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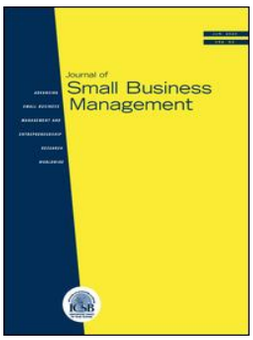

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Prior entrepreneurial exposure and the emergence of entrepreneurial passion: The moderating role of learning orientation

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ABSTRACT

Entrepreneurial passion is important for individuals to advance in the entrepreneurial process, but we lack a theoretical understanding of how passion develops. Drawing on social learning theory, the present study examines how prior entrepreneurial exposure (that is, entrepreneurial role model experience and direct entrepreneurial experience) affects entrepreneurial passion and how an individual's learning orientation moderates the relationship. To empirically validate our research model, we collected data from 928 students across several disciplines. Consistent with our theorizing, we find both types of prior entrepreneurial exposure to positively influence entrepreneurial passion. Further, medium to high levels of learning orientation strengthen these relationships.

KEYWORDS

Entrepreneurial passion; prior entrepreneurial exposure; role models; learning orientation; social learning theory

Introduction

Passion is at the heart of entrepreneurship motivating individuals to persist in the face of the challenges of this highly volatile and uncertain career path (Cardon & Kirk, 2015). According to Cardon, Wincent, Singh, and Drnovsek (2009b), entrepreneurially passionate individuals experience *intense positive feelings* toward entrepreneurial activities that are *central* to their self-identity. Entrepreneurial passion (EP) fosters positive outcomes throughout the entrepreneurial process such as entrepreneurial intention (Biraglia & Kadile, 2017; Huyghe, Knockaert, & Obschonka, 2016) and persistence in new venture efforts (Cardon & Kirk, 2015).

Despite EP's undisputed importance for entrepreneurship, current knowledge regarding its development is limited for at least three reasons: First, although prior studies identify antecedents of EP such as entrepreneurship training (Gielnik, Uy, Funken, & Bischoff, 2017), entrepreneurial self-efficacy (Dalborg & Wincent, 2015), or entrepreneurial effort (Gielnik, Spitzmuller, Schmitt, Klemann, & Frese, 2014), most studies refrain from developing

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theory explaining how these factors affect the different dimensions of EP (that is, intense positive feelings and identity centrality). Without theoretically differentiating among the dimensions of EP, our knowledge regarding the development of EP remains incomplete, as different theoretical mechanisms underlie the emergence of intense positive feelings and identity centrality (Cardon & Kirk, 2015; Collewaert, Anseel, Crommelinck, De Beuckelaer, & Vermeire, 2016).

Second, extant literature on the antecedents of EP mostly employs samples consisting of founders (for example, Collewaert et al., 2016; Dalborg & Wincent, 2015), undergraduate business administration students (Gielnik et al., 2014), or students participating in extracurricular entrepreneurship training programs (Gielnik et al., 2017). While this approach certainly improves our understanding of EP in individuals who already started a business or were already interested in entrepreneurship, it remains unclear how individuals from a more general population start developing EP. This constitutes a relevant research gap, as already early life exposure to entrepreneurship (such as entrepreneurial parents) significantly shapes individuals' perceptions of entrepreneurship (Schmitt-Rodermund, 2004; Zapkau, Schwens, Steinmetz, & Kabst, 2015). Thus, the extant findings may be affected by the fact that the investigated samples already had above average levels of EP. Moreover, even though previous studies show that entrepreneurial experiences such as participating in extracurricular entrepreneurship training programs (Gielnik et al., 2017) influence the development of EP, we yet require insights on how prior entrepreneurial experiences influence EP's development.

Third, we still know little about the boundary conditions under which EP develops. Acknowledging boundary conditions is particularly pertinent for examining the effect of prior entrepreneurial experiences on EP, as not all individuals react to and benefit from their experiences in the same way. That is, not all individuals equally value experiences as a learning opportunity (VandeWalle, 1997) or effectively generate knowledge from experiences (Gray & Meister, 2004). Thus, it is important to account for boundary conditions, which reflect how individuals differently draw meaning from and respond to experiences (Simmons & Ren, 2009; Yeo & Neal, 2004). Previous studies on the development of EP underline the necessity of including individuals' characteristics as boundary conditions, as these can strengthen positive effects (Gielnik et al., 2017) or weaken negative effects (Collewaert et al., 2016) of antecedents on the development of EP. For example, Gielnik et al. (2017) found that entrepreneurial self-efficacy positively moderates the effect of entrepreneurship training on EP's development. Further, prior studies especially hint at the relevance of a learning perspective when investigating how individuals respond to experiences. However, as most prior research refrains from

considering such a perspective, our understanding of how individuals' characteristics act as a boundary condition in the development of EP is still limited.

This article has two aims: First, we draw on social learning theory to examine the relationship between prior entrepreneurial exposure (PEX) (that is, individuals' different experiences over their lifetime that lead to deeper knowledge about entrepreneurship (Zapkau, Schwens, & Kabst, 2017)) and EP. Social learning theory explains that individuals learn either vicariously (that is, through observing role models) or directly (that is, through actively engaging in activities) from their experiences (Bandura, 1977). Consistent with the theory, we examine two types of PEX: entrepreneurial role model experience (that is, individuals with parents or other role models such as relatives/friends who started a business) and direct entrepreneurial experience (that is, individuals' prior work experience in a small/newly founded firm or their prior founding experience) (Krueger, 1993). We argue that both types of PEX influence EP through different learning mechanisms; that is, vicarious and direct learning.

Second, we study how learning orientation (LO) (that is, an individual's predisposition to develop competence by acquiring new skills and mastering new situations (VandeWalle, 1997)) moderates the relationship between PEX and EP. In general, introducing a boundary condition to the relationship between PEX and EP is important because individuals respond differently to experiences, especially when facing challenging situations (such as entrepreneurship) (Dweck, 1986). Specifically, accounting for differences in individuals' LO enables a better understanding why such variation occurs. Different inherent levels of LO manifest in the receptiveness to role models and reactions to feedback from role models (VandeWalle & Cummings, 1997), in the extent of familiarizing with new roles (for example, the role of an entrepreneur) through acquiring knowledge (Tan, Au, Cooper-Thomas, & Aw, 2016), and in the amount of effort individuals put into tasks (VandeWalle, Cron, & Slocum, 2001). Thus, by examining the moderating effect of LO, we take into consideration that individuals vary in how they benefit from different experiences and, specifically, in the extent to which they vicariously and directly learn from experiences, which makes a considerable difference in the development of EP.

Our contribution to existing research is twofold: First, applying a social learning perspective advances our understanding of how individuals develop EP. To this end, we identify the underlying learning mechanisms through which PEX affects EP. This approach allows us to provide deeper insights into the development of intense positive feelings and identity centrality as dimensions of EP. Further, we test our theoretical model using a sample consisting of undergraduate and graduate students from

five universities and various disciplines (for example, business administration and economics, natural sciences, humanities). This approach is consistent with the notion of the importance of early life exposure to entrepreneurship (Schmitt-Rodermund, 2004) and avoids biased findings resulting from samples that already have high levels of EP.

Second, we advance the theoretical understanding of the boundary conditions under which EP develops. To this end, we theoretically examine and empirically test the moderating impact of LO on the relationship between PEX and EP. Such a learning-based contextualization is vital since, beyond the mere exposure to entrepreneurship, individuals need to capitalize on such experiences (Armstrong & Mahmud, 2008; Baum, Bird, & Singh, 2011). Hence, using LO as a moderator enables us to consider how individuals differently respond to and learn from their PEX to develop EP.

Background literature

EP is a key driver of the entrepreneurial process fostering the acquisition of startup financing (Cardon, Sudek, & Mitteness, 2009a) as well as employees' commitment to entrepreneurial ventures (Breugst, Domurath, Patzelt, & Klaukien, 2012). EP manifests when (1) individuals experience intense positive feelings from performing an entrepreneurial role, and (2) this role is central to the identity of individuals. First, engaging in role-related activities, such as establishing and growing a venture, results in intense positive feelings for the entrepreneurial role (Cardon et al., 2009b). Second, individuals understand the meaning and the relevant activities of an entrepreneurial role over time through different life experiences as part of their socialization process (Gibson, 2004; Stryker & Burke, 2000). In turn, roles become more or less central to an individual's identity: A comparatively higher identity centrality of the entrepreneurial role indicates the importance individuals ascribe to being an entrepreneur compared to other roles (for example, "student") (Stryker & Serpe, 1994).

A related conceptualization of general passion by Vallerand et al. (2003) describes passion as a strong inclination toward a focal activity that individuals like, value, and in which they invest time and energy. Additionally, they distinguish between harmonious and obsessive passion. This distinction grounds on differences in how individuals internalize activities in their self-concepts resulting in harmonious (that is, individuals deliberatly choose to engage in the activity) or obsessive (that is, individuals feel an internal pressure to engage in the activity) passion. Vallerand et al. (2003) and Cardon et al. (2009b) both recognize an individual's experience of intense feelings and the engagement in activities that are meaningful to the individual in their conceptualizations of passion. However, even though Vallerand et al. (2003) suggest that identity meaning is important for understanding

passion, they neither explicitly consider identity centrality in their operationalization of passion nor is their concept of passion specific to entrepreneurship. This is problematic in our entrepreneurial context, as understanding why the entrepreneurial role and the respective activities have a higher identity centrality in an individual's self-concept is essential for a more complete picture of how passion develops (Murnieks, Mosakowski, & Cardon, 2014). Therefore, our article follows the conceptualization of Cardon et al. (2009b) and considers intense positive feelings for *and* identity centrality of the entrepreneurial role and the respective activities when theorizing about the development of (specifically) *entrepreneurial* passion (Cardon & Kirk, 2015; Collewaert et al., 2016).

Given the importance of passion in entrepreneurship (Chen, Liu, & He, 2015), a central question is how EP emerges. In this regard, it is important to conceptually consider the affective (that is, intense positive feelings) and the identity-related (that is, identity centrality) dimension of EP (Cardon, Gregoire, Stevens, & Patel, 2013). In fact, recent studies suggest that different theoretical mechanisms influence each dimension of EP separately (for example, Cardon & Kirk, 2015). However, few studies theoretically probe deeper into these complexities. One exception is the study by Collewaert et al. (2016), who show that identity centrality remains relatively stable during the founding phase, whereas the intense positive feelings change as entrepreneurs adapt their venture ideas. We further open the "black box" of how EP develops by uncovering different theoretical learning mechanisms that influence the intense positive feelings and identity centrality related to the entrepreneurial role.

We use *social learning theory* (Bandura, 1977) to examine the role of learning in the development of EP. Social learning theory offers a framework for explaining how individuals learn either (1) vicariously through role models, or (2) directly through their own experiences. First, role models (that is, individuals' attachment figures like family members or friends) are a key factor in individuals' socialization processes and a great learning opportunity in everyday life. Learning from role models takes place in different ways: role models can either demonstrate a behavior or give verbal instructions (Bandura, 1977; Gibson, 2004). Second, individuals learn directly from their own experiences as they actively engage in an activity and learn through mistakes or setbacks by adjusting their behavior accordingly (Bandura, 1977). Such learning by doing enables individuals to improve in a respective activity.

In the entrepreneurial context, two types of PEX capture vicarious and direct learning from experiences (Krueger, 1993; Müller, Zapkau, & Schwens, 2014): entrepreneurial role model experience and direct entrepreneurial experience. Throughout their life, individuals *vicariously* learn through *entrepreneurial role model experience* from attachment figures such as parents, colleagues, or friends who previously started a business (Bosma, Hessels,

Schutjens, Van Praag, & Verheul, 2012). Such vicarious learning enables individuals to associate certain activities with emotions by observing affective reactions of entrepreneurial role models (for example, being excited while performing the entrepreneurial role) (Bandura, 1986). Moreover, intense positive feelings toward entrepreneurial activities increase through affect diffusion (that is, the transfer of affective states from one person to another (Peters & Kashima, 2015)) by means of such vicarious learning from entrepreneurial role models. Further, through vicarious learning from entrepreneurial role models, individuals gain knowledge on the different elements of the entrepreneurial role. For example, observing entrepreneurial role models provides knowledge on people's management skills, organizing a firm effectively, or exploiting business opportunities (Zozimo, Jack, & Hamilton, 2017). In addition, role models can offer informal guidance on business methods (Parker, 2004), provide information on markets and industries (Ozgen & Baron, 2007), and uncover success factors of running a business (Scherer, Adams, & Wiebe, 1989). In turn, greater knowledge about the entrepreneurial role strengthens the identity centrality of this role to an individual's self-concept due to greater role familiarity (Farmer, Yao, & Kung-Mcintyre, 2011; Hoang & Gimeno, 2010).

Direct learning from *direct entrepreneurial experience* enables individuals to learn from actively engaging in the role of an entrepreneur. Two main alternatives for individuals to engage in such a role exist: First, working in a small or newly founded firm provides a unique environment to encounter the activities pertaining to an entrepreneurial role (Kautonen, Luoto, & Tornikoski, 2010-). Second, an individual's own founding endeavors represent another alternative to engage in an entrepreneurial role. To this end, extant research distinguishes between opportunity-driven and necessity-driven entrepreneurship (Block, Kohn, Miller, & Ullrich, 2015; Reynolds et al., 2005). Opportunity-driven entrepreneurs are individuals who engage voluntarily in entrepreneurial activities to pursue promising opportunities, whereas necessity-driven entrepreneurs engage in entrepreneurship out of economic necessity because they lack other employment options (Reynolds et al., 2005). However, although individuals can actively engage in an entrepreneurial role for different reasons and with different initial levels of human capital (for example, educational background) (Block et al., 2015), such experience still provides various direct learning opportunities (Cope, 2005; Reuber & Fischer, 1993).

One way of direct learning is through deliberate practice enabling effective learning processes that allow individuals to acquire higher competences in a specific domain and master respective activities (Ericsson, 2008; Ericsson, Roring, & Nandagopal, 2007). In turn, mastering entrepreneurial activities specifically enhances individuals' intense positive feelings from performing the entrepreneurial role (Mageau et al., 2009). Further, direct entrepreneurial experience also enables individuals to attain a more realistic picture of the

entrepreneurial role (Hoang & Gimeno, 2010; Krueger, 2003) and leads to a better overall understanding of the consequences of establishing a business (Davidsson & Honig, 2003; Rotefoss & Kolvereid, 2005). Moreover, individuals with direct entrepreneurial experience, through working for a small or newly founded firm, are often generalists with deeper knowledge about diverse business activities, compared to those working for large corporations, who often possess highly specialized skills (Kautonen et al., 2010). In turn, such greater knowledge about the entrepreneurial role enhances role familiarity and, thus, strengthens the identity centrality of such a role to the individual (Farmer et al., 2011; Hoang & Gimeno, 2010).

Individuals vary in how they respond to experiences due to their LO (VandeWalle, 1997). LO is a particularly pertinent contextual factor when it comes to how individuals learn from vicarious and direct experiences: First, LO reflects an individual's ability to transform experiences into knowledge as individuals with higher levels of LO are more effective in sourcing knowledge from experiences than those with lower levels (Gray & Meister, 2004; Payne, Youngcourt, & Beaubien, 2007). Second, individuals with greater LO enjoy challenges and opportunities to further develop and master their competences (Dweck & Leggett, 1988). Thus, individuals with high levels of LO prioritize mastering a task at hand and persist in their efforts even under difficult circumstances (Diener & Dweck, 1980; Elliott & Dweck, 1988). Third, individuals with greater LO value feedback from their social environment such as attachment figures and see it as beneficial for their personal development (Payne et al., 2007). Consequently, such individuals are more open to attachment figures and maintain closer relationships with them. Given these important implications in the context of entrepreneurship, previous studies acknowledge LO's role as a contextual factor throughout the entrepreneurial process. For example, LO strengthens the positive influence of the perceived ability and perceived attractiveness to become an entrepreneur on an individual's entrepreneurial intention (De Clercq, Honig, & Martin, 2013). Further, for early stage entrepreneurs, LO strengthens the negative impact of affect spin (that is, the extent to which individuals' experience different moods and emotions due to, for instance, a rapidly changing entrepreneurial environment) on entrepreneurs' psychological well-being (Uy, Sun, & Foo, 2017).

In sum, we examine how PEX (that is, entrepreneurial role model experience and direct entrepreneurial experience) affects the development of EP and how LO moderates[1] these relationships as depicted in Figure 1.

[1]Our theoretical notion of LO being a moderator of the relationship between PEX and EP does not preclude that LO also has a (theoretically distinct) direct influence on EP. Consistent with recommendations by Andersson, Cuervo-Cazurra, and Nielsen (2014), we theoretically established how LO directly influences EP: Individuals with higher LO identify with an entrepreneurial role to a greater extent (that is, LO increases the identity centrality of such a role in individuals' self-concepts) and, thus, display a higher EP. Indeed, prior research indicates that LO fosters proactive behavior (Porath & Bateman, 2006) as well as innovativeness (Montani, Odoardi, & Battistelli, 2014), and positively relates to an affinity for risk taking (Pintrich, 2000), which are all key characteristics of an entrepreneurial role.

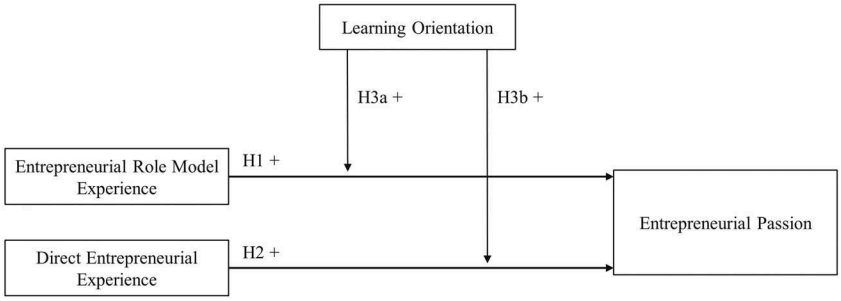

Figure 1. Research model.

Hypotheses development

Entrepreneurial role model experience and entrepreneurial passion

We argue that individuals with greater entrepreneurial role model experience display higher levels of EP. Our argumentation rests on two central considerations: First, entrepreneurial role models positively influence *intense positive feelings* of individuals toward the entrepreneurial role through vicarious learning enabling affect diffusion. That is, individuals' EP increases with the EP expressed by their entrepreneurial role models. Affect diffusion entails that individuals observe affective reactions of role models tied to specific activities (for example, being excited while engaging in entrepreneurial tasks) and that such emotions then transfer to individuals (Peters & Kashima, 2015). Hence, individuals vicariously experience the emotions of others (Bandura, 1986). Passionate individuals usually show their feelings through verbal or nonverbally expressions (for example, facial expression) (Cardon, 2008; Chen, Yao, & Kotha, 2009). Thus, if individuals observe role models displaying passion while performing an entrepreneurial role, affect diffusion in the form of intense positive feelings occurs (Breugst et al. 2012; Cardon, 2008; Cardon, Post, & Forster, 2017). In turn, the vicarious experience of role models engaging passionately in entrepreneurship even leads individuals to associate entrepreneurial activities with sustained positive arousal (Cardon, 2008; Hubner & Baum, 2017).

Entrepreneurial role model experience also influences the *identity centrality* of an entrepreneurial role in individuals' self-concepts. Through vicariously learning from entrepreneurial role model experience, individuals acquire knowledge and, in turn, higher role familiarity of the entrepreneurial role (Farmer et al., 2011; Hoang & Gimeno, 2010) fostering the identity centrality of such a role to individuals. In particular, by gaining knowledge through observing the behavior of entrepreneurial role models, individuals are better able to reflect on the importance of the entrepreneurial role for their own self-concept (Stryker & Serpe, 1994). In turn, such individuals ascribe a higher identity centrality to the

entrepreneurial role compared to individuals with less knowledge on the entrepreneurial role. Overall, these considerations lead to our first hypothesis:

Hypothesis 1 (H1): Entrepreneurial role model experience has a positive influence on entrepreneurial passion.

Direct entrepreneurial experience and entrepreneurial passion

We argue that individuals with direct entrepreneurial experience display higher levels of EP. We ground our argumentation on two central considerations: First, direct entrepreneurial experience enhances intense positive feelings through deliberate practice (Ericsson, Krampe, & Tesch-Römer, 1993) in entrepreneurial activities via direct learning. If individuals directly engage in typical tasks associated with an entrepreneurial role (for example, exploiting opportunities, acquiring funding), they can master such tasks through deliberate practice (Gielnik et al., 2017; Mageau et al., 2009). Mastering activities associated with the entrepreneurial role entails spending more effort on an activity, which promotes an experience of achievement and confirms individuals in performing the entrepreneurial role. In turn, such mastery strengthens intense positive feelings for such activities and, ultimately, for the entrepreneurial role (Mageau et al., 2009). Additionally, mastering activities even leads to the endurance of intense positive feelings over longer time periods, as individuals have stronger beliefs in their ability to perform the entrepreneurial role (Gielnik et al., 2017).

Second, direct entrepreneurial experience also fosters a higher identity centrality as individuals derive knowledge through direct learning from direct entrepreneurial experience and, in turn, gain higher role familiarity. Specifically, by performing the entrepreneurial role while working for a small or newly founded firm or by founding a business, individuals can verify and extend their knowledge of the elements of the entrepreneurial role (Higgins, 2005). Indeed, learning from experiences can impact the self-understanding of individuals (Boud, Keogh, & Walker, 1985; Pratt, Rockmann, & Kaufmann, 2006), as individuals use knowledge to subconsciously decide how important the entrepreneurial role is to their self-concept. More specifically, greater knowledge about the entrepreneurial role supports individuals in deciding on the importance they want to assign to such a role (Farmer et al., 2011; Hoang & Gimeno, 2010). Hence, the identity centrality of an entrepreneurial role varies with the knowledge individuals acquire through direct entrepreneurial experience. These arguments lead to our second hypothesis:

Hypothesis 2 (H2): Direct entrepreneurial experience has a positive influence on entrepreneurial passion.

The moderating role of learning orientation

We argue that LO positively moderates the influence of entrepreneurial role model experience on EP. LO increases the influence of entrepreneurial role model experience on the intense positive feelings dimension of EP. Intense positive feelings toward the entrepreneurial role transfer from entrepreneurial role models to individuals through vicarious learning enabling affect diffusion. However, this relationship varies with the extent to which individuals are receptive to entrepreneurial role models, which is affected by an individual's level of LO. That is, individuals with a higher LO have more profound relationships and higher quality exchanges with role models (for example, with their internship supervisor) (Janssen & Van Yperen, 2004), which fosters the transfer of intense positive feelings. Additionally, individuals with a higher LO seek feedback more frequently and, thus, are in a more intense exchange with their social environment including important attachment figures (Payne et al., 2007).

LO also increases the positive effect of entrepreneurial role model experience on the identity centrality dimension of EP. Individuals gain entrepreneurial knowledge by learning vicariously from role models increasing the importance they assign to the entrepreneurial role. This greater importance results in a higher identity centrality. LO considerably affects the relationship between entrepreneurial role model experience and identity centrality, as it influences how effectively individuals learn from role model experience. In fact, LO is a key factor that facilitates transforming experiences into knowledge (VandeWalle, Brown, Cron, & Slocum, 1999), relates positively to individuals' learning performance (Payne et al., 2007; Phillips & Gully, 1997), and results in enhanced knowledge (Bell & Kozlowski, 2002). Moreover, individuals with a higher LO have a greater motivation to learn in general (Klein, Noe, & Wang, 2006). Indeed, they are known to proactively seek information for self-development from their environment (Tan et al., 2016) and seek more feedback from role models, which enhances role clarity (VandeWalle, Ganesan, Challagalla, & Brown, 2000; Whitaker, Dahling, & Levy, 2007). Role clarity about the entrepreneurial role is important as it provides individuals with deeper knowledge about the meanings of such a role (for example, specific tasks of an entrepreneur). Overall, LO varies the influence from entrepreneurial role model experience on identity centrality, as LO facilitates and enhances knowledge accumulation through vicarious learning from entrepreneurial role models which, in turn, leads to

a greater identity centrality of the entrepreneurial role to an individual's self-concept. Hence, we hypothesize:

Hypothesis 3a (H3a): Learning orientation positively influences the relationship between entrepreneurial role model experience and entrepreneurial passion.

We argue that LO positively moderates the influence of direct entrepreneurial experience on EP. The positive influence of direct entrepreneurial experience on the intense positive feelings dimension of EP increases in the presence of greater LO. Direct entrepreneurial experience increases intense positive feelings through deliberate practice during direct learning, as individuals master performing the entrepreneurial role and feel confirmed in engaging in role-related activities. Individuals with a higher LO are more likely to put greater effort into entrepreneurial tasks because such individuals associate higher effort with the opportunity for personal enhancement (Tolentino et al., 2014; VandeWalle, 2003). In fact, when confronted with setbacks (for example, negative feedback) or obstacles, individuals with greater LO put even higher effort into a task and remain persistent in their efforts (Cianci, Klein, & Seijts, 2010; VandeWalle et al., 2001). Further, a higher LO enables individuals to better master new tasks (Tan et al., 2016) and, in turn, to achieve higher task performances (Payne et al., 2007). For example, students with higher LO perform better during their studies (Taing, Smith, Singla, Johnson, & Chang, 2013) while employees with higher LO display better job performance (Chughtai & Buckley, 2010). Overall, these considerations underline that individuals with higher LO display higher effort and mastery in deliberately practicing the entrepreneurial role. Such practice results in higher intense positive feelings toward the entrepreneurial role through achieving progress and feeling verified in the role of an entrepreneur (Gielnik et al., 2014, 2017).

LO also increases the effect of direct entrepreneurial experience on the identity centrality dimension of EP. Direct entrepreneurial experience leads to greater knowledge about the entrepreneurial role, which influences the role's importance in individuals' self-concepts, as more information on the consequences of being an entrepreneur become available. This relationship varies with individuals' LO, as LO benefits the learning process underlying the accumulation of knowledge from direct entrepreneurial experience. In particular, individuals with a higher LO are more motivated to derive knowledge from experiences (Klein et al., 2006; Medina, 2017) and are better able to acquire knowledge on the job through informal learning (Noe, Tews, & Michel, 2017). Additionally, highly learning oriented individuals are more effective in deriving knowledge through direct learning (for example, Payne et al., 2007). Hence, LO

is a key factor driving the effectiveness of gaining knowledge about the entrepreneurial role from direct experience. This knowledge, in turn, determines the identity centrality of the entrepreneurial role to an individual's self-concept. Thus, we hypothesize:

Hypothesis 3b (H3b): Learning orientation positively influences the relationship between direct entrepreneurial experience and entrepreneurial passion.

Methodology

Sample

To empirically validate our research model, we developed a paper-based questionnaire consisting of established measurement scales from prior literature to ensure valid and reliable measures. As our study was conducted in Germany, we used established translation-back-translation techniques to translate the scales from English to German to guarantee linguistic and semantic consistency (Van de Vijver & Hambleton, 1996).

The overall aim behind our data collection process was to ensure a high number of responses. In particular, our empirical analysis includes moderation testing, which requires a rather high number of respondents to achieve adequate statistical power. Statistical power refers to an adequate number of respondents to detect statistically significant relationships in the overall population also in the respective sample. This is particularly relevant in research models that include interaction effects (McClelland & Judd, 1993). Therefore, we approached universities that offer courses for a large number of students. Moreover, to ensure the diligent completion of questionnaires and a high response rate, we approached proximate universities to personally oversee the data collection. To this end, we handed out the questionnaires to students from various disciplines at five German universities (that is, the Universities of Düsseldorf, Duisburg-Essen, Münster, Siegen, and Wuppertal), between June and August 2016. We targeted students from different disciplines to facilitate greater variety regarding the fields of study represented in our sample. This is important as students interested in entrepreneurship come from various disciplines (Bergmann & Golla, 2016).

The final sample consists of $n = 928$ undergraduate and graduate students (on average 22.7 years old, 52.3 percent female): 62.5 percent of the respondents had entrepreneurial role model experience (26.6 percent of the parents and 55.2 percent of other role models such as relatives or friends who had previously started a business), while 33.3 percent had direct entrepreneurial experience (32.1 percent in a small or newly founded firm and 3.8 percent had previously started their own firm).

While we acknowledge the important contributions of previous studies investigating the emergence of EP, our sample differs from those of prior studies. Previous studies surveyed existing entrepreneurs (that is, founders of newly established ventures) (Cardon & Kirk, 2015, n = 129), aspiring entrepreneurs (that is, individuals in the prelaunch phases of their ventures) (Collewaert et al., 2016, n = 112; Gielnik et al., 2014, n = 54), undergraduate business administration students from a university in Singapore (Gielnik et al., 2014, n = 136), or students from different faculties of a university in Nairobi participating in an extracurricular entrepreneurship training program (Gielnik et al., 2017, n = 227). In contrast, our sample includes undergraduate and graduate students from five universities and various disciplines resulting in an overall sample of 928 students, which is comparatively larger and broader (regarding the respondents' fields of study) than previous samples.

Measurement

We adapted this study's measures from established measurement scales based on multi-item measurement. Except for the dimensions of PEX, which were measured with binary items, we used 5-point Likert scales (1 = *strongly disagree* to 5 = *strongly agree*) to evaluate the focal constructs. Table 1 describes the items used to measure the latent variables EP and LO.

Entrepreneurial passion

We measured EP based on the scale by Cardon et al. (2013). The scale distinguishes three different domains of EP (that is, inventing, founding, and developing) representing different elements of the entrepreneurial role. For each domain, we assessed intense positive feelings and identity centrality with domain-specific items. After estimating the validity (inventing: all factor loadings ≥ 0.797; founding: all factor loadings ≥ 0.811; developing: all factor loadings ≥ 0.856) and reliability (inventing: α = 0.842; founding: α = 0.858; developing: α = 0.868) of the items tapping intense positive feelings in each domain, the items were averaged to measure an individual's intense positive feelings for inventing, founding, and developing, respectively. Next, each average for intense positive feelings was multiplied with its respective domain-specific identity centrality item, resulting in an overall score for each domain of EP. Following Hubner and Baum (2017), we then averaged the scores for each domain of EP into one overall passion variable as we examined the effect of PEX on EP as a whole rather than on its domains.

Prior entrepreneurial exposure

Consistent with our theorizing, we assessed two types of PEX: entrepreneurial role model experience and direct entrepreneurial experience (Müller et al.,

Table 1. Measurement items and factor analysis.

Items measuring latent variables		Entrepreneurial passion	Learning orientation
Intense positive feelings			
inv1	It is exciting to figure out new ways to solve unmet market needs that can be commercialized.	0.593	
inv2	Searching for new ideas for products/services to offer is enjoyable to me.	0.654	
inv3	I am motivated to figure out how to make existing products/ services better.	0.607	
inv4	Scanning the environment for new opportunities really excites me.	0.717	
fnd1	Establishing a new company excites me.	0.750	
fnd2	Owning my own company energizes me.	0.779	
fnd3	Nurturing a new business through its emerging success is enjoyable.	0.753	
dev1	I really like finding the right people to market my product/service to.	0.758	
dev2	Assembling the right people to work for my business is exciting.	0.764	
dev3	Pushing my employees and myself to make our company better motivates me.	0.777	
Identity centrality[a]			
inv5	Inventing new solutions to problems is an important part of who I am.	-	
fnd4	Being the founder of a business is an important part of who I am.	-	
dev4	Nurturing and growing companies is an important part of who I am.	-	
lo1	I often read materials (articles, internet, books, etc.) to improve my abilities.		dropped
lo2	I like to take on a challenging task from which I can learn a lot.		0.816
lo3	I often look for opportunities to develop new skills and knowledge.		0.754
lo4	I enjoy challenging and difficult tasks through which I can learn new skills.		0.853
lo5	For me, developing my abilities is important enough to take risks.		0.548
lo6	I prefer to work in situations that require a high level of ability and talent.		0.682

Notes: Principal axis analysis with promax rotation and normalization with Kaiser. Loadings below .2 are not shown. Rotation converged after three iterations.
inv = inventing; fnd = founding; dev = developing; lo = learning orientation.
[a]As a formative construct identity centrality of EP is not part of the factor analysis. Following Cardon et al. (2013) in calculating EP, each average for intense positive feelings was multiplied with its respective domain-specific identity centrality item.

2014; Zapkau et al., 2015). We used the items developed by Krueger (1993) to measure both types of PEX. To this end, we asked respondents whether their parents ever started a business or whether relatives or friends ever started a business (to assess entrepreneurial role model experience). To measure direct entrepreneurial experience, we asked respondents whether they ever worked for a small or newly founded firm and whether they ever started their own business. All PEX items were binary scaled (0 = no; 1 = yes). Next, we calculated sum scores of the respective items for each type of PEX. Hence, the overall sum score for each type of PEX can range from 0 to 2 (Müller et al., 2014).

Learning orientation

To measure LO, we used the scale of VandeWalle (1997). Consistent with De Clercq et al. (2013), we adapted the items to an academic context. The scale displays sufficient validity (all factor loadings ≥ 0.708) and reliability (α = 0.853).

Control variables

To statistically control for alternative explanations for the development of EP, we included several control variables in our empirical model. We included students' age, as older individuals have a wider range of PEX (Autio, Keeley, Klofsten, Parker, & Hay, 2001). In addition, we included a student's field of study as a dummy variable (0 = other; 1 = business administration and economics), as business education has a positive influence on EP (Gielnik et al., 2017). We also controlled for an individual's gender (0 = female; 1 = male), as gender differences in the engagement in entrepreneurship exist (Klyver, Nielsen, & Evald, 2013). Finally, we included dummy variables to control for differences between students from different universities. To this end, we included dummies for the Universities of Duisburg-Essen, Münster, Siegen, and Wuppertal with the University of Düsseldorf being the reference group. Including these control variables enabled us to partial out differences between students from different backgrounds (Cohen, Cohen, West, & Aiken, 2003).

Construct analysis

We applied the criterion by Fornell and Larcker (1981) to assess convergent and discriminant validity. To this end, we conducted a factor analysis with the items measuring the latent constructs of EP and LO. The Kaiser–Meyer–Olkin test (0.905) and Bartlett's sphericity test (p< .000) both suggest that our data is suitable for factor analysis. Table 1 shows the rotated factor matrix with two factors indicating that all items had high factor loadings on their theoretically intended factor while having low cross-loadings on the other factor. Further, we assessed discriminant validity by comparing the average variance extracted (AVE) of EP and LO with their squared interfactor correlation. As the respective AVEs exceeded the squared interfactor correlation, the results suggest sufficient discriminant validity among the latent constructs.

Common method variance (CMV) can be a concern in this study, as the data were collected using a single methodology (that is, paper-based questionnaire) (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Podsakoff & Organ, 1986). To assess CMV, Harman's one-factor test was performed (Podsakoff & Organ, 1986). An exploratory factor analysis with all variables of our analysis resulted in the extraction of three factors with eigenvalues greater than 1, which together accounted for 66.34 percent

of the variance (first factor: 42.56 percent; second factor: 16.70 percent; third factor: 7.09 percent). As no single factor emerged and no factor accounted for the majority of the variance extracted, CMV does not constitute a problem for our findings. Further, our empirical model includes interaction terms, which potentially reduce CMV as, due to their complexity, they go beyond respondents' cognitive maps (Chang, Van Witteloostuijn, & Eden, 2010).

Results

Table 2 shows the means, standard deviations, variance inflation factor (VIF) values, and correlations of the variables in our empirical model. Further, we assessed potential multicollinearity. However, as all correlations were below 0.7 and the VIFs did not exceed the threshold of 2.5, multicollinearity is not a concern (Allison, 1999; Anderson, Sweeney, Williams, Camm, & Cochran, 2014).

We tested our hypotheses using hierarchical linear regression analysis. All empirical analyses were conducted with Stata 15.1. We used mean-centered independent and moderator variables to estimate the interaction terms to facilitate a better interpretation of the results (Dawson, 2014). Table 3 reports the regression results. We estimated six different models to compare model fit and explanatory power between models (Cohen et al., 2003). Model 1 includes only the control variables. The results suggest that being male and being a student from business administration and economics significantly increased EP. Additionally, EP increased with an individual's age. Looking at the university dummies in Model 1, the results suggest that individuals studying at the Universities of Duisburg-Essen and Siegen displayed significantly greater EP. The model's R^2 amounted to 0.106. Model 2 includes all control variables and entrepreneurial role model experience. The latter variable displayed a significantly positive effect on EP ($\beta = 0.203$, $p = .000$). The R^2 of Model 2 was 0.147. Model 3 includes the control variables and direct entrepreneurial experience. The model's R^2 amounted to 0.135. Direct entrepreneurial experience had a significantly positive effect on EP ($\beta = 0.175$, $p = .000$). We note that both independent variables had a significantly positive influence on the dependent variable when entered in separate regression models. Adhering to statistical conventions (for example, Cohen et al., 2003), we took Model 4 into account to test H1 and H2. Model 4 includes all controls, both PEX variables (that is, entrepreneurial role model experience and direct entrepreneurial experience), and also the moderator variable LO. The model's R^2 estimated at 0.273. Supporting H1, entrepreneurial role model experience had a significantly positive influence on EP ($\beta = 0.133$, $p = .000$). Further, direct entrepreneurial experience significantly increased EP as well ($\beta = 0.091$, $p = .002$). This result lends support to H2. Compared to the prior model, Model 5 additionally includes the interaction between

Table 2. Mean values, standard deviations, variance inflation factor values, and correlations.

	Variables	Mean	Standard Deviation	VIF	1	2	3	4	5	6	7	8	9	10	11
1	Entrepreneurial passion	10.41	5.27	-	1										
2	Entrepreneurial role model experience	0.82	0.73	1.10	0.224 **	1									
3	Direct entrepreneurial experience	0.36	0.53	1.14	0.200 **	0.277 **	1								
4	Learning orientation	3.79	0.66	1.06	0.393 **	0.141 **	0.144 **	1							
5	Gender	0.48	0.50	1.05	0.151 **	- 0.016	0.041	0.087 **	1						
6	Age	22.73	3.07	1.12	0.066 *	0.109 **	0.175 **	0.060	0.088 **	1					
7	Field of study	0.69	0.46	1.09	0.239 **	0.054	0.019	0.045	- 0.052	0.024	1				
8	University Duisburg-Essen	0.10	0.30	1.16	0.048	0.012	0.032	- 0.039	0.117 **	- 0.069 *	- 0.171 **	1			
9	University Münster	0.19	0.39	1.25	- 0.035	- 0.022	- 0.023	- 0.046	- 0.025	- 0.091 **	0.186 **	- 0.159 **	1		
10	University Siegen	0.10	0.30	1.17	0.111 **	0.026	0.073 *	0.016	0.083 *	- 0.129 **	0.014	- 0.111 **	- 0.164 **	1	
11	University Wuppertal	0.19	0.39	1.23	0.004	0.012	0.030	- 0.054	- 0.039	0.184 **	0.096 **	- 0.159 **	- 0.235 **	- 0.163 **	1

Notes: n= 928; Pearson correlation (bivariate) with listwise deletion; Significance levels: **: $p \leq 0.01$, *: $p \leq 0.05$.

Table 3. Results of hierarchical regression analysis.

	Variables	Dependent variable: Entrepreneurial passion											
		Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
		ß	*p*-value	ß	*p*-value	ß	*p*-value	ß	*p*-value	ß	*p*-value	ß	*p*-value
	Control variables												
	Constant	4.935		5.958		6.345		7.151		7.135		7.114	
	Gender (0 = female; 1 = male)	0.139	0.000	0.145	0.000	0.137	0.000	0.112	0.000	0.108	0.000	0.105	0.000
	Age	0.064	0.046	0.040	0.206	0.031	0.335	0.013	0.662	0.012	0.686	0.013	0.664
	Field of study (0 = other; 1 = business administration and economics)	0.267	0.000	0.255	0.000	0.264	0.000	0.236	0.000	0.239	0.000	0.240	0.000
	University[a]												
	Duisburg-Essen	0.085	0.012	0.077	0.018	0.073	0.028	0.097	0.001	0.097	0.001	0.098	0.001
	Münster	-0.047	0.180	-0.044	0.192	-0.051	0.133	-0.017	0.592	-0.017	0.597	-0.019	0.537
	Siegen	0.105	0.002	0.096	0.004	0.085	0.011	0.097	0.001	0.098	0.001	0.097	0.001
	Wuppertal	-0.009	0.798	-0.007	0.826	-0.014	0.678	0.025	0.431	0.026	0.400	0.023	0.456
	Direct effects												
H1	Entrepreneurial role model experience			0.203	0.000			0.133	0.000	0.133	0.000	0.131	0.000
H2	Direct entrepreneurial experience					0.175	0.000	0.091	0.002	0.087	0.004	0.079	0.009
	Moderator variable												
	Learning orientation							0.343	0.000	0.342	0.000	0.342	0.000
	Two-way interaction												
H3a	Entrepreneurial role model experience x learning orientation									0.059	0.039		
H3b	Direct entrepreneurial experience x learning orientation											0.071	0.013
	Model fit												
	R^2	0.106		0.147		0.135		0.273		0.276		0.278	
	Adjusted R^2	0.099		0.139		0.128		0.265		0.267		0.269	
	ΔR^2			0.041[b]	0.000	0.029[b]	0.000	0.167[b]	0.000	0.003[c]	0.039	0.005[c]	0.013
	F	15.598	0.000	19.748	0.000	17.968	0.000	34.374	0.000	31.752	0.000	31.989	0.000

Notes: $n = 928$

[a]Reference group is University of Düsseldorf.

[b]Compared to Model 1.

[c]Compared to Model 4.

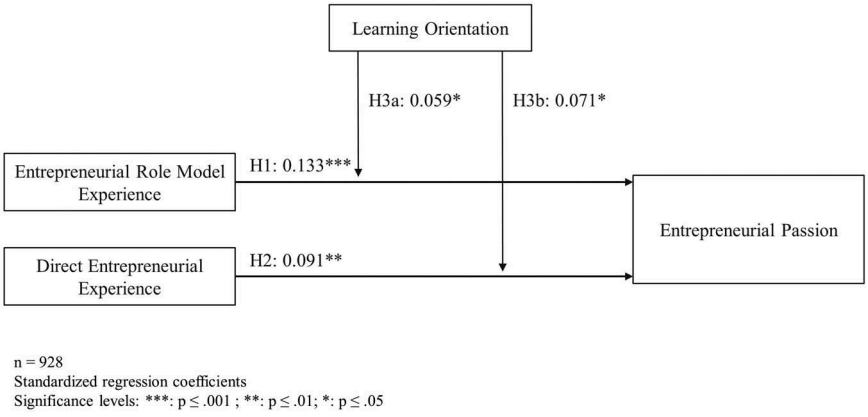

Figure 2. Results of hypotheses testing.

entrepreneurial role model experience and LO, whereby the R^2 increased to 0.276. H3a was supported, as the interaction term's standardized regression coefficient was positive and significant ($\beta = 0.059$, $p = .039$). Finally, Model 6 includes the interaction between direct entrepreneurial experience and LO. The model's R^2 amounted to 0.278 and the interaction term's standardized regression coefficient was positive and significant ($\beta = 0.071$, $p = .013$). This result provides support for H3b. Figure 2 graphically summarizes our findings.

To further explore the significant interaction effects, we plotted the above results. By this, we avoided overstating the findings from the hierarchical regression analysis by assessing whether the statistical significance of the interaction terms was consistent across different values of the moderator variable (Kingsley, Noordewier, & Bergh, 2017). To this end, Figure 3 visualizes the marginal effect of entrepreneurial role model experience on EP and the associated 95 percent confidence intervals at different levels of the moderator LO. Consistent with our theorizing, the marginal effect of entrepreneurial role model experience on EP increased with greater values of LO. However, the marginal effect was statistically positive only for medium to high levels of LO (to the right of Point A) and insignificant otherwise (because the respective confidence intervals include zero). This finding extends the result from the hierarchical regression analysis and suggests that H3a is supported only for medium to high levels of LO. Next, we plotted the interaction between direct entrepreneurial experience and LO. To this end, Figure 4 displays the marginal effect of direct entrepreneurial experience on EP and the respective 95 percent confidence intervals across different levels of the moderator LO. Figure 4 also shows that, for medium to high levels of LO, the marginal effect was statistically significant. Thus, the results partially support H3b with the moderating effect being contingent on medium to high levels of LO (to the right of Point A).

We conducted a robustness check to assess whether EP causes LO. Following established procedures in nonexperimental research settings (for example, Antonakis, Bendahan, Jacquart, & Lalive, 2010, 2014), we conducted a two-stage least squares (2SLS) estimation (Cameron & Trivedi, 2005). The 2SLS approach relies on an instrumental variable which is an exogenous regressor of the potentially endogenous variable (that is, LO) and needs to be uncorrelated with the model's error term (that is, not constitute

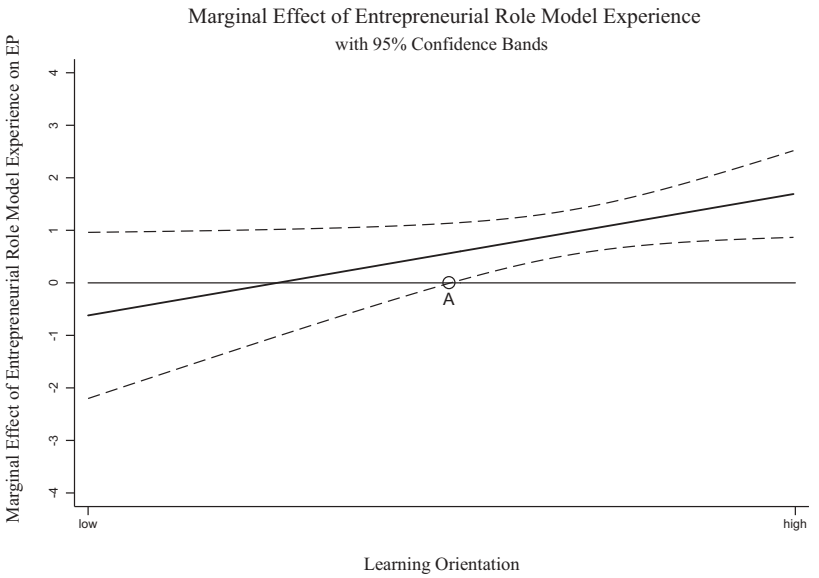

Figure 3. Interaction: Entrepreneurial role model experience and LO.

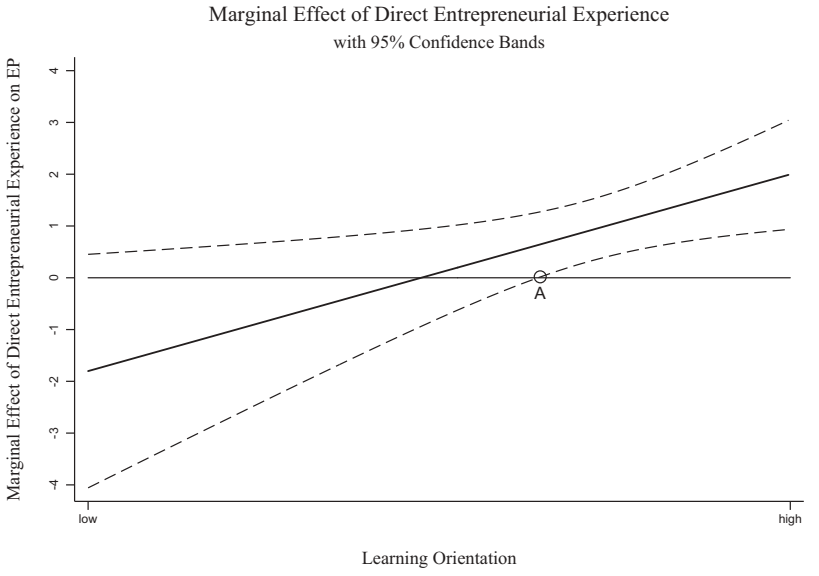

Figure 4. Interaction: Direct entrepreneurial experience and LO.

a direct predictor of EP). We employed "conscientiousness" (that is, the personality trait of being diligent or careful (Norman, 1963)) as such an instrument. Consistent with prior literature, we considered conscientiousness as an antecedent of LO (for example, Matzler & Mueller, 2011; Sorić, Penezić, & Burić, 2017). We measured conscientiousness with three items from the German version of the Big Five inventory scale (Gerlitz & Schupp, 2005). Prior to estimating the 2SLS regressions, we confirmed through linear regression that conscientiousness does not directly influence EP when controlling for LO (p = .147). In the first stage of the 2SLS approach, we used conscientiousness to estimate LO and find a positive and statistically significant influence (p = .000). Further, the first stage model's value for the F-statistic (F = 18.23) exceeded the threshold of 10 (Stock, Wright, & Yogo, 2002). In the second stage, we used the predicted values of LO from the first stage as predictor of EP. The results are fully consistent with our original regression estimates: The instrumented version of LO (p = .000) as well as entrepreneurial role model experience (p = .000) and direct entrepreneurial experience (p = .013) each had a statistically significant and positive influence on EP. Lastly, we performed the Hausman (1978) test to compare the 2SLS estimates with the linear regression estimates obtained without instrumenting. The nonsignificant difference (p = .996) between both models provides further credibility to our empirical results.

Discussion

The present study examined the relationships between entrepreneurial role model experience (that is, vicarious learning) as well as direct entrepreneurial experience (that is, direct learning) and EP as well as the moderating effect of LO on these relationships. We found that both types of PEX enhance individuals' EP. Further, LO increases these positive effects; however, only for individuals with medium to high levels of LO. Overall, our results provide new learning-based insights on the development of EP and offer opportunities for future research on the development of EP and beyond.

As a first contribution, our study advances the understanding of how individuals develop EP by integrating theoretical rationale from social learning theory into the (entrepreneurial) passion literature. Our theoretical model predicted that entrepreneurial role model experience influences the affective (that is, intense positive feelings) and identity-related (that is, identity centrality) dimension of EP through distinct vicarious learning mechanisms (that is, affect diffusion and an increase in knowledge about the entrepreneurial role obtained through role models). Further, we theorized how direct entrepreneurial experience influences both dimensions of EP through distinct direct learning mechanisms (that is, deliberate practice and an increase in knowledge about the entrepreneurial role from direct

experience). Accounting for both dimensions of EP advances prior research by providing a more fine-grained perspective of the antecedents of EP, as most studies have not developed separate mechanisms for each dimension. As an exception, Collewaert et al. (2016) distinguished between the two dimensions of EP, but suggest that identity centrality of the entrepreneurial role is stable in the venture's founding phase. In contrast, we examined individuals at an earlier stage of life and argue that both EP dimensions may change. Early exposure to entrepreneurship (for example, through entrepreneurial role models) affects individuals' socialization processes (Gibson, 2004; Schmitt-Rodermund, 2004) and, in turn, changes the identity centrality of the entrepreneurial role. In fact, during this phase individuals attribute different importance to roles within their self-concept (Stryker & Burke, 2000). Thus, we extended prior research by accounting for early exposure to entrepreneurship affecting the identity development of individuals.

A few other studies acknowledge the importance of early exposure to entrepreneurship in the development of EP. However, these studies account for the influence of PEX by integrating role model experience or direct entrepreneurial experience as control variables and did not develop specific theoretical rationale (Dalborg & Wincent, 2015; Gielnik et al., 2014). More recently, Lyons, Lynn, and Mac an Bháird (2016) suggest a positive effect of prior founding experience on EP but, contrary to our results, did not find a significant influence of entrepreneurial role model experience on EP. One reason for this finding might be that they tested their hypotheses in a different cultural setting (that is, Ireland, which differs from Germany especially regarding its entrepreneurial ecosystem (GEM, 2017a, 2017b)). Thus, future scholarship may integrate the influence of a country's (entrepreneurial) culture when further investigating the influence of PEX in the emergence of EP.

While our study advances the understanding of the role of PEX in the emergence of EP in general, a promising avenue for future research would also be to investigate which more specific types of entrepreneurial experience (beyond role model experience and direct experience) lead individuals to develop EP (for example, experience in the acquisition of startup funding or collaboration in entrepreneurial teams). In the same vein, besides a more fine-grained distinction of prior experiences, more differentiated types of passion (for example, passion for growth, passion for a social mission (Cardon, Glauser, & Murnieks, 2017)), or EP's subdimensions (that is, passion for founding, inventing, developing (Cardon et al., 2009b)) warrant attention. Thus, future research could account for more differentiated prior entrepreneurial experiences in combination with more specific types of passion to investigate whether different types of experience (for example,

experience with social enterprises) lead to the respective type of passion (for example, passion for a social mission).

Some scholars distinguish between harmonious and obsessive passion (Mageau et al., 2009; Vallerand & Houlfort, 2003). In the context of entrepreneurship, Thorgren and Wincent (2015) suggest that habitual entrepreneurs display highly obsessive passion, whereas portfolio entrepreneurs display highly harmonious passion for entrepreneurial activities. This notion suggests that the extent of prior founding experience plays an important role when distinguishing between harmonious and obsessive passion. Thus, future scholarship may analyze how exactly harmonious and obsessive passion develop from PEX. Another promising avenue may be to consider why individuals engage in entrepreneurship in the first place. Entrepreneurs are not a homogenous group, but fall into opportunity- and necessity-driven entrepreneurs (Block & Sandner, 2009; Block & Wagner, 2010). Such a differentiation is important, as individuals who engage in entrepreneurship voluntarily are more likely to experience harmonious passion (Mageau et al., 2009; Vallerand et al., 2003). Conversely, individuals who engage in entrepreneurship out of external pressures (for example, a lack of other employment opportunities) are more likely to develop obsessive passion, as they perceive engagement in entrepreneurial activities as mandatory (Mageau et al., 2009; Vallerand et al., 2003). Future research might investigate these complexities in greater detail using samples from the general population that allow for differentiating between opportunity- and necessity-driven entrepreneurial experience. Our sample consists of students who are more likely to become opportunity-driven entrepreneurs, as necessity-driven entrepreneurs are usually older and have fewer human capital (Block et al., 2015).

Entrepreneurial role models themselves can display harmonious or obsessive passion, which may influence how individuals vicariously learn from such role models and, ultimately, the emergence of EP. To enable affect diffusion, entrepreneurial role models need to display affective reactions while engaging in the entrepreneurial role (Cardon, 2008). Harmonious passion is predominantly associated with the display of positive affect (Vallerand et al., 2003), whereas having high levels of obsessive passion induces negative affect (Vallerand, 2010; Vallerand et al., 2008). Thus, obsessive entrepreneurial role models displaying negative affective reactions may hamper vicarious learning by preventing the contagion of intense positive feelings to individuals. Overall, we expect the type of passion (that is, harmonious/obsessive) displayed by an entrepreneurial role model to act as a boundary condition of the relation between entrepreneurial role model experience and EP by affecting the efficiency of vicarious learning.

Our research makes a second contribution by contextualizing the relationship between PEX and EP through integrating and empirically testing the moderating influence of LO. Our results suggest that LO positively moderates

the relationships between entrepreneurial role model experience as well as direct entrepreneurial experience and EP for medium to high levels of LO. Thus, our findings underline the importance of learning from entrepreneurial experiences in order for EP to develop. Previous studies on the boundary conditions of EP's development also emphasize the importance of individuals' learning from experiences. For example, Collewaert et al. (2016) emphasize the importance of seeking feedback from the environment to master the entrepreneurial role and to clarify changing expectations tied to the role of an entrepreneur. In turn, feedback-seeking behavior acts as a boundary condition in maintaining intense positive feelings for the role of an entrepreneur.

As our research identifies LO as an important contextual factor in the development of EP, future research may also integrate additional goal orientations besides LO to explore the emergence of EP. Such a contextualization is important as goal orientations affect the learning behavior of individuals (Dweck, 1986). For example, performance orientation, which entails that individuals want to demonstrate their competence and hence avoid challenging tasks and negative feedback (Brett & VandeWalle, 1999), may also affect the relationship between PEX and EP. Accounting for additional goal orientations offers opportunities to further explore differences in how individuals respond to learning opportunities in the course of their experience leading to the development of EP.

Limitations and implications

Our study is not without limitations. First, the empirical analysis grounds on cross-sectional data. Thus, we cannot draw conclusions concerning the dynamic long-term development of EP. Hence, this study reiterates calls that research on EP would benefit from longitudinal data to obtain a more complete picture on the dynamic development of EP over time (Collewaert et al., 2016). Another methodology to gather experiences of individuals over longer time periods is the experience sampling methodology, which entails that individuals periodically prepare reports of their thoughts and behaviors (Cardon & Kirk, 2015; Uy, Foo, & Aguinis, 2010). Employing experimental designs would also enable researchers to provide further evidence for the causality of the relationship between PEX and EP.

Second, while valuable for studying the emergence of passion in a broad sample at an early stage of life, there are certain limitations to our student sample. That is, prior research in the entrepreneurship context suggests that students differ from the overall population (Haus, Steinmetz, Isidor, & Kabst, 2013; McGee, Peterson, Mueller, & Sequeira, 2009; Zapkau et al., 2017). Further, all students in our study were from Germany, which limits the generalizability of our results. Additionally, even though the sampled

students came from different universities and disciplines, business administration and economics students are overrepresented (relative share equals 68.6 percent). However, graduate students study in fact on a broad range of topics such as accounting, competition economics, marketing, or public finance, while undergraduates follow more general programs in business administration and economics, which are also not specifically focused on entrepreneurship. Thus, most of the business administration and economics students (and, of course, the students from other disciplines) are unlikely to be already inclined to become entrepreneurs in the future. However, future research may benefit from replicating our study with other samples, such as employees, to obtain a deeper understanding of potential differences in an even more general population.

Further, our results suggest that students from some universities develop greater EP, whereas studying at other universities does not affect EP. Thus, investigating how an individual's environment either supports or constrains entrepreneurial aspirations in general (Rotefoss & Kolvereid, 2005) and EP in particular opens interesting research avenues. More specifically, considering differences in universities' entrepreneurial ecosystems (that is, all elements that collectively support entrepreneurial activity in universities such as student incubators) or more general regional differences may provide additional insights on variations in EP. Indeed, different elements of universities' entrepreneurial ecosystems such as student's involvement in entrepreneurship-related activities (for example, business plan competitions) influence students' entrepreneurial ambitions (Fetters, Greene, Rice, & Butler, 2010; Morris, Shirokova, & Tsukanova, 2017). On a more general level, regional differences such as a high rate of new firm formation also influence the propensity to become an entrepreneur as it indicates a positive climate for entrepreneurship (Wagner & Sternberg, 2004).

In addition, future research might also look at the dynamic long-term development of EP starting at an early age of individuals, as EP may change as individuals mature. Indeed, middle and high school students represent a valuable group to obtain a better understanding of how early life experiences spark interest in entrepreneurship (Do Paço, Ferreira, Raposo, Rodrigues, & Dinis, 2011; Falck & Woessmann, 2013). Applying a social learning perspective to such a sample would enable a better understanding of how early life exposure to entrepreneurial role models affects the development of EP.

Third, extant research shows the importance of accounting for the perceived quality of PEX in the development of entrepreneurial intention (Krueger, 1993; Zapkau et al., 2015). Individuals with entrepreneurial role models may perceive such an experience as positive or negative. Thus, we encourage future research to investigate if the relationship between PEX and

EP depends on the perceived quality of experience (for example, negative or positive).

This study also has practical implications for practitioners and support institutions aiming to spark EP in students. The study reveals that PEX in the form of entrepreneurial role model experience and direct entrepreneurial experience positively influences EP. One interesting way to offer such an entrepreneurial role model experience is, for example, through narrative storytelling, during which entrepreneurs offer inspiring insights into their own founding experiences (Fellnhofer, 2017). Moreover, governments can enhance the awareness about entrepreneurial role models through publicly advertising successful entrepreneurs (Engle, Schlaegel, & Delanoe, 2011). Further, encouraging direct entrepreneurial experience also promotes EP, which offers promising opportunities to enhance EP. Through offering entrepreneurship trainings to students (Gielnik et al., 2017) (for example, business simulations), integrating internships in the curriculum, or establishing startup counseling services, universities can foster entrepreneurship. Scholars even suggest going beyond mere entrepreneurship simulations and trainings and rather include actual business founding in the curriculum (Donnellon, Ollila, & Middleton, 2014; Middleton & Donnellon, 2014). Moreover, to support students in developing and acknowledging an entrepreneurial role, Krueger (2003) suggests encouraging students to write about their experiences in the form of reflective papers. This way, students become more aware of their experiences and feel encouraged to reflect about their entrepreneurial role identities.

In addition to PEX, enhancing LO also offers an opportunity for practitioners and support institutions to foster EP, as LO can enhance individuals' different learning outcomes from entrepreneurial experience. Measures to advance LO include, for example, providing students with a positive learning environment (Brett & VandeWalle, 1999; VandeWalle, 2001) and positive feedback (Sujan, Weitz, & Kumar, 1994). Moreover, providing courses that emphasize that skills can be learned, and that even setbacks are a valuable source of learning, foster a more learning-oriented mind-set (Lee & Paunova, 2017).

Finally, increasing students' EP by providing them with PEX or enhancing their LO not only influences the entrepreneurial intention of students in the long run (De Clercq et al., 2013), but also has positive implications on firm-level outcomes (such as innovations) should students become managers (Strese, Keller, Flatten, & Brettel, 2018). Our results provide confidence that the proposed measures will result in a more positive climate for entrepreneurship overall.

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