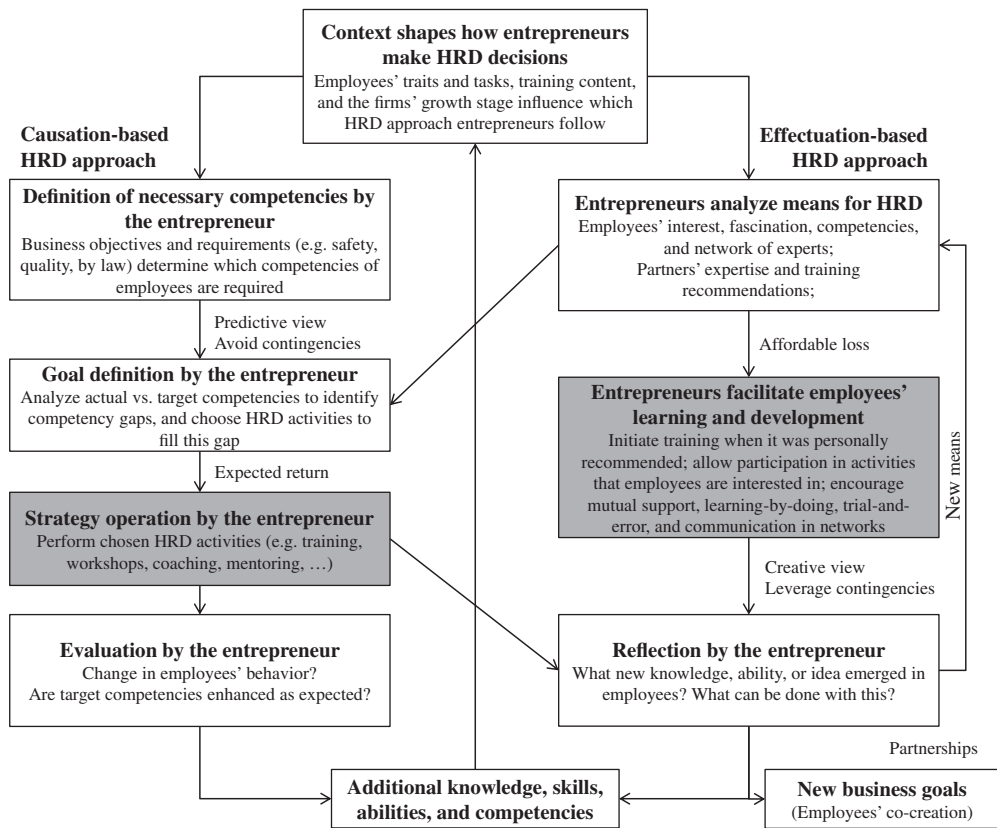


FIGURE 2 An entrepreneurial human resource development (HRD) process

that are performed via the causation-based approach could be safety, quality, or legal requirements. The identified competency gap builds the basis to formulate goals for HRD activities. In this HRD approach, HRD activities are chosen using the expected return principle: Entrepreneurs send employees to 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. Afterward, an evaluation of whether targeted learning outcomes have been reached is conducted during the workflow in that entrepreneurs try to observe, while working together, whether employees have learned what they had expected.

4.3.3 | The effectuation-based HRD approach

When entrepreneurs apply effectuation, they start with a reflection about the means that they have for performing HRD activities. They facilitate HRD activities based on means for employees' learning: Employees' interests, fascination, and existing competencies, including their knowledge, skills, and abilities. Employees can join training when they are interested in or fascinated by a topic, even when entrepreneurs do not yet know how or even whether employees will use the content. Trainings are chosen on the basis of the affordable loss principle such that employees are allowed to participate in HRD activities as long as the firm's survival is not threatened. In the effectuation approach, entrepreneurs also rely on training recommendations from their network partners. To stimulate learning, entrepreneurs encourage learning-by-doing, trial-and-error learning, and intensive exchanges with external partners. This informal communication here is seen as a possible way to support employees' development at a reasonable price. To facilitate employees' learning and development, entrepreneurs think creatively and try to make sure all learning opportunities are leveraged. After an HRD activity, they encourage employees to discuss their learnings

with colleagues. This way, they try to disseminate the emergent knowledge across the entire workforce. Additionally, entrepreneurs reflect after each HRD activity on what they can do with the new knowledge, ability, or idea that the activity has produced. Entrepreneurs view these gains as a new means for further competency development and as a basis for further business development. In that way, employees' learning, ideas, and suggestions shape the venture's business activities. Thus, entrepreneurs see employees as partners who cocreate the venture.

Integrating the observed patterns of entrepreneurs' HRD leads to an entrepreneurial HRD process that reflects both causation and effectuation. Figure 2 depicts the entrepreneurial HRD process that maps the logic that we observed in entrepreneurs' HRD. In sketching this process, we integrated previous theories that describe what we observed: causal HRD (Swanson & Holton, 2009) and effectual decision-making logic (Read & Sarasvathy, 2005).

5 | DISCUSSION

This article investigated how entrepreneurs develop human resources within their firms. Drawing on an analysis of qualitative interviews, we identify the decision-making logic that entrepreneurs apply for decisions on learning and development of their employees and describe an entrepreneurial HRD process. Our elaboration on how entrepreneurs combine a causation-based and an effectuation-based HRD approach to facilitate learning and development of their employees adds to an understanding what HRD processes look like in the entrepreneurship domain.

Previous research showed entrepreneurs' HRD builds on training that takes place primarily on the job and is characterized by an informal nature (Hornsby & Kuratko, 1990; Nolan & Garavan, 2016). Our findings extend these findings in that we add a more strategic perspective. Our findings show *how* HRD is conducted by entrepreneurs and *why* entrepreneurs shape it in that way. Our findings suggest entrepreneurs' HRD approaches not only reflect conventional causal logic, which was described in the strategic HRM literature (Chen & Klimoski, 2007) and conventional HRD literature (Alvarez, Salas, & Garofano, 2004). We additionally find effectuation logic, as described in the entrepreneurship literature (Sarasvathy, 2001). Effectuation has been suggested as a decision-making approach that is typical for entrepreneurs (Sarasvathy, 2001). The entrepreneurial HRD process, which we describe based on our data, includes a causation-based and an effectuation-based approach. We argue that an effectuation-based HRD approach can account for the informal and ad hoc nature of entrepreneurs' planning.

The literature on HRM in small and young firms indicates that the processes underlying HRD in small and young firms are rather informal (Barrett & Mayson, 2008; Hayton, 2003) and that these firms lack the capabilities to implement and exploit sophisticated processes (Patel & Cardon, 2010). We propose that an effectuation-based HRD process provides the possibility to strategically leverage informality and environmental dynamism. Integrating the effectuation-based HRD approach in the entrepreneurial HRD process suggests an extended understanding of what HRD decisions can be considered "strategic" and thus might be appropriate, although informal, in some situations. Based on our analysis, we expect the entrepreneurs do not follow effectual logic because of their underdeveloped expertise in HRD topics; statements of HRD consultants, which we integrated in our analysis, emphasize effectuation's strategic value for HRD purposes. Entrepreneurs seem to use the effectuation-based HRD approach as a strategically chosen option.

Previous research has transferred effectuation to learning processes of entrepreneurs and used effectuation to describe a pedagogy for entrepreneurship education. However, the literature has not yet identified effectuation logic in HRD processes. Showing that the distinction between effectuation and causation helps to describe entrepreneurs' HRD approaches indicates that effectuation not only describes firm-level decisions of entrepreneurs but also their HRD approach. Furthermore, previous research suggested causation and effectuation do not exclude each other but can exist concurrently (Reymen et al., 2015). Our findings support this notion, as we find that entrepreneurs combine causation and effectuation logic when deciding about HRD. Each decision is either based on effectuation or on causation; however, HRD overall can include causation as well as effectuation. Thus, our study transferred the effectuation construct to a new context and showed in what way causation and effectuation are combined in HRD approaches.

We found that entrepreneurs choose a HRD approach in each specific situation, based on contextual factors such as training content that is needed, employees' traits and tasks, and the firms' growth stage. In previous research, the growth stage of a firm has already been found to shape a firm's processes (Fisher, 2012). Supporting this argument, we find a dominance of effectuation in entrepreneurs' HRD decisions in earlier compared to later development stages. In the growth process, a firm's age and size, its internal structures, and employees' requirements usually change at the same time such that these factors, which influence the decision situation, are inherently intertwined. Our findings support previous arguments regarding the necessity to continuously adapt the structures within the firm when the firm is growing (Ciavarella, 2003). Due to the interaction and interdependency of factors that shape the applicability of a HRD approach, a regular analysis of the contextual factors is indispensable.

6 | IMPLICATIONS AND LIMITATIONS

6.1 | Limitations and implications for future research

Our research offers a rich agenda for future research and underscores the need to examine entrepreneurs' HRD approaches. 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 a causation-based HRD vs., an effectuation-based HRD.

Future research could provide a better picture of additional factors that influence whether entrepreneurs build their HRD decisions on effectuation or causation logic. Additional predictors, which we could not integrate in our analysis but still are relevant, may be nested within the institutional level (e.g., industry sector, occupational structure, or industrial relations (Smith & Hayton, 1999) or the organizational level (strategy, team composition, available resources, leadership styles; Messersmith & Guthrie, 2010; West, 2007). Furthermore, HRD decisions could be influenced by individual characteristics of the entrepreneur (e.g., HRM experience (Fox, 2013; Tocher & Rutherford, 2009), training motivations (Alvarez et al., 2004)), and employee individual differences (goal-setting (Maurer, Lippstreu, & Judge, 2008), or networking (Ren & Chadee, 2017)). Uncovering the impact of factors at the different levels would add to a better understanding of how causation and effectuation are shaped and might even inform a multilevel theory of effectuation.

Our findings are in line with Reymen et al. (2015) in that the HRD approaches we observed follow a hybrid decision-making logic that uses both effectuation and causation simultaneously. Reymen et al. (2015) suggest that the optimal decision results "from a combination of both logics, where the causal logic ensures that the venture stays focused and predicts what is predictable, while effectual decision-making allows responding flexibly to changing circumstances and maintaining hands-on control over uncertain aspects of the venture." In our dataset, we could not analyze shifts; we could only see that the dominant logic in the different groups of interviewees (entrepreneurs in firms in an early stage vs., later stage) is different. Additionally, our findings indicate that both firm age and firm size influence the HRD approach entrepreneurs apply, but an analysis of an interaction between the firms' age and size was not possible in our research design. Nonetheless, both the firms' age and their size might influence HRD approaches and approaches might change over time. Thus, future research could aim to analyze the interaction between the firm age and size and also analyze shifts over time in the HRD approach of one entrepreneur.

Furthermore, it would be interesting to emphasize the role of human resource acquisition in future studies. While our interviews provide preliminary indications that firm internal structures and employees' characteristics influence whether effectuation or causation are used, future studies could have a look at how entrepreneurial competence (Kyndt & Baert, 2015; Obschonka, Silbereisen, Schmitt-Rodermund, & Stuetzer, 2011) and employee intrapreneurship (Gawke, Gorgievski, & Bakker, 2017) influence the mechanisms behind these findings. For instance, it is well possible that particularly entrepreneurially oriented employees are attracted by work environments sharing the aspects of effectual logic. In that case, an effectuation HRD would create a work environment that particularly attracts individuals who are entrepreneurs themselves (Moser, Tumasjan, & Welp, 2017). To fully understand the

relationship between decision-making logic and employee reactions, research should take different disciplines of HRM, such as recruitment and retention processes, into account.

6.2 | Implications for practitioners

The HRD process that we described in this study points out how entrepreneurs can enhance HRD outcomes in their firms. Entrepreneurs should be considerate, with causal recommendations that emphasize the importance of goals and predictability; they should see their intuitive effectual approaches as strategic and equally appropriate, depending on the context. While the causation-based HRD approach fits in some situations, the effectuation-based approach can account for flexibility, dynamism, and informality.

Our findings suggest that entrepreneurs should apply, depending on the decision situation, a causation-based or effectuation-based approach. Analyzing the contextual factors of their decision situations (such as employees' traits and tasks, training content, and the firms' growth stage) will help them understand whether one or the other approach is a better fit. If they conclude that causation is a good fit, they should define necessary competencies and goals, create and implement a strategy that works toward these goals, and regularly evaluate whether the strategy is adequately implemented. If they conclude that effectuation is a better fit, they should make a lot of effort into analyzing their means for HRD, create as many learning and development possibilities as possible, and regularly reflect on whether new competencies or possibilities have emerged. Importantly, entrepreneurs should not hesitate to combine the approaches but be aware of both options.

HRD currently does not seem to be a major cornerstone in entrepreneurship education (e.g., see Barringer & Ireland, 2015, or Volkmann & Audretsch, 2017). Thus, integrating topics such as HRD or HRM in entrepreneurial firms in entrepreneurship education curricula should be reconsidered in the future. Effectuation has been suggested as a pedagogy for learning of entrepreneurs (Middleton & Donnellon, 2014) and for learning to operate in entrepreneurial settings (Greenberg et al., 2011), in the future it could also be used in HRD trainings for entrepreneurs. Entrepreneurship trainings could enhance entrepreneur's ability to find the best HRD approach in each situation. Even though we do not intend to say that either effectuation or causation logic would be superior in the HRD context, knowledge about the potential to draw on different logics would help entrepreneurs optimize their HRD approaches.

NOTE

¹The interviews were conducted in German. All quotations from interview partners are translated by the researchers, reflecting the content as accurately as possible.

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REFERENCES

- Alvarez, K., Salas, E., & Garofano, C. M. (2004). An integrated model of training evaluation and effectiveness. *Human Resource Development Review*, 3(4), 385–416. <https://doi.org/10.1177/1534484304270820>
- Alvarez, S. A., & Barney, J. B. (2008). Opportunities, organizations, and entrepreneurship. *Strategic Entrepreneurship Journal*, 2(4), 265–267. <https://doi.org/10.1002/sej.61>
- Andries, P., Debackere, K., & van Looy, B. (2013). Simultaneous experimentation as a learning strategy: Business model development under uncertainty: New ventures' business model development under uncertainty. *Strategic Entrepreneurship Journal*, 7(4), 288–310. <https://doi.org/10.1002/sej.1170>
- Arend, R. J., Sarooghi, H., & Burkemper, A. (2015). Effectuation as ineffectual? Applying the 3E theory-assessment framework to a proposed new theory of entrepreneurship. *Academy of Management Review*, 40(4), 630–651. <https://doi.org/10.5465/amr.2014.0455>
- Bacon, N., & Hoque, K. (2005). HRM in the SME sector: Valuable employees and coercive networks. *The International Journal of Human Resource Management*, 16(11), 1976–1999. <https://doi.org/10.1080/09585190500314706>

- Baker, T., Miner, A. S., & Eesley, D. T. (2003). Improvising firms: Bricolage, account giving and improvisational competencies in the founding process. *Research Policy*, 32(2), 255–276. [https://doi.org/10.1016/S0048-7333\(02\)00099-9](https://doi.org/10.1016/S0048-7333(02)00099-9)
- Baker, T., & Nelson, R. E. (2005). Creating something from nothing: Resource construction through entrepreneurial bricolage. *Administrative Science Quarterly*, 50(3), 329–366. <https://doi.org/10.2189/asqu.2005.50.3.329>
- Barrett, R., & Mayson, S. (2008). The formality and informality of HRM practices in small firms. In R. Barrett & S. Mayson (Eds.), *International Handbook of Entrepreneurship and HRM* (pp. 111–136). Cheltenham, England; Northampton, MA: Edward Elgar. Retrieved from <http://www.elgaronline.com/view/9781845429263.00013.xml>
- Barringer, B. R., & Ireland, R. D. (2015). *Entrepreneurship: Successfully launching new ventures*. Harlow, England: Pearson Education Limited.
- Brinckmann, J., Grichnik, D., & Kapsa, D. (2010). Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning–performance relationship in small firms. *Journal of Business Venturing*, 25(1), 24–40. <https://doi.org/10.1016/j.jbusvent.2008.10.007>
- Cardon, M. S., & Stevens, C. E. (2004). Managing human resources in small organizations: What do we know? *Human Resource Management Review*, 14(3), 295–323. <https://doi.org/10.1016/j.hrmr.2004.06.001>
- Chandler, G. N., DeTienne, D. R., McKelvie, A., & Mumford, T. V. (2011). Causation and effectuation processes: A validation study. *Journal of Business Venturing*, 26(3), 375–390. <https://doi.org/10.1016/j.jbusvent.2009.10.006>
- Chen, G., & Klimoski, R. J. (2007). Training and development of human resources at work: Is the state of our science strong? *Human Resource Management Review*, 17(2), 180–190. <https://doi.org/10.1016/j.hrmr.2007.03.004>
- Chwolk, A., & Raith, M. G. (2012). The value of business planning before start-up – A decision-theoretical perspective. *Journal of Business Venturing*, 27(3), 385–399. <https://doi.org/10.1016/j.jbusvent.2011.01.002>
- Ciavarella, M. A. (2003). The adoption of high-involvement practices and processes in emergent and developing firms: A descriptive and prescriptive approach. *Human Resource Management*, 42(4), 337–356. <https://doi.org/10.1002/hrm.10094>
- Crook, T. R., Todd, S. Y., Combs, J. G., Woehr, D. J., & Ketchen, D. J. (2011). Does human capital matter? A meta-analysis of the relationship between human capital and firm performance. *Journal of Applied Psychology*, 96(3), 443–456. <https://doi.org/10.1037/a0022147>
- Delmar, F., & Shane, S. (2003). Does business planning facilitate the development of new ventures? *Strategic Management Journal*, 24(12), 1165–1185. <https://doi.org/10.1002/smj.349>
- Dew, N., Read, S., Sarasvathy, S. D., & Wiltbank, R. (2009). Effectual versus predictive logics in entrepreneurial decision-making: Differences between experts and novices. *Journal of Business Venturing*, 24(4), 287–309. <https://doi.org/10.1016/j.jbusvent.2008.02.002>
- Duberley, J. P., & Walley, P. (1995). Assessing the adoption of HRM by small and medium-sized manufacturing organizations. *The International Journal of Human Resource Management*, 6(4), 891–909. <https://doi.org/10.1080/09585199500000052>
- Dutta, D. K., & Crossan, M. M. (2005). The nature of entrepreneurial opportunities: Understanding the process using the 4I organizational learning framework. *Entrepreneurship Theory and Practice*, 29(4), 425–449. <https://doi.org/10.1111/j.1540-6520.2005.00092.x>
- Edmondson, A. C., & McManus, S. E. (2007). Methodological fit in management field research. *Academy of Management Review*, 32(4), 1155–1179. <https://doi.org/10.5465/AMR.2007.26586086>
- Fisher, G. (2012). Effectuation, causation, and bricolage: A behavioral comparison of emerging theories in entrepreneurship research. *Entrepreneurship Theory and Practice*, 36(5), 1019–1051. <https://doi.org/10.1111/j.1540-6520.2012.00537.x>
- Fox, H. L. (2013). Strategic human resource development in small businesses in the United States. *Academy of Entrepreneurship Journal*, 19(1), 77–118.
- Garavan, T., Watson, S., Carbery, R., & O'Brien, F. (2016). The antecedents of leadership development practices in SMEs: The influence of HRM strategy and practice. *International Small Business Journal*, 34(6), 870–890. <https://doi.org/10.1177/0266242615594215>
- Gawke, J. C., Gorgievski, M. J., & Bakker, A. B. (2017). Employee intrapreneurship and work engagement: A latent change score approach. *Journal of Vocational Behavior*, 100, 88–100. <https://doi.org/10.1016/j.jvb.2017.03.002>
- Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. *Organizational Research Methods*, 16(1), 15–31. <https://doi.org/10.1177/1094428112452151>
- Glaser, B. G., & Strauss, A. L. (2012). *The discovery of grounded theory: Strategies for qualitative research*. New Brunswick, NJ: Aldine Transaction.
- Greenberg, D., McKone-Sweet, K., & Wilson, H. J. (2011). *The new entrepreneurial leader: Developing leaders who shape social and economic opportunity*. San Francisco, CA: Berrett-Koehler Publishers.
- Guest, D. E. (2011). Human resource management and performance: Still searching for some answers. *Human Resource Management Journal*, 21(1), 3–13. <https://doi.org/10.1111/j.1748-8583.2010.00164.x>
- Gupta, V. K., Chiles, T. H., & McMullen, J. S. (2016). A process perspective on evaluating and conducting effectual entrepreneurship research. *Academy of Management Review*, 41(3), 540–544. <https://doi.org/10.5465/amr.2015.0433>
- Hargis, M. B., & Bradley, D. B. (2011). Strategic human resource management in small and growing firms: Aligning valuable resources. *Academy of Strategic Management Journal*, 10, 105–125.

- Harney, B., & Dundon, T. (2006a). An emergent theory of HRM: A theoretical and empirical exploration of determinants of HRM among Irish small- to medium-sized enterprises (SMEs). In *Advances in industrial & labor relations* (Vol. 15, pp. 103–153). Bingley, England: Emerald Group Publishing Limited. [https://doi.org/10.1016/S0742-6186\(06\)15002-7](https://doi.org/10.1016/S0742-6186(06)15002-7)
- Harney, B., & Dundon, T. (2006b). Capturing complexity: Developing an integrated approach to analysing HRM in SMEs. *Human Resource Management Journal*, 16(1), 48–73. <https://doi.org/10.1111/j.1748-8583.2006.00004.x>
- Hatch, N. W., & Dyer, J. H. (2004). Human capital and learning as a source of sustainable competitive advantage. *Strategic Management Journal*, 25(12), 1155–1178. <https://doi.org/10.1002/smj.421>
- Hayton, J. C. (2003). Strategic human capital management in SMEs: An empirical study of entrepreneurial performance. *Human Resource Management*, 42(4), 375–391. <https://doi.org/10.1002/hrm.10096>
- Heneman, R. L., & Tansky, J. W. (2002). Human resource management models for entrepreneurial opportunity: Existing knowledge and new directions. In J. A. Katz & T. M. Welbourne (Eds.), *Managing people in entrepreneurial organizations: Learning from the merger of entrepreneurship and human resource management* (Vol. 5, pp. 55–81). Bingley, England: Emerald Group Publishing Limited. [https://doi.org/10.1016/S1074-7540\(02\)05004-3](https://doi.org/10.1016/S1074-7540(02)05004-3)
- Hill, R., & Stewart, J. (2000). Human resource development in small organizations. *Journal of European Industrial Training*, 24(2/3/4), 105–117. <https://doi.org/10.1108/03090590010321070>
- Honig, B., Davidsson, P., & Karlsson, T. (2005). Learning strategies of nascent entrepreneurs. In R. Sanchez & A. Heene (Eds.), *Research in competence-based management*. Oxford, England: Elsevier. Retrieved from <https://eprints.qut.edu.au/5831/>
- Hornsby, J. S., & Kuratko, D. F. (1990). Human resource management in small business: Critical issues for the 1990s. *Journal of Small Business Management*, 28(3), 9–18.
- Hornsby, J. S., & Kuratko, D. F. (2003). Human resource management in U.S. small businesses: A replication and extension. *Journal of Developmental Entrepreneurship*, 8, 73–92.
- Hsieh, Y. H., & Chen, H. M. (2011). Strategic fit among business competitive strategy, human resource strategy, and reward system. *Academy of Strategic Management Journal*, 10, 11–32.
- Katz, J. A., & Welbourne, T. M. (Eds.). (2002). *Managing people in entrepreneurial organizations: Learning from the merger of entrepreneurship and human resource management*. Bingley, England: Emerald Group Publishing Limited.
- Kyndt, E., & Baert, H. (2015). Entrepreneurial competencies: Assessment and predictive value for entrepreneurship. *Journal of Vocational Behavior*, 90, 13–25. <https://doi.org/10.1016/j.jvb.2015.07.002>
- Lepak, D. P., & Snell, S. A. (1999). The human resource architecture: Toward a theory of human capital allocation and development. *Academy of Management Review*, 24(1), 31. <https://doi.org/10.2307/259035>
- Man, T. W., Lau, T., & Chan, K. F. (2002). The competitiveness of small and medium enterprises: A conceptualization with focus on entrepreneurial competencies. *Journal of Business Venturing*, 17(2), 123–142.
- Mankin, D. P. (2001). A model for human resource development. *Human Resource Development International*, 4(1), 65–85. <https://doi.org/10.1080/13678860121714>
- Marsick, V. J., & Volpe, M. (1999). The nature and need for informal learning. *Advances in Developing Human Resources*, 1(3), 1–9. <https://doi.org/10.1177/152342239900100302>
- Marvel, M. R., Davis, J. L., & Sproul, C. R. (2016). Human capital and entrepreneurship research: A critical review and future directions. *Entrepreneurship Theory and Practice*, 40(3), 599–626. <https://doi.org/10.1111/etap.12136>
- Mathias, B. D., Williams, D. W., & Smith, A. R. (2015). Entrepreneurial inception: The role of imprinting in entrepreneurial action. *Journal of Business Venturing*, 30(1), 11–28. <https://doi.org/10.1016/j.jbusvent.2014.07.004>
- Maurer, T. J., Lippstreu, M., & Judge, T. A. (2008). Structural model of employee involvement in skill development activity: The role of individual differences. *Journal of Vocational Behavior*, 72(3), 336–350. <https://doi.org/10.1016/j.jvb.2007.10.010>
- Mayson, S., & Barrett, R. (2006). The 'science' and 'practice' of HRM in small firms. *Human Resource Management Review*, 16(4), 447–455. <https://doi.org/10.1016/j.hrmr.2006.08.002>
- Messersmith, J. G., & Guthrie, J. P. (2010). High performance work systems in emergent organizations: Implications for firm performance. *Human Resource Management*, 49(2), 241–264. <https://doi.org/10.1002/hrm.20342>
- Middleton, K. W., & Donnellon, A. (2014). Personalizing entrepreneurial learning: A pedagogy for facilitating the know why. *Entrepreneurship Research Journal*, 4(2), 167–204.
- Moser, K. J., Tumasjan, A., & Welpe, I. M. (2017). Small but attractive: Dimensions of new venture employer attractiveness and the moderating role of applicants' entrepreneurial behaviors. *Journal of Business Venturing*, 32(5), 588–610.
- Nolan, C. T., & Garavan, T. N. (2016). Human resource development in SMEs: A systematic review of the literature: Human resource development in SMEs. *International Journal of Management Reviews*, 18(1), 85–107. <https://doi.org/10.1111/ijmr.12062>
- Obschonka, M., Silbereisen, R. K., Schmitt-Rodermund, E., & Stuetzer, M. (2011). Nascent entrepreneurship and the developing individual: Early entrepreneurial competence in adolescence and venture creation success during the career. *Journal of Vocational Behavior*, 79(1), 121–133. <https://doi.org/10.1016/j.jvb.2010.12.005>
- Patel, P. C., & Cardon, M. S. (2010). Adopting HRM practices and their effectiveness in small firms facing product-market competition. *Human Resource Management*, 49(2), 265–290. <https://doi.org/10.1002/hrm.20346>

- Perry, J. T., Chandler, G. N., & Markova, G. (2012). Entrepreneurial effectuation: A review and suggestions for future research. *Entrepreneurship Theory and Practice*, 36(4), 837–861. <https://doi.org/10.1111/j.1540-6520.2010.00435.x>
- Pratt, M. G., & Rosa, J. A. (2003). Transforming work-family conflict into commitment in network marketing organizations. *Academy of Management Journal*, 46(4), 395–418. <https://doi.org/10.2307/30040635>
- Read, S., & Sarasvathy, S. D. (2005). Knowing what to do and doing what you know: Effectuation as a form of entrepreneurial expertise. *The Journal of Private Equity*, 9(1), 45–62.
- Read, S., Song, M., & Smit, W. (2009). A meta-analytic review of effectuation and venture performance. *Journal of Business Venturing*, 24(6), 573–587. <https://doi.org/10.1016/j.jbusvent.2008.02.005>
- Ren, S., & Chadee, D. (2017). Influence of work pressure on proactive skill development in China: The role of career networking behavior and Guanxi HRM. *Journal of Vocational Behavior*, 98, 152–162. <https://doi.org/10.1016/j.jvb.2016.11.004>
- Reymen, I. M. M. J., Andries, P., Berends, H., Mauer, R., Stephan, U., & van Burg, E. (2015). Understanding dynamics of strategic decision making in venture creation: A process study of effectuation and causation: Understanding dynamics of strategic decision making. *Strategic Entrepreneurship Journal*, 9(4), 351–379. <https://doi.org/10.1002/sej.1201>
- Rosenbusch, N., Brinckmann, J., & Müller, V. (2013). Does acquiring venture capital pay off for the funded firms? A meta-analysis on the relationship between venture capital investment and funded firm financial performance. *Journal of Business Venturing*, 28(3), 335–353.
- Sadler-Smith, E., Gardiner, P., Badger, B., Chaston, I., & Stubberfield, J. (2000). Using collaborative learning to develop small firms. *Human Resource Development International*, 3(3), 285–306. <https://doi.org/10.1080/13678860050128483>
- Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26(2), 243–263. <https://doi.org/10.2307/259121>
- Sarasvathy, S. D., & Dew, N. (2005). New market creation through transformation. *Journal of Evolutionary Economics*, 15(5), 533–565. <https://doi.org/10.1007/s00191-005-0264-x>
- Saru, E. (2007). Organisational learning and HRD: How appropriate are they for small firms? *Journal of European Industrial Training*, 31(1), 36–51. <https://doi.org/10.1108/03090509710721727>
- Shrout, P. E., & Fleiss, J. L. (1979). Intraclass correlations: Uses in assessing rater reliability. *Psychological Bulletin*, 86(2), 420–428.
- Skinner, J., Pownall, I., & Cross, P. (2003). Is HRD practised in micro-SMEs? *Human Resource Development International*, 6(4), 475–489. <https://doi.org/10.1080/13678860210148973>
- Smith, A., & Hayton, G. (1999). What drives enterprise training? Evidence from Australia. *International Journal of Human Resource Management*, 10(2), 251–272. <https://doi.org/10.1080/095851999340549>
- Strauss, A. L., & Corbin, J. M. (Eds.). (1997). *Grounded theory in practice*. Thousand Oaks, CA: SAGE Publications Inc.
- Suddaby, R. (2006). From the editors: What grounded theory is not. *Academy of Management Journal*, 49(4), 633–642. <https://doi.org/10.5465/AMJ.2006.22083020>
- Swanson, R. A. (1995). Human resource development: Performance is the key. *Human Resource Development Quarterly*, 6(2), 207–213. <https://doi.org/10.1002/hrdq.3920060208>
- Swanson, R. A., & Holton, E. F. (2009). *Foundations of human resource development*. San Francisco, CA: Berrett-Koehler.
- Tehseen, S., & Ramayah, T. (2015). Entrepreneurial competencies and SMEs business success: The contingent role of external integration. *Mediterranean Journal of Social Sciences*, 6(1), 50.
- Tocher, N., & Rutherford, M. W. (2009). Perceived acute human resource management problems in small and medium firms: An empirical examination. *Entrepreneurship Theory and Practice*, 33(2), 455–479. <https://doi.org/10.1111/j.1540-6520.2009.00299.x>
- Torraco, R. J., & Swanson, R. A. (1995). The strategic roles of human resource development. *Human Resource Planning*, 18(4), 10–21.
- Unger, J. M., Rauch, A., Frese, M., & Rosenbusch, N. (2011). Human capital and entrepreneurial success: A meta-analytical review. *Journal of Business Venturing*, 26(3), 341–358. <https://doi.org/10.1016/j.jbusvent.2009.09.004>
- van Donk, D.-P., & Esser, A. (1992). Strategic human resource management: A role of the human resource manager in the process of strategy formation. *Human Resource Management Review*, 2(4), 299–315. [https://doi.org/10.1016/1053-4822\(92\)90003-9](https://doi.org/10.1016/1053-4822(92)90003-9)
- Volery, T., Mueller, S., & von Siemens, B. (2015). Entrepreneur ambidexterity: A study of entrepreneur behaviours and competencies in growth-oriented small and medium-sized enterprises. *International Small Business Journal*, 33(2), 109–129.
- Volkman, C. K., & Audretsch, D. B. (2017). *Entrepreneurship education at universities*. Berlin, Germany: Springer International Publishing. <https://doi.org/10.1007/978-3-319-55547-8>
- Werhahn, D., Mauer, R., Flatten, T. C., & Brettel, M. (2015). Validating effectual orientation as strategic direction in the corporate context. *European Management Journal*, 33(5), 305–313. <https://doi.org/10.1016/j.emj.2015.03.002>
- Werner, J. M. (2014). Human resource development ≠ human resource management: So what is it? *Human Resource Development Quarterly*, 25(2), 127–139. <https://doi.org/10.1002/hrdq.21188>
- West, G. P. (2007). Collective cognition: When entrepreneurial teams, not individuals, make decisions. *Entrepreneurship Theory and Practice*, 31(1), 77–102. <https://doi.org/10.1111/j.1540-6520.2007.00164.x>
- Wiltbank, R., Read, S., Dew, N., & Sarasvathy, S. D. (2009). Prediction and control under uncertainty: Outcomes in angel investing. *Journal of Business Venturing*, 24(2), 116–133. <https://doi.org/10.1016/j.jbusvent.2007.11.004>

- Wolff, J. A., Pett, T. L., & Ring, J. K. (2015). Small firm growth as a function of both learning orientation and entrepreneurial orientation: An empirical analysis. *International Journal of Entrepreneurial Behavior & Research*, 21(5), 709–730.
- Zahra, S. A., Ireland, R. D., & Hitt, M. A. (2000). International expansion by new venture firms: International diversity, mode of market entry, technological learning, and performance. *Academy of Management Journal*, 43, 925–950.

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How to cite this article: Hubner SV, Baum M. Entrepreneurs' human resources development. *Human Resource Development Quarterly*. 2018;29:357–381. <https://doi.org/10.1002/hrdq.21328>

APPENDIX

TABLE A1 Key questions in the individual interviews

Entrepreneurs/HRD professionals	New venture consultants
How do employees learn what they need to do on their job?	How is the initial training for employees in young firms organized?
Which development possibilities do employees have?	How important do you think is HRD in young firms?
How do you organize HRD in your company?	What kind of HRD process do you observe in young firms?
How do you/the employees choose trainings?	Which HRD options do you recommend for young firms?
What kind of trainings do you/the employees join?	What kinds of trainings are appropriate for employees in young 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 young firms organized?
Which career options do employees have?	Which career options do employees have, in young firms?
How do you ensure that your company remains innovative?	How do entrepreneurs ensure that their firms remain 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?