

12

ENTREPRENEURS' COMPETENCIES

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Introduction

This chapter offers an overview and integration of theory and research pertaining to the competencies of independent and corporate entrepreneurs. It starts by clarifying the term competency and reviewing types of competencies. It then outlines empirical studies on the effects of competencies: their relations with entrepreneurial emergence and success. Next, the development of entrepreneurial competencies at early and at later ages is discussed. The chapter then offers a few ideas about the competencies of the entrepreneur of the future and concludes with future research suggestions.

The term competency is widely used in the worlds of management, policy, and education. According to Boyatzis (2008), any organization employing 300 people or more somehow involves the competency construct in its HR practices. This practitioner interest in competencies is typically driven by aspirations to improve individual and hence organizational performance (Spencer & Spencer, 1993). For this reason, aspiring and established entrepreneurs (as well as their educators, trainers, mentors, and investors) take an interest in competencies. Competency is an attractive construct for practitioners as a notion of success is implied. Searching *competency definition* on Google gives the result “the ability to do something successfully or efficiently.” It makes intuitive sense that if you want to succeed, you should be competent at what you want to succeed in. Adding to the attraction of this construct is that competencies, unlike motives and traits, are considered to be learnable. Thus, even if competencies are currently underdeveloped, they can be improved. A third attractive feature is that competencies have a holistic character that encompasses knowledge, skills, and attitude (KSA), thus capturing in one term a variety of elements involved in high performance (Hayton & Kelley,

2006). In sum, the appeal of competencies is that they are holistic, learnable, and inherently tied to success. At the same time, as the next section elaborates, these very characteristics cause the competency literature to be rather confusing and complex. Thus, this chapter begins with a conceptual clarification.

Conceptual Clarification

I limit this chapter to competencies as attributes of individuals. I disregard applications at the company level as in dynamic capability (“the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments,” Teece, Pisano, & Shuen, 1997) or the core competencies of the firm (Prahalad & Hamel, 1990). Hence the title of this chapter is “Entrepreneurs’ Competencies.” Inspired by Hoffmann’s (1999) clarification, I distinguish among the antecedents, components, and outcomes of competency (Figure 12.1). The next paragraphs discuss each in turn.

Competency Antecedents

According to Boyatzis (1982, 2008), a competency is a person’s underlying characteristic that causes outstanding performance at work. Those who take this approach typically investigate two questions: Who are the most competent performers, and

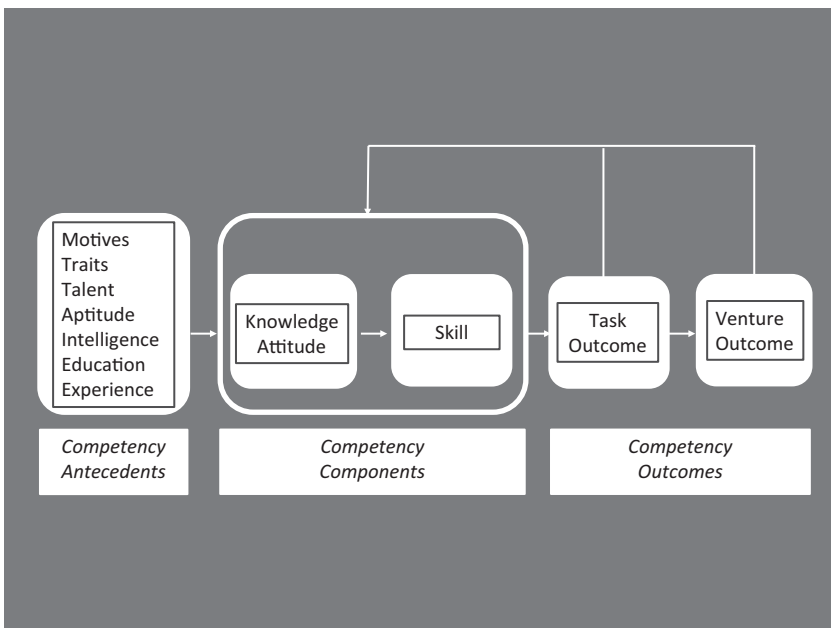


FIGURE 12.1 Competencies: Antecedents, Components, Outcomes

what underlying attributes make them better than others at what they do? In examining these underlying attributes, these authors often take a broad approach. For example, for Spencer and Spencer (1993, p. 4), competencies include

motives, traits, self-concepts, attitudes or values, content knowledge, or cognitive or behavioral skills—any individual characteristic that can be measured or counted reliably and that can be shown to differentiate significantly between superior and average performers, or between effective and ineffective performers.

For Boyatzis (1982, 2008), competencies might include a “motive, trait, skill, aspect of one’s self-image or social role, or a body of knowledge which he or she uses.” To which Bird (1995, p. 51), in her application of competency to the entrepreneurship domain, adds: “which result in venture birth, survival and/or growth.”

Unfortunately, by labeling *any* underlying individual factor that may contribute to successful individual performance as a competency, the construct becomes a near meaningless container term. A more fruitful approach is to narrow the term. This is commonly done by designating competency as the combined and integrated components of knowledge, skills, and attitudes (KSA; sometimes the “A” refers to ability rather than attitude; I discuss this distinction later). This is the definition used in this chapter. In this manner, constructs such as traits, motives, self-concept, and intelligence are separated from competency and are rather antecedents or inputs into competency (see Figure 12.1). An additional advantage of categorizing characteristics either as part of competency or as an antecedent of competency is that a discussion of the origins of competency thus becomes possible. That is, traits, talent, aptitude, motives are antecedents of competencies (Figure 12.1).

Competency Outcomes

Another confusion stems from using the term competency simultaneously for its components and its outcomes or effects. Several authors (Bird, 1995; Grzeda, 2005; Hoffmann, 1999; Mitchelmore & Rowley, 2010) observed that competencies are often discussed as successful performance, which thus combines actions and the outcomes of those actions into one construct. Outcomes can refer to a standard: If someone achieves beyond a certain standard, that person is said to be “competent.” Outcomes can also refer to very high levels of success. For example, Bird (1995) distinguished between competence as a minimum standard—a baseline or threshold—and competence manifested as excellence. The definition by Google referred to earlier—the ability to do something successfully or efficiently—combines proficiency and something to be proficient at. Mixing competencies and positive outcomes is unhelpful, as one can be more or less competent in a particular competency.

When it comes to entrepreneurship, it is important to distinguish between components and outcomes. In particular, it is not advisable to base assessments of competency on venture outcomes or results, because competencies are carried by individuals. The venture of a highly competent entrepreneur can underperform or fail, just like that of an incompetent entrepreneur can succeed, for example, because of luck, coincidence, extreme risk-taking, or contextual factors (Dew, 2009; Görling & Rehn, 2008; Liu & De Rond, 2016). Furthermore, entrepreneurship inherently involves failure (Cacciotti, Hayton, Mitchell, & Giazitzoglu, 2016), so it may be the competency to reflect and to learn that is relevant to entrepreneurial success in the long run (Cope, 2011).

Still, it is necessary to know the goals and the desired outcomes in order to know toward what aims any competencies are directed and thus establish what competencies are relevant. Hence, there are the feedback arrows from Task and Venture Outcomes to Competency in Figure 12.1. It may be more fruitful to proceed from successful task performance, rather than venture performance (Figure 12.1), to arrive at the required competencies involved, even if successful task performance may be more difficult to specify for complex, holistic “jobs” such as being an entrepreneur (Grzeda, 2005). Proceeding from a task analysis has the additional advantage that it makes clear that competencies vary according to task.

Competency Components (Knowledge, Skills, and Attitude)

In this chapter, I define competencies as the combined and integrated components of knowledge, skills, and attitudes (KSA) (Bacigalupo, Kamylyis, Punie, & Van den Brande, 2016; Clark, 2005). For example, digital communication competency draws on an individual’s knowledge of language, practical information technological skills, and attitudes toward those with whom he or she is communicating. Confusingly, half of the KSA literature refers to attitude and the other half to ability. According to Clark (2005), the A originally stood for attitude, but as later it was deemed politically incorrect to change someone’s attitude (competency having widespread usage in education, training, and development practice), attitude started to be replaced by ability. However, seeing ability as a component is problematic as, just like the term competency itself, ability can also be taken as an antecedent or as an outcome. Ability as a competency component is difficult to distinguish from antecedents of competency, such as intelligence, aptitude, or talent, which are also reflections of ability. Moreover, if taken as such, ability is then a fixed characteristic in contrast to skills and knowledge, which are learnable. This conceptualization of ability denies the idea that competencies can be developed (in contrast, attitude is more malleable). If taken as an outcome, ability equates to capability, which implies that one is capable, and as such equates to the effects of a competency, rather than being one of the three (KSA) components making up competency. Attitude—a relatively general and enduring evaluation of an object

or concept (Vogel & Wanke, 2016)—does not suffer from these disadvantages. Hence, my definition and Figure 12.1 refer to attitude, rather than ability.

Many authors agree that competencies are best observed and analyzed in their manifestation at a behavioral level (e.g., Bird, 1995; Hayton & Kelley, 2006). By defining competency as the combined and integrated components of knowledge, skills, and attitudes, and by regarding them in their behavioral manifestation, the pitfalls of confusing competency antecedents or outcomes with competencies are avoided. The KSA components can be learned, unlike relatively fixed components such as traits and motives. Moreover, someone can possess favorable competency antecedents, but these are only relevant if they manifest in behavior, a point famously made by Gartner (1988). In addition, by looking at competencies as the behavioral manifestations of KSA, we avoid confusing competencies with the effects of competencies.

Observed behaviors—whether directly or indirectly observed (as in the case of cognitive or emotional (self-regulation) competencies)—are not themselves competencies, as competencies are a latent construct (Hayton & Kelley, 2006; Lans, Baggen, & Ploum, 2018). In terms of behavioral manifestation, skills are a step closer to behavior, as knowledge and attitude are manifest in their application (Figure 12.1). As Campbell, McCloy, Oppler, and Sager (1993) states, declarative knowledge is a prerequisite for procedural skill, and skills are attained when declarative knowledge (knowing what to do) is successfully combined with knowing how to do it. Having clarified that competency concerns the integrated components of attitude, knowledge, and skills, the chapter now reviews various types of competencies.

Types of Competencies

Many authors have attempted to list or categorize the various competencies that entrepreneurs should possess. These approaches differ in terms of how the competencies are selected. Some lists are based on desk research or armchair reasoning (e.g., Kyndt & Baert, 2014; Man, Lau, & Chan, 2002; Mitchelmore & Rowley, 2010). Others are based on the inputs of experts such as practicing entrepreneurs, business developers, or university professors (Chandler & Jansen, 1992; Morris, Webb, Fu, & Singhal, 2013). There also have been attempts to aggregate laundry lists of competencies into higher-level classifications. Sometimes competencies are mapped onto existing higher-level classification schemes, such as “getting ahead” and “getting along” (Hogan & Holland, 2003); “getting ahead,” “getting along,” and “getting it right” (Lans et al., 2018); or “know-why,” “know-how,” and “know-whom” (Johannisson, 2016). In other cases, higher-level classifications are proposed by the same authors who initially developed their list. For example, Man et al. (2002) proposed opportunity, relationship, conceptual, organizing, strategic, and commitment competencies. Mitchelmore and Rowley (2010) aggregated their list of competencies in terms of entrepreneurial, business and management,

human relations, and conceptual and relationship competencies. The titles of Mitchelmore and Rowley's categories make clear that entrepreneurial competencies are just one out of a range of categories of competencies that entrepreneurs require. Similarly, for skills, Kutzhanova, Lyons, and Lichtenstein (2009) proposed technical, managerial, entrepreneurial, and personal maturity skills. Chandler and Jansen (1992) referred to competencies as entrepreneurial, managerial, and technical-functional roles. These classifications illustrate that entrepreneurs do not only need entrepreneurial competencies but also competencies that are not strictly entrepreneurial or not entrepreneurial at all. The success of the entrepreneur thus also depends on his or her non-entrepreneurial competencies.

Another common contrast is between enterprising and entrepreneurial competencies (Bacigalupo et al., 2016; Draycott & Rae, 2011; Gibb, 1993; Lackeus, 2015, 2018; Mitchelmore & Rowley, 2010; Onstenk, 2003; Neck & Corbett, 2018; Van Gelderen, 2020). Enterprising competencies take on a wider meaning than entrepreneurial competencies and can be decoupled from the commercial business context. These competencies refer to entrepreneurship as a behavioral syndrome, involving risk-taking, proactive, creative, and autonomous behavior in the context of creating value for other people (Lackeus, 2015, 2018; Van Gelderen, 2020). For example, in his enterprising competencies teaching program, Van Gelderen (2020) includes generating ideas for opportunities, taking action, perseverance, teamwork, networking, and convincing others, with the competencies being selected based on achieved learning effects in experiential training formats. Enterprising competencies can express themselves in a wide variety of settings, of which venture creation is only one. Venture creation is thus a special case of enterprising behavior (Lackeus, 2015, 2018; Van Gelderen, 2020). As they are transferable and applicable in a wide range of settings, enterprising competencies are increasingly stressed by entrepreneurship scholars and educators (Kuratko & Morris, 2018; Neck & Corbett, 2018) as well as by scholars who study the skills that will be needed by the generic working population in the near and distant future (www.atc21s.org, www.p21.org).

Beyond the lists and classifications of entrepreneurial competencies, it is important to consider that competencies and their relevance may vary by entrepreneurial task, phase of the business, industry, culture/country, and even historical time period. Even the same tasks can be approached in different manners and thus involve different competencies. For example, in the task of identifying or developing an opportunity, an entrepreneur may use discovery or creation processes (Alvarez, Barney, & Anderson, 2013) or effectual or causation processes (Sarasvathy, 2001). Even more fundamentally, competencies and their level of importance vary by type of entrepreneurship. This applies in terms of the aim (e.g., commercial versus social entrepreneurship (Fauchart & Gruber, 2011), actor (e.g., self-employed, small venture, corporate entrepreneurship), and mode (e.g., lifestyle, small or growth-oriented, innovative or imitative, degree of digitalization, collaborative or competitive). Thus, the notion of fit (Boyatzis, 2008; Markman &

Baron, 2003) is relevant: a competency should be aligned with the task, phase, sector, geography, time period, and type (aim, actor, mode) of entrepreneurship. The next section explores empirical work that addresses these variations.

Empirical Studies Relating Entrepreneurial Competencies to Outcomes

Authors have routinely proposed that competencies are important to venture success (Bacigalupo et al., 2016; Bird, 1995; Lackéus, 2015; Man et al., 2002; Morris et al., 2013; Neck & Corbett, 2018). Unfortunately, the empirical evidence is thinner than the theoretical claim, particularly when it comes to more detailed studies that aim to determine which competencies are relevant to specific industries, tasks, phases, and types of entrepreneurship. In particular, there is little evidence for the impact of enterprising behavior, despite being widely promoted in the EU (e.g., the influential EntreComp framework, Bacigalupo et al., 2016), arguably because of the broad definition and thus diffuse impact (Lackéus, 2015; Lans et al., 2018).

The available empirical research assessing the impact of entrepreneurial competencies tends to rely on self-reports wherein respondents indicate how often they use a particular competency or their self-perceived level of competence. Using a mixture of both, Kyndt and Baert (2014) conducted scale development work with regard to a range of competencies and additionally provided criterion validity for their scales by comparing entrepreneurs with varying levels of experience and investigating the relation with survival over a three- to five-year period. Kyndt and Baert (2014) found that only perseverance and market insight contributed to survival. However, their findings cannot be generalized, as their sample consisted mostly of necessity entrepreneurs; the majority of the participants were unemployed when they completed the initial survey. Chandler and Jansen (1992) based their study on literature that identifies the entrepreneurial, managerial, and technical-functional functions as three roles that founders must competently enact to be successful. Their cross-sectional results indicated that the most successful founders rate themselves as competent in these roles and see themselves as competent generalists.

Another cross-sectional study, now of a specific competency, was conducted by Baron and Markman (2003). They found that the higher the entrepreneurs' social competence (their ability to interact effectively with others based on discrete social skills), the greater their financial success. Baggen et al. (2018) developed the opportunity identification competence assessment test (OICAT) and found proof for its predictive validity. Ploum, Blok, Lans, and Omta (2019) showed that pro-environmental behavior values and moral competencies are important indicators of the ability to recognize opportunities for sustainable development. Volery, Mueller, and von Siemens (2015) studied the competencies of growth-oriented SMEs and found that entrepreneurs of

these types of firms divide their time between exploration and exploitation. In this study, successful entrepreneurs were studied to determine their competencies. As such, the predictive validity of such findings should be verified in different samples.

There are many studies on the separate components of various competencies—knowledge, skills, and attitude. It is beyond the scope of this chapter to review these here. Much work has been done, particularly with regard to the skills of opportunity idea generation and evaluation, networking, and pitching. However, the literature sometimes uses the terms *competencies* and *skills* interchangeably, possibly because knowledge and attitude are implied in the behavioral application of skills (Figure 12.1). For this reason, in this section, I selectively include a few studies that refer to skills, rather than competencies, but which are relevant to the study of competencies. First, Unger, Rauch, Frese, and Rosenbusch (2011) conducted a meta-analysis of the relation between human capital and success and provides circumstantial evidence for the relevance of competencies. The authors found that the relationship is higher for what they call outcomes of human capital investments (knowledge/skills) than for human capital itself (education/experience), which can be seen as antecedents of competency (cf. Figure 12.1). Unger et al. (2011) also find the impact of skills or competencies to be higher in developing countries (because of more variation in terms of human capital in the studied sample) and for younger firms (because the emerging firm represents a more challenging situation in which the impact of having the right skills is larger than when the firm is more mature).

Second, a number of researchers have studied the benefits of having a varied set of skills for business performance versus the separate effects of single skills. Lazear (2005) promotes the idea that entrepreneurs are generalists: “Not necessarily superb at anything, entrepreneurs have to be sufficiently skilled in a variety of areas to put together the many ingredients required to create a successful business” (Lazear, 2005, p. 676). Empirical studies supported the hypotheses of Lazear’s jack-of-all trades theory, demonstrating the importance of a varied skill set for engaging in entrepreneurship (Wagner, 2006; Åstebro & Thompson, 2011), making progress in the venture creation process (Stuetzer, Obschonka, & Schmitt-Rodermund, 2013), self-employment longevity (Oberschachtsiek, 2012), having higher earnings as an entrepreneur (Hartog, Van Praag, & Van der Sluis, 2010), and the number of businesses owned (Åstebro & Thompson, 2011). With some exceptions (e.g., Hartog et al., 2010), this body of work relied on proxies, usually the breadth of experience, rather than studying the variety of competencies or skills directly, although Stuetzer, Obschonka, Davidsson, and Schmitt-Rodermund (2013) empirically demonstrate that skills derive from experience. Perhaps more importantly, the referenced studies examined individuals rather than teams, although a varied or balanced skill set can obviously be achieved by having a variety of competencies in the start-up team. This issue received more attention in the literature on competencies in corporate entrepreneurship, which is briefly

reviewed later in this chapter. In large corporations, it is more common that different specialists cover different tasks and phases.

In evaluating the body of empirical research described above, a first point to observe is that the studies taking a competency approach usually do not systematically specify the components of attitude, knowledge, and skill. Particularly under-researched are the attitude component and the interrelations of the components (e.g., to what extent the components can substitute another).

A second observation is that the validity of self-reported competency ratings can be questioned, as particularly inexperienced entrepreneurs may not yet have a grounded idea about their level of competence, particularly with respect to enterprising (soft) skills. Whereas technical (hard) skills (e.g., programming, language) can be self-rated rather unambiguously, soft skills are relative and thus it may be difficult to determine one's objective skill level. For example, one may believe he or she has competent social skills, but after gaining more entrepreneurial experience, one may discover that there remains a lot to be learned. So identical or even declining self-reported competency scores over time may actually reflect great development, and identical self-reported competency scores between persons may reflect great underlying variety. The literature has suggested ways to make competency scores more valid, for example, by having other individuals assess the observed behavior, such as in the 360-degree feedback and assessment center methodologies (Chen & Naquin, 2006; Hagan, Konopaske, Bernardin, & Tyler, 2006). Bird (1995, Table 11.1) provides an extensive overview of forms of competency assessment.

A third observation is that few studies have related competencies to task outcomes in the setting of actual ventures. Studies on competencies and task outcomes have been conducted in training settings, a few of these studies are covered in the later section in this chapter on competency development. Although task outcomes are more proximal than venture outcomes (Figure 12.1), the relation between competencies and task outcome should not be assumed. Whether competencies relate to successful task performance depends on transfer (Unger et al., 2011) and applicability or fit (Boyatzis, 2008; Grzeda, 2005; Unger et al., 2011). Empirical studies relating entrepreneurial competencies to success in different phases—such as opportunity recognition and idea validation, resource acquisition, launch, growth, and exit—are scarce (an example referring to skills is the discussion of convergent and divergent thinking, as offered by Lex and Gielnik (2017)). Several overviews of the competency literature have suggested that different phases require different competencies (Mitchelmore & Rowley, 2010; Chell, 2013), as do the growth and life cycle models of the firm (Churchill & Lewis, 1983; Greiner, 1972). However, empirical research has been mostly limited to the corporate setting (Rasmussen, Mosey, & Wright, 2011), which will be discussed in the next section.

A fourth observation is that the evidence linking competencies to performance does not extend beyond financial outcomes, despite other motives and outcomes playing important roles in entrepreneurial pursuits (Lackéus, 2015). For example,

autonomy is a dominant motive to start and run one's own business, so whether autonomy is actually attained or retained (Van Gelderen, Shirokova, Shchegolev, & Beliaeva, 2020) is an important outcome of entrepreneurial competencies. For enterprising competencies, the relation to success may be even more complex, as enterprising competencies may manifest in a wide range of behaviors, of which starting or running a business is merely one example. As enterprising behavior is more geared to creating value than appropriating value, performance measures should somehow capture the value created for others (Lackeus, 2015).

Entrepreneurial Competencies in Corporate Entrepreneurship

Although corporate entrepreneurship can refer to a broad array of activities or innovations that are adopted in the firm's pursuit of competitive advantage (Kuratko & Morris, 2018), competency research has mostly focused on corporate venturing, that is, the launching of new ventures. In corporate venturing, tasks and phases may be covered by different specialists, who may have no further involvement with the venture beyond that task or phase (O'Connor, Corbett, & Pierantozzi, 2009; Rasmussen et al., 2011). This is uncommon in independent entrepreneurship. Even if roles or tasks are distributed in a team, the team is usually not replaced by an entirely different team when the venture moves into a new phase (Hayton & Kelley, 2006). The authors referenced so far in this section discern more or less similar phases in corporate venturing, even if they use slightly different terminology. The first phase concerns invention, sometimes involving scientists or new technology, and requires the ability to be visionary and creative. Then comes the business building phase, which involves experimenting with technology and business concepts to design a viable business model. This phase also involves selection (deciding which project will be (dis)continued) and championing (promoting the new venture to the mother organization). The last phase concerns the management of growth and the adoption of the venture into the mainstream of the business (or alternatively, to spin off the venture or license IP). As such, the required competencies per phase are quite different and may be carried out by different individuals (Hayton & Kelley, 2006; O'Connor et al., 2009; Rasmussen et al., 2011). Gilsing (2020) argues that the second phase is the most difficult to execute. Capable specialists are in short supply compared to the inventors, creators, and dreamers required in phase 1, and the managers proficient in achieving efficiency, growth, and profit in phase 3. According to Gilsing (2020), the business builders in phase 2 require a hybrid set of seemingly contradictory competencies, such as a willingness to commit as well as to let go, and to be visionary as well as to be hands-on. The role of the phase 2 specialist may be even more difficult nowadays, as a multitude of open innovation formats have emerged that vary in terms of the degree of required corporate involvement (Weiblen & Chesbrough, 2015).

Research on entrepreneurial competencies often looks at individual entrepreneurs, which may be accurate if one person starts a new venture. However, particularly in corporate entrepreneurship, it is unlikely that one individual entrepreneur possesses all of the necessary competencies to make the new venture a success (Rasmussen et al., 2011). Work on competencies in corporate entrepreneurship highlights the varied and temporal role of multiple actors. As Hayton and Kelley (2006) pointed out, an important question is whether these competencies should reside in the organization or can be outsourced or externally acquired, and if they should reside internally, which employees or groups should possess them. Rasmussen et al. (2011) investigate this question and find that if academic entrepreneurs are involved in a new venture (whose competencies pertain more to phase 1, as distinguished earlier), specific competencies for venture creation and growth must be developed or acquired for phases 2 and 3. In their study, the competencies for the latter phases were obtained through accessing competencies from within the corporation as well as externally from industry partners and equity investors. Assessing competencies at the level of the venture has an advantage in that it analyzes competencies from the vantage point of the project for which they are needed. A disadvantage arises if venture level terms like assets and resources are now referred to as competencies (e.g., Rasmussen et al., 2011). By designating anything functional to corporate capability and success as a competency, the competency construct is emptied from having specific meaning. See chapter 7 in this book for further discussion of the role of skills in corporate entrepreneurship.

Competency Development

Early

A number of scholars have investigated the effects of having developed entrepreneurial competencies at an early age. These early entrepreneurial competencies are age-appropriate. For example, Obschonka and colleagues studied early indicators of leadership, self-esteem, social skills, creativity, and proactivity motivation, and find that early competencies feed into later entrepreneurial competencies (Obschonka, Hakkarainen, Lonka, & Salmela-Aro, 2017; Schoon & Duckworth, 2012) and subsequently into entrepreneurial success (Obschonka, Duckworth, Silbereisen, & Schoon, 2012; Obschonka, Silbereisen, Schmitt-Rodermund, & Stuetzer, 2011). Thus, age-appropriate broad competencies are developmental precursors of later, venture-related entrepreneurial competencies. Obschonka et al. (2017) therefore advise that it is better to focus early training on age-appropriate broad competencies, rather than specific venture-related competencies. This conclusion brings us back to the more general enterprising competencies discussed earlier in this chapter. These general competencies can be seen as life competencies (Bacigalupo et al., 2016; Lackéus, 2015), and they can later be applied in a variety of

contexts, of which starting a new venture is only one. The development of these intrapersonal and interpersonal competencies can start early, and are based on a foundation of even more basic competencies such as motor skills, reading, writing, etc. In addition, such competencies are primarily directed at value creation rather than value appropriation, which may further their acceptance among both children and their teachers (Lackéus, 2015).

The development of age-appropriate entrepreneurial competencies has a range of antecedents (Figure 12.1). Studies have found evidence that personality influences early competencies (Obschonka et al., 2017; Schmitt-Rodermund, 2004). A warm and supportive parenting style (Schmitt-Rodermund, 2004) relates to entrepreneurial competencies as well as interest, which are both central elements of the enterprising type in John Holland's (1973) well-known career theory (Schmitt-Rodermund, 2004). Thus, early development serves to build not only capability but also motivation. This fits the social cognitive career theory (Lent, Brown, & Hackett, 2002), which postulates that competencies and competence-related beliefs affect vocational behavior via interests (Obschonka et al., 2011). It is worth noting that Obschonka et al. (2017) find that those who pursue entrepreneurial careers are mid-level academic achievers. Training of early age-appropriate entrepreneurial competencies such as leadership, self-esteem, creativity, and proactivity motivation is therefore not necessarily geared at academic achievement per se nor measured by it.

Later

Progression models such as that developed by Martin Lackéus (2018) show competencies both as independent and as dependent variable (in other words, as having antecedents and outcomes). In both capacities, a theory of competency requires a theory of learning (Unger et al., 2011). Competencies should somehow translate into enduring better performance, so entrepreneurial individuals must learn how to apply a competency to a certain situation or problem relevant to the venture. As a dependent variable, competencies require a theory of learning because they need to be acquired and developed.

Education and experience do not necessarily directly translate into advanced competencies (Unger et al., 2011). Evaluations of entrepreneurship education programs have shown that it is possible to develop entrepreneurial competencies (see Chapter 16 in this volume), although more gain is achieved for participants who enter with a lower level of experience, efficacy, or entrepreneurial intention, that is, for those who have more room for improvement (Bae, Qian, Miao, & Fiet, 2014; Lyons & Zhang, 2018; Walter & Block, 2016). This finding potentially indicates a lack of (studies of) training programs for individuals who come in at a higher level of experience, efficacy, or entrepreneurial intention. Generally, success of a training method depends highly on the fit between the program's aims and methods and the

participants' needs. As noted in the section on the types of competencies, there is a wide variety of entrepreneurial tasks, phases, types, and so forth. As such, it is imperative to have a training program that is aligned to the specific learning needs and contexts of the participants (Martin, McNally, & Kay, 2013). See Chapter 16 in this book for further discussion on entrepreneurship education and training.

Competencies for the Entrepreneur of the Future

A wave of technological developments is coming to fruition. Multiple concurrent developments in domains such as artificial intelligence/machine learning, genetic sequencing, blockchain, Internet of Things, geo-engineering, cloning, virtual reality, augmented reality, big data, driverless transport, robotics, 3D printing, drones, surveillance/sensors, nanotechnologies, and many more, will affect the conventional ways of working in any industry or market. Therefore, competencies related to learning, such as adaptability and flexibility, are likely to become even more important (Obschonka et al., 2017; Rosa, 2003; Savickas et al., 2009; Van Laar, Van Deursen, Van Dijk, & De Haan, 2017). In addition, meta-competencies, such as reflecting, further facilitate the development of other competencies (Lans et al., 2018). Initiatives such as Act21s and P21 (www.atc21s.org, www.p21.org), which aim to prepare education for the world of work of the future, stress that these competencies do not only pertain to one's actual job but to living in a fast-paced, fast-changing world more generally.

At the same time, the enterprising and entrepreneurial competencies that are relevant today are likely to continue to be so in the future. Just as today, the entrepreneur of the future will still need to be able to discover, create, and evaluate entrepreneurial opportunities, to find resources and mobilize stakeholders, and to organize an emerging venture. In terms of underlying enterprising competencies, the entrepreneur in 2030, just as today, will still need to be able to generate novel ideas, take action, persevere, persuade, network, and work in a team. The importance of enterprising skills is likely to increase because of the increase in the number of self-employed in the so-called gig economy (McKinsey & Company, 2016; World Economic Forum, 2018). Facilitated by online platforms and network-based forms of organizing, many of these freelance "entrepreneurs" may actually be more aptly described as workers looking for work. Yet they may increasingly depend on enterprising competencies, such as proactivity, adaptability, and alertness, to be successful (Uy, Chan, Sam, Ho, & Chernyshenko, 2015), especially in a "job scarce" economy in which more and more human functions are taken over by artificial intelligence (Brynjolfsson & McAfee, 2014; Tegmark, 2017; Wilkinson, 2016). An even more fundamental question concerns the extent to which competencies of the future entrepreneur can be augmented or even completely taken over by AI algorithms.

Conclusion

Scholars have made significant headway in the study of entrepreneurs' competencies, but there remains much work to be done. In doing such work, it is important to clearly distinguish competency and its components from their antecedents and outcomes. Throughout this chapter, research opportunities are identified. I briefly repeat them here. Although the generic competencies of entrepreneurs have been outlined by numerous studies, relatively little work has been done to specify the competencies by phase, sector, approach, time period, and type (aim, actor, mode) of entrepreneurship. In terms of outcome variables, research can examine dependent measures other than firm financial performance. In comparison to the knowledge and skill components of competency, the attitude component and the interrelations of the components (e.g., to what extent the components can substitute another) remain under-researched. Prior work on competencies tended to be directed at the individual, but more can be done to study competencies at the team level (e.g., relating aggregated team-level competency measures to firm performance). We also know little about the early development of entrepreneurial competencies. Enterprising competencies are increasingly seen as important, but future research should systematically evaluate their effects. Given accelerated technological development, the competencies of adaptability, flexibility, and reflection deserve particular attention.

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