Are Interactions Between Need for Achievement and Social Networks the Driving Force Behind Entrepreneurial Intention? A Trait Activation Story

Abstract

Entrepreneurial intention plays a key role in entrepreneurship. Over the years, scholars have explained it using personality traits, cognitive models and, to a lesser extent, the role of social environment. Since this role has been underestimated, we build on trait activation theory to explore how social networks are especially relevant and can trigger the activation of individuals' need for achievement to predict entrepreneurial intention. We test our hypotheses on a sample of 597 university students from Spain using partial least squares (PLS). Our results confirm that social network size positively influences the entrepreneurial information obtained in social networks, which in turn, positively impacts entrepreneurial intention. Additionally, we found that need for achievement is activated in the context of social networks, enhancing the influence of this information on entrepreneurial intention. Through fuzzy-set qualitative comparative analysis (fsQCA), we also identify alternative configurations of the previous variables that lead to greater entrepreneurial intention.

1. Introduction

Entrepreneurial intention, defined as the desire to start a firm (Krueger, Reilly, & Carsrud, 2000), is often considered an important factor of actual involvement in the creation of new firms (Kautonen, Van Gelderen, & Fink, 2015). Traditionally, entrepreneurial intention has been studied through personality trait approaches (Rauch & Frese, 2007), assuming that personality traits are good predictors of entrepreneurship (e.g., Rauch & Frese, 2000; Karabulut, 2016). The motivation to start a firm was originally

conceptualized as deriving from individuals' need to excel, achieve, and to strive for success in their social environment (McClelland, 1961). Since then, research has sought to demonstrate whether this personality trait, commonly referred to as need for achievement, could be used to define entrepreneurs and whether it might shape their entrepreneurial intention (Koh, 1996; Krueger, Reilly, & Carsrud, 2000). Unfortunately, the initially promising results concerning the positive impact of need for achievement on individuals' intention to start a firm (e.g. Johnson, 1990; Hansemark, 1998; Gürol and Atsan, 2006) soon gave way to considerable doubts regarding the role played by need for achievement in the start-up phase (Rauch & Frese, 2007). This suggests that the relationship between need for achievement and entrepreneurial intention is one that still demands exploration and that it could benefit from the application of new theoretical approaches (Carsrud & Brannback, 2014).

Scholars have also studied entrepreneurial intention through different cognitive models such as the theory of planned behavior (Ajzen, 1991) and entrepreneurial event model (Shapero & Sokol, 1982), demonstrating that entrepreneurial intention depends on the personal attractiveness of starting a business (perceived desirability) and the degree to which one feels personally capable of starting a business (perceived feasibility) (Krueger et al., 2000). Although very informative, this stream of research has produced divergent and inconclusive results (Biraglia & Kadile, 2017; Liguori, Bendickson & McDowell, 2018). One possible reason is that the study of entrepreneurial cognition and intention should also consider the social environment when aiming to provide a better explanation of entrepreneurial activity (De Carolis & Saparito, 2006; De Carolis, Litzky, & Eddleston, 2009; Foo, Knockaert, Chan, & Erikson, 2016). Not surprisingly, over the last few years, entrepreneurship research has considered the relationship between social environment and entrepreneurial intention (e.g. Santos, Roomi, & Liñán, 2016; Zapkau, Schwens,

Steinmetz, & Kabst 2015; Pfeifer et al., 2016; Schmutzler, Andonova, Diaz-Serrano, 2019). These studies mainly propose an indirect influence of the social environment on entrepreneurial intention, especially through the three cognitive antecedents of the theory of planned behavior (i.e., attitude toward entrepreneurship, perceived behavioral control of entrepreneurship, and social norms toward entrepreneurship) (Ajzen, 1991) or other related concepts such as entrepreneurial self-efficacy and entrepreneurial outcome expectation (Liguori et al., 2018). However, merely considering the indirect role of the social environment might mean that its influence on entrepreneurial intention can be seen as less important than the influence of personal and cognitive factors.

To overcome the limitations of previous literature, we begin by moving away from the assumption that entrepreneurial intention primarily stems from individuals' characteristics (e.g., personality traits and cognitive antecedents) and move towards a more situated understanding of intention as a cognitive process that emerges from individuals' interplay with their social environment (Donaldson, Liñán, & Alegre, 2021 2021; Mitchell, Randolph-Seng, & Mitchell, 2011). Indeed, there is growing awareness that how individuals interact and exchange information with other individuals within their social networks can boost the discovery, evaluation, and exploitation of entrepreneurial opportunities (De Carolis & Saparito, 2006; Corbett, 2007). This does not mean that what individuals want no longer counts in our understanding of entrepreneurial intention. We simply argue that their motives for entrepreneurship cannot lie solely in their "head", because they are expressed in the interaction of an individual's brain with their material and social world before being manifested in the willingness to start a firm (Dew et al., 2015). Indeed, entrepreneurship is the nexus between promising opportunities and enterprising individuals (Shane & Ventakaraman, 2000). In other words, it emerges from

the interaction between personal as well as situational factors (Hodgetts & Kuratko, 2001).

Through this paper, we aim to join this conversation and offer a new understanding of entrepreneurial intention by considering that this intention not only depends on individuals' personal characteristics but is also situated in the social environment. We argue that it is the exchange of information and interaction within social networks that can shape entrepreneurial cognition. However, we do continue to consider the individual's relevance in the process of intention formation by integrating the role of need for achievement in the situated cognition approach. We build on trait activation theory to explain these mechanisms (Tett & Gutterman, 2000). This theory explains that personality traits are manifested when the social environment activates them (Tett & Burnett, 2003). When the social environment is favorable and motivates entrepreneurial activity, individuals' need for achievement is likely to be expressed, and this interaction predicts greater entrepreneurial intention (Foo et al., 2016; Rauch & Frese, 2007).

Within the social environment, social interactions offer ample opportunities for individuals to express their traits (Tett, Simonet, Walser, & Brown, 2013; Tett, Toich, & Ozkum, 2021). Accordingly, we focus on social networks as a crucial representation of an individual's social environment, since individuals are connected through social relationships to these networks (Hoang & Antoncic, 2003). In addition, social networks are important for entrepreneurship (Jack, 2010) because entrepreneurs' ability to obtain value from their social networks is a vital element in the accumulation of resources for their entrepreneurial activity (Kodithuwakku & Rosa, 2002). To make better sense of individuals' interaction with their social networks, we distinguish between the nature of social networks and the resources derived from them (Gedajlovic et al., 2013). Specifically, we first hypothesize that larger social networks allow individuals to obtain

more entrepreneurial information. We then hypothesize that the entrepreneurial information obtained in social networks helps develop entrepreneurial intention. Finally, since need for achievement - together with both belonging to a social group (Wainer & Rubin, 1969) and enjoying being with others (Decker, Calo, & Weer, 2012) - explains entrepreneurship, we use trait activation theory to propose that need for achievement alters the hypothesized relationships. Individuals with a high need for achievement will obtain more entrepreneurial information in large social networks. Furthermore, these individuals will have greater entrepreneurial intention when involved in social networks that are supportive to entrepreneurship in terms of information. We test our hypotheses on a sample of 597 university students from Spain.

Our study offers several contributions. First, we extend the literature on entrepreneurial intention by showing how the social environment (social networks) activates a person's trait (need for achievement), which finally contributes towards developing entrepreneurial intention among individuals. In so doing, we respond to recent calls to explore new or alternative models that capture both environmental and personal factors in an effort to extend current understanding of entrepreneurial intention (Liguori et al., 2018). We address this issue drawing on trait activation theory, which has rarely been applied to entrepreneurial intention to explain how the individual-environment nexus predicts entrepreneurial intentions (Foo et al., 2016). Second, we explain how both the nature and the resources obtained from social networks promote entrepreneurship. Specifically, we consider that social network size helps to obtain social network entrepreneurial information which, in turn, positively influences entrepreneurial intention. In this sense, our study contributes to the limited research regarding the mechanisms through which social networks can exert their influences on individuals' behavior (Anderson, 2008). Third, we contribute to providing a different understanding

of the role played by need for achievement in entrepreneurship. We show that when individuals interact within certain social environments to form their entrepreneurial intention this personality trait acts as a boundary condition to the strength of this relationship, rather than directly influencing entrepreneurial intention (Frank, Lueger, & Korunka, 2007; Stewart & Roth, 2007). Finally, through fsQCA, we discover alternative configurations that lead to high entrepreneurial intention, which consist of the joint influence of social networks, need for achievement, and control variables. We thus follow recent research (Rasoolimanesh, Ringle, Sarstedt, & Olya, 2021) that advocates the joint use of PLS and fsQCA to identify and explore more fine-grained insights into variable relationships and heterogeneity in the outcome variables.

2. Theoretical background

Trait activation theory is a person–situation interaction model based on the assumptions that personality traits are latent propensities to behave in certain ways and are expressed as responses to trait-relevant situational cues (Tett et al., 2013). Specifically, this theory assumes that when there are situational cues which are relevant to the trait, the trait is activated, and individuals engage in behaviors according to what the trait predicts (Tett & Guterman, 2000). As such, trait activation theory shows the potential to serve as a framework for integrating research on individual–environment interactions in explaining different behaviors (Tett et al., 2013). In addition, the theory identifies social-level cues that are relevant to activate the trait (Tett & Burnett, 2003). Among these social-level cues, interactions in social networks may allow individuals to express their personality traits (Hirst, Van Knippenberg, Chen, & Sacramento, 2011; Tett et al., 2013): that is,

individuals depend on their personality traits when interacting with social networks (Asendorpf & Wilpers, 1998).

Trait activation theory has received attention within entrepreneurship research and has shown how the environment can activate different personality traits in order to influence entrepreneurship. For example, Foo et al. (2016) highlights the vital role played by work and family environments for high promotion focus individuals in terms of influencing the entrepreneurial intention of academic scientists, following the idea of individual–environment nexus. Furthermore, Foo, Uy, & Baron (2009) prove that affective traits are important in the relationship between affective states and venture efforts for nascent entrepreneurs. Trait activation theory thus seems appropriate for studying different entrepreneurial processes that aim to integrate social environment and personality. Accordingly, we apply trait activation theory to explain the interaction between social networks, need for achievement, and entrepreneurial intention.

Prior research has studied the relationship between social environment and entrepreneurial intention. For example, entrepreneurial intention has been related to closer and social valuation (Liñan, Urbano, & Guerrero, 2011; Santos et al., 2016), parental and inspiring role models (Zapkau et al., 2015; Nowinski & Haddoud, 2019), family and prior entrepreneurial exposure (Pfeifer et al., 2016; Liguori et al., 2018), and knowing a nascent entrepreneur (Schmutzler et al., 2019). Most of these studies have found an indirect relationship between social environment and entrepreneurial intention (e.g. Santos et al., 2016; Zapkau et al., 2015; Pfeifer et al., 2016), drawing on Bandura's theories of social learning (1977) and social cognitive theory (1986) as well as other related theories, such as social cognition theory (Fiske & Taylor, 1984) and social cognitive career theory (Lent, Brown & Haccket, 2002).

Within social environment, social networks are an essential element of entrepreneurship in that they influence entrepreneurial activity (Hoang & Antoncic, 2003; Jack, 2010). For instance, preexisting contacts provide resources during the start-up phase (Aldrich, Rosen, & Woodward, 1987; Greve & Salaff, 2003). These social relationships are also important earlier on, when developing the willingness to start up (Bonesso, Gerli, Pizzi, &, Cortellazo, 2018). To better explain the importance of social networks in entrepreneurship, existing research distinguishes between social networks in terms of network structure and network content (Hoang & Antoncic, 2003) as well as resources and the nature of the relationships that allow those resources to be obtained (Gedajlovic et al., 2013). Building on this, we also differentiate between social network size and the entrepreneurial information obtained in social networks. The former represents the nature/structure of relationships and is defined as the number of links between one individual and other individuals (Hoang & Antoncic, 2003). The latter represents the resources/content obtained through social networks and refers to how access to social networks allows individuals to receive and discuss valuable pieces of information that lead them to identify and screen opportunities, which affects how easily these individuals may create new ventures (Burt, 1992; Arenius & De Clercq 2007).

As regards social networks, previous literature has recognized the important role that an individual's personality and ability may play in acquiring social network benefits and outcomes (Burt, 1992; Emirbayer & Goodwin, 1994; Riley & Eckenrode, 1986). Because social interactions are important situations if a trait is to be expressed (Tett et al., 2013; 2021), we consider that need for achievement is activated in the context of social networks when developing entrepreneurial intention. Recognized as a primary component of conscientiousness from the five-factor model of personality (Mount & Barrick 1995), analysis thereof within performative contexts has shown that individuals with high need

for achievement are more likely than low need for achievement individuals (e.g., McClelland, 1961) to participate in activities that require planning for the future, that offer high degrees of control over outcomes, and that involve personal responsibility and feedback on performance. Prior research has already considered that these characteristics of need for achievement tie in with entrepreneurial activity (Frank et al., 2007) and entrepreneurs (Stewart & Roth, 2007). In addition, achievement motives are likely to be related to social motives in general (McClelland, 1985) and when explaining entrepreneurial behavior (Carsrud & Brannback, 2014). Accordingly, we assume that social networks allow individuals to manifest their need for achievement, intensifying the effects of these networks on entrepreneurial intention. We now set out our hypotheses.

3. Hypotheses development

One key variable of social networks for entrepreneurship is size, because the number of links between one individual and others (Hoang & Antoncic, 2003) is positively related to the foundation of new firms (Aldrich, et al., 1987; Burt 1992). Following the explanation about social networks provided by Gedajlovic et al., (2013), we assume that this influence of social network size is not directly exerted on entrepreneurship. This is because the characteristics of social networks which result from social relationships (e.g. social network size) provide social network benefits, such as access to information and advice (Hoang & Antoncic, 2003) that are used to facilitate action (Adler & Kwon, 2002). Entrepreneurs can thus extend their networks to obtain essential resources such as the information (Greve & Salaff, 2003) required to engage in entrepreneurial activity (Dubini & Aldrich, 1991). When an individual needs relevant information, a greater number of contacts makes it more likely that one of these contacts will possess it (Burt, 1992), given that each tie an actor possesses represents one potential information channel. Indeed,

previous research has shown that network size influences managers' network information benefits (Anderson, 2008). We expect this to be similar for entrepreneurs. Thus, we propose that:

H1: The greater the social network size, the greater the entrepreneurial information obtained in social networks.

One crucial activity in the early stages of entrepreneurship is accessing different resources, including information and knowledge (Baron, 2008). Indeed, previous literature has considered that prior information helps individuals to identify entrepreneurial opportunities (Shane & Venkataraman, 2000). This means that individuals could use networks to glean ideas and obtain information that can help them recognize entrepreneurial opportunities (Birley, 1985). This happens because the wide range of information obtained through their social networks leads them to weigh up ideas they had not previously considered (Hills, Lumpkin, & Singh, 1997). Furthermore, since information may improve an individual's belief in their ability to accomplish different tasks related to entrepreneurship (Martin, McNally, & Kay, 2013), information obtained in social networks allows individuals to feel they have greater control when engaging in entrepreneurial behavior (De Carolis et al., 2009). The information obtained in social networks thereby increases individuals' perceptions that they can achieve the anticipated outcomes, making the new entrepreneurial opportunity more attractive (De Carolis & Saparito, 2006). Given these arguments, we propose that:

H2: The greater the amount of entrepreneurial information obtained in social networks, the greater the entrepreneurial intention.

Over the last few decades, researchers have widely studied the personality trait of need for achievement in entrepreneurship (Rauch & Frese, 2007; Stewart & Roth, 2007).

However, trait activation theory considers that when examining a given trait and its relationships with targeted outcomes, it is important to do so in trait-relevant situations (Tett et al., 2021). Within these situations, social interactions offer ample opportunities for individuals to express their traits (Tett et al., 2013; 2021). Although previous research has considered the role played by need for achievement in social relationships (Urdan & Maehr, 1995), a better understanding of need for achievement can be gained by extending achievement theory to include social processes (Blumenfeld, 1992). Thus, we consider that need for achievement can intervene in the context of social networks.

We hypothesize that network size helps to determine individuals' access to information channels (Anderson, 2008). However, Burt (1998) pointed out that the possibilities which emerge in social networks do not necessarily materialize, and that some individuals cannot pursue the information benefits potentially derived from social networks. Therefore, personality can also play a significant role. Following on from this, individuals who have large social networks and performance goals will be more likely to pursue more resources from those social networks (Wentzel, 1989). Based on trait activation theory, when dealing with social networks, individuals with high need for achievement are more likely to activate this trait and to find themselves motivated to derive as many social resources as they can, such as social network entrepreneurial information, since these resources will probably enable them to attain their goals. The overall argument is that while social network structure provides the possibility of accessing information, personality trait (i.e., need for achievement) helps to determine whether individuals finally acquire more possible benefits from those social networks (Anderson, 2008). Similarly, consistent with arguments of trait activation theory (Tett et al., 2013), previous research has already found that need for cognition - a personality trait related to the extent to which individuals are inclined towards effortful cognitive activities - interacts with

social network size to gather more social network information for managers (Anderson, 2008). Considering this, together with the importance of need for achievement for entrepreneurial individuals (Rauch & Frese, 2007; Stewart & Roth, 2007), we propose that:

H3: Need for achievement moderates the relationship between social network size and the entrepreneurial information obtained in social networks such that the greater the need for achievement the greater the benefits obtained from social networks.

Previous research has considered that personality trait is a moderator to explain the information benefits of social networks as an underlying causal mechanism (Anderson, 2008). Research has also considered that both information and personality trait may play a role in recognizing opportunities and in the subsequent feasibility checks that individuals perform before concluding that they have recognized an opportunity to create a viable new venture (Ardichvili Cardozo, & Ray, 2003). Based on this, and on trait activation theory (Tett & Burnett, 2003), it is possible to state that the activation of specific personality traits could help individuals benefit from the entrepreneurial information derived from social networks, thereby increasing entrepreneurial intention. Drawing on the idea that entrepreneurship is the nexus between the existence of both enterprising individuals and opportunities in the environment (Shane & Ventakaraman, 2000), previous scholars have argued that, in order to take advantage of the possibilities afforded by social networks for entrepreneurship, such possibilities must not only exist but that individuals must also possess a personality that is consistent with them (Adler & Kwon, 2002). More specifically, previous research has found that the interaction of need for achievement and need for participating and belonging within a social group is important for successful entrepreneurs (Wainer & Rubin, 1969). Furthermore, Decker, Calo, & Weer (2012) suggest that university students with high need for achievement and

need for positive stimulation in social relationships are more interested in entrepreneurship. Therefore, individuals who display a greater need for achievement would take more advantage of the entrepreneurial information afforded by social networks, since this information offers a chance to attain their entrepreneurial achievements (Burt, 1998). Given the above arguments, we propose that:

H4: Need for achievement moderates the relationship between the entrepreneurial information obtained in social networks such that the greater the need for achievement the stronger the relationship between the entrepreneurial information obtained in social networks and entrepreneurial intention.

A summary of the hypotheses is described in Figure 1.

[INSERT FIGURE 1 ABOUT HERE]

4. Research Method

4.1 Sample and Data Collection

We collected data from a sample of 608 university students who were in the last two years of their degree at two Spanish universities between October 2017 and December 2017. Students responded to questionnaires voluntarily after being informed about the objectives of our study. At the time of data collation, students were enrolled on degrees in business or related disciplines such as finance, marketing, or economics. We removed 11 responses from the final sample because of missing data. We report the demographic information of our participants in Table 1.

[INSERT TABLE 1 ABOUT HERE]

Building on Krueger (1993), we consider that in order to analyze entrepreneurial intention scholars should use samples of individuals who are currently facing important career decisions. Using students to understand entrepreneurial intention is very common within entrepreneurship literature (Fitzsimmons & Douglas, 2011; Kolvereid, 1996; Krueger et al., 2000; Meoli et al., 2020). The students in our sample had around one year to decide their professional career (Fitzsimmons & Douglas 2011). Since this is a short period, their entrepreneurial intention was likely to be the same as after finishing their degrees (Audet, 2004). Therefore, we agree with the assumption that student samples can be appropriate in research related to entry into entrepreneurship (Hsu, Simmons, & Wieland 2017). Interest in university students remains (e.g.; Hsu, Burmeister-Lamp, Simmons, Foo, Hong, & Pipes, 2019; Nowiński, & Haddoud, 2019; Pham, Jones, Dobson, Liñán, & Viala, 2021), as this part of the population possesses specific knowledge and competences that can be used in entrepreneurship (Galloway & Brown, 2002).

4.2 Measurement scales

Table 2 shows the operationalization of our measures based on previous scales. To ensure the measurement items were correctly translated into Spanish, we first confirmed them with an expert in entrepreneurship. Following a pre-test with a sample of 31 university students, we then adjusted some items so as to facilitate understanding.

[INSERT TABLE 2 ABOUT HERE]

Entrepreneurial intention. We use five items from the Entrepreneurial Intent Questionnaire (Liñan & Chen, 2009), developed in previous studies (Kolvereid, 1996; Krueger et al., 2000) and widely applied in existing research (e.g. Liñan et al., 2011; Nowiński, & Haddoud, 2019; Pham et al., 2021).

Social network size. We use two items from Ellison Steinfield, and Lampe (2011): the total number of friends that individuals connect with through social networks and what proportion of friends are frequently contacted, because both elements are relevant in social networks (Ellison et al., 2011).

Entrepreneurial information from social networks. We measure information in this context as the knowledge that leads to progress on an assignment or project (Cross & Sproull, 2004) – entrepreneurship, in our case. We adapt the three items from De Carolis et al., (2009) concerning the amount of information that individuals obtain through being part of social networks, whether new business ideas can be discussed by individuals in these networks and whether starting a new company would be easier thanks to the networks.

Need for achievement. We measure need for achievement with three items adapted from Lee and Tsang (2001) related to how individuals express greater desires and ambitions regarding their results and career.

4.3 Control variables

We consider several control variables for analyzing entrepreneurial intention. First, previous research has considered that age is negatively related to the predisposition for entrepreneurial activities (Curran & Blackburn, 2001); we thus include age. In addition, previous literature has found that men have a greater inclination towards entrepreneurship than women (Mathews & Moser, 1995), leading us to include a dummy for gender (1 = female; 0 = male). Finally, earlier findings report that both job experience (Mathews & Moser, 1995) and previous experience in entrepreneurship (Shepherd, 2003) are positively related to entrepreneurial intention. We therefore consider this and measure it

with a dummy variable (1 = respondent has previous experience as employed or self-employed, 0 = otherwise).

4.4 Common method bias

Common method bias can be a major concern when the dependent and independent variables refer to measures that have been perceived and responded to by the same individual (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). To assess this common method bias, we use the common method factor procedure (Liang, Saraf, Hu, & Xue, 2007), which involves adding a first-order factor to the theoretical model with all of the measures as indicators. Using PLS, we convert each indicator into a single-indicator construct, with all the major constructs of interest being second-order constructs. We add a common method factor whose indicators include all the principal construct indicators and which are linked to all the first-order constructs. We calculate each indicator's variances substantively explained by the principal construct and by the method (Williams, Edwards, & Vandenberg, 2003). Results demonstrate that the average explained variance of the indicators is 0.737, while the average method-based variance is 0.003. The ratio of substantive variance to method variance is about 245, and most method factor loadings are not significant. We report the results in the appendix. We also tested the theoretical model with and without the common method factor procedure to evaluate the significance of the structural parameters (Podsakoff et al., 2003). Results show that (i) the factor loading in both models is significant and of similar magnitude, and (ii) the direction and the p-value level of path coefficients is the same in the two models. As a result, we conclude that common method bias is unlikely to be a serious threat in our study.

5. PLS Analysis and Results

5.1 Measurement model

We employ the PLS approach, a type of structural equation modelling, to validate the research model (Ringle, Wende, & Will, 2005). In PLS, the estimation of measurement and structural parameters is carried out through an iterative procedure that combines simple and multiple regressions by traditional ordinary least squares, avoiding any distributional assumption of the observed variables. PLS does not therefore require data normality, and thereby avoids the indeterminacy problems inherent in other modelling techniques (Wittmann, Hunt, & Arnett, 2009).

To assess the measurement of the reflective constructs, we examine item reliability, internal consistency, as well as convergent and discriminant validity (Roldán & Leal, 2003). All item loadings are significant at $p < 0.01$ (see Table 2). We appraise the constructs' internal consistency by observing Cronbach's alpha and composite reliability. All Cronbach's alphas are above 0.6, and composite reliability exceeds the 0.7 boundary for all measurement items (see Table 3). Table 3 shows that the average variance extracted exceeds the recommended limit of 0.5 for all constructs (Fornell & Larcker, 1981). We thus confirm the convergent validity of our constructs.

[INSERT TABLE 3 ABOUT HERE]

Additionally, we assess the discriminant validity of the reflective scales by examining whether (a) the square root of average variance extracted is larger than the interconstruct correlations, and whether (b) each item loads more highly on its intended construct than on others (see Table 3). This confirms the discriminant validity of our constructs. (Fornell & Larcker, 1981). Additionally, we follow the Henseler Ringle, and Sarstedt (2015) recommendation of examining the heterotrait–monotrait (HTMT) ratios of the correlations. Table 3 shows no HTMT ratios above the 0.85 threshold, which means that

this research meets the criteria to establish adequate discriminant validity (Henseler et al. 2015). In short, our constructs display good psychometric properties.

Finally, to measure the fit of our models, we consider the standardized root mean square residual (SRMR), which is a goodness of fit measure for PLS that can be used to avoid model misspecification (Henseler Hubona, & Ray, 2016). SRMR is defined as the difference between the observed correlation and the model implied correlation matrix, allowing us to evaluate the average magnitude of the discrepancies between observed and expected correlations as an absolute measure of (model) fit criterion. A value below 0.08 is considered a good fit (Hu & Bentler, 1999). In our specific case, our three models have an SRMR of 0.033, 0.041, and 0.045, respectively. Therefore, our models are considered to have a good fit.

5.2 Structural model

We use hierarchical regression analysis for hypothesis testing. Different blocks of variables were sequentially introduced into PLS to check their respective explanatory power, facilitating the interpretation of coefficients concerning the main and interaction effects. In line with Chin (1998), bootstrapping (5000 subsamples) was used to generate the standard errors and t statistics. Table 4 shows the path coefficients β for the three estimated models and the variance explained (R^2) in the dependent variables.

[INSERT TABLE 4 ABOUT HERE]

Model 1 shows the importance of control variables. Men show a significantly higher entrepreneurial intention than women (β = -0.136, p = 0.000). Additionally, both employment (β = 0.160, p = 0.000) and self-employment (β = 0.087, p = 0.030) experience are positively related with entrepreneurial intention. However, age (β = 0.052;

p = 0.104) is not significant for entrepreneurial intention. This is because most of the individuals in our sample are in a very narrow age range (19-24 years).

Model 2 allows us to test the hypotheses regarding the main effects. Results indicate that social network size positively and significantly affects the entrepreneurial information of social networks (β = 0.115; p = 0.001), thereby supporting H1. Furthermore, results support H2, providing evidence for the positive and significant relationship between the entrepreneurial information of social networks and individuals' entrepreneurial intention (β= 0.181; p = 0.000). As a result of having fulfilled H1 and H2, our results show a significant mediating effect of social network entrepreneurial information in the relationship between social network size and entrepreneurial intention (β = 0.022; p = 0.004). This is a partial mediation because the direct effect of social network size on entrepreneurial intention is positive and significant (β = 0.123; p = 0.002).

Based on trait activation theory, Model 3 examines the moderating effects of need for achievement. First, need for achievement does not moderate (β= 0.023; p = 0.281) the relationship between social network size and the entrepreneurial information of social networks. Therefore, H3 is not supported. However, need for achievement does positively moderate (β= 0.073; p = 0.024) the influence of social network entrepreneurial information on entrepreneurial intention, thus supporting H4.

6. Fuzzy-set qualitative comparative analysis (fsQCA)

In the present study, we use fsQCA to complement PLS analysis. Recent research by Rasoolimanesh et al., (2021) proposes the joint use of PLS and fsQCA to provide more detailed and nuanced insights into the complex causal relationships between variables. Indeed, there are already studies that have applied both PLS and fsQCA (e.g. Hock-

Doepgen, Clauss, Kraus, & Cheng, 2020; Sheng & Chien, 2016; Valaei, Rezaei, & Ismail, 2017). FsQCA is a method that conceptualizes cases as combinations of specific characteristics, and combinations of characteristics which give configurations to generate an outcome (Fiss, 2007; Woodside, 2013). Thus, fsQCA considers that more than one configuration of conditions could lead to the same result (equifinality) (Fiss, 2011). Such configurations expose asymmetric characteristics and synergetic effects that replace traditional bivariate interaction effects. The conditions that lead to the outcome differ from those that lead to its absence (Fiss, 2011). Configurational approaches admit that conditions can be causally related in one configuration, although they can be unrelated or even inversely related in others (Meyer, Tsui, & Hinings, 1993). FsQCA has recently been applied in different studies related to entrepreneurship in general (Kraus, Ribeiro-Soriano, & Schüssler, 2018) and entrepreneurial intention in particular (Nowinski & Haddoud, 2019; Sahin, Karadag & Tuncer, 2019; Santos, Nikou, Brännback, & Liguori, 2021).

As the first step in fsQCA, data relating to the outcome and antecedent conditions which are to be used in the analysis are calibrated. Calibration is the process of classifying conditions from full membership to full non-membership. We follow recent research that suggests extracting the standardized PLS latent variable scores to then use these scores as input for the subsequent fsQCA (Rasoolimanesh et al., 2021). Using these scores and following Ragin (2008) and Woodside (2013), we define three different anchors for full membership, crossover point, and non-membership, respectively (Table 5). We choose the 95th, 50th and 5th percentiles for these thresholds, as suggested by Pappas & Woodside (2021) for any type of data (including Likert Scales). This choice is also based on previous research into fsQCA and entrepreneurial intention (Sahin et al., 2019; Laouiti, Haddoud, Nakara, & Onjewu, 2022).

[INSERT TABLE 5 ABOUT HERE]

FsQCA connects a condition with an outcome in order to develop a proposition about the sufficiency and necessity of that condition to achieve the outcome (Thiem, Baumgartner, & Bol, 2016). On the one hand, a condition can be classified as necessary if every time the outcome is present (or absent), the condition is also present (or absent) (Ragin, 2000). On the other hand, a condition can be interpreted as sufficient if, anytime the condition is present, the outcome is also present; that is, the condition does not need to be combined with other conditions, since the presence of the condition itself implies the presence of the outcome (Fiss, 2007; Ragin, 2006). Consistency and coverage measures are central to evaluating the degree of fitness of cases in a dataset to an association of necessity or sufficiency. Consistency evaluates the extent to which the same outcome is produced by cases with the same attributes (i.e., combinations of conditions) within a given dataset (Ragin, 2008). Consistency is akin to significance level in statistical hypothesis testing (Woodside & Zhang, 2012). Coverage is a measure that indicates the degree of relevance of certain causal combinations to explain the outcome of interest (Ragin, 2008). Coverage is similar to the effects size in hypothesis testing (Woodside & Zhang, 2012).

FsQCA analysis starts with necessity analysis to identify those conditions that have a necessary relationship with the outcome of interest (Fiss, 2007; Ragin, 2006; Schneider & Wagemann, 2012). For a condition to be considered necessary, the consistency and coverage thresholds should be over 0.90 and 0.80, respectively (Schneider & Wagemann, 2012). Table 6 shows that none of the six conditions (for either the presence or absence) comply with those thresholds; thus, there are no necessary conditions.

[INSERT TABLE 6 ABOUT HERE]

After analyzing the necessary conditions, the next step is to identify the conditions that have a sufficient relationship with the outcome of interest. Analysis of the sufficient conditions involves creating the truth table, where observations are assigned to specific configurations based on the calibrated scores. The rows of the truth table represent particular combinations of conditions, and the full table thus represents any possible configuration and its corresponding number of observations. To reduce the truth table to meaningful configurations, we follow the suggestions of previous studies. We thus chose a frequency threshold of three for the number of observations (Pappas & Woodside, 2021). The lowest acceptable consistency score is set at 0.8 (Fiss, 2011; Ragin, 2008) and the proportional reduction in inconsistency must be above 0.5 (Greckhamer, Furnari, Fiss, & Aguilera, 2018).

Sufficiency analysis shows several configurations of conditions that are sufficient to produce a high level of entrepreneurial intention. In particular, six parsimonious configurations and nine intermediate configurations exist with consistency levels that comply with the 0.80 threshold (Fiss, 2011; Ragin, 2008). The core conditions are the ones included in the parsimonious and intermediate solutions, while the peripheral conditions are only part of the intermediate solution (Fiss,2011; Pappas & Woodside, 2021; Ragin, 2008). The intermediate solution has greater values than the suggested threshold values (0.74 for consistency and 0.25 for coverage). This solution therefore provides information on the empirical relevance of the conditions in view (Ragin, 2008; Woodside, 2013). Table 7 shows these results.

[INSERT TABLE 7 ABOUT HERE]

Considering causal asymmetry, solutions leading to the presence of an outcome may differ from those solutions leading to the absence of an outcome. In order to examine which causal conditions lead to a low level of entrepreneurial intention, fsQCA analysis

is thus conducted by simply coding the negation of the outcome measure. Applying the same rules for frequency threshold, consistency and proportional reduction in inconsistency, results indicate that the consistency of this solution is smaller than the suggested threshold values, such that there are many but inconsistent paths leading to a low level of entrepreneurial intention. This result is consistent with previous research in entrepreneurial intention (Sahin et al., 2019; Laouiti et al., 2022).

7. Discussion

Our research expands inquiry into entrepreneurial intention by assessing how the combination of social environment and need for achievement proves relevant to the development of entrepreneurial intention among individuals. More specifically, we confirm that social network size has a positive influence on the entrepreneurial information obtained in social networks, which in turn, has a positive influence on entrepreneurial intention. Furthermore, by applying trait activation theory, we argue and demonstrate that social networks activate an individual's need for achievement, which ultimately contributes to developing their entrepreneurial intention. We complement these results with fsQCA, and find nine different configurations that lead to a high level of entrepreneurial intention by combining the nature and resources of social networks, need for achievement, and control variables.

Overall, our study aligns with the socially situated cognition approach by considering that entrepreneurial cognition takes place in the interplay between individuals and their environment (Dew et al., 2015). Our study helps to further recent research on entrepreneurial intention that includes the nexus between personality trait and social environment (e.g. Liguori et al., 2018; Pfeifer et al., 2016), and that draws upon trait

activation theory (Foo et al., 2016). Furthermore, we advance the literature on social networks and entrepreneurship by finding that social networks are not only important when individuals set up a company (Greve & Salaff, 2003) but that they are also important when individuals are actually thinking about the decision to do so. We also expand the role of need for achievement in entrepreneurship. Prior research proposes that in order to fully understand the effects of personality trait on behavior, it is necessary to consider the situations in which personality plays out. People's thoughts, feelings, and behaviors emerge in reaction to salient features of their social environment (Tett et al., 2021). Our results suggest that need for achievement intensifies the effect of social networks on the development of entrepreneurial intention, rather than directly influencing entrepreneurial intention itself (Frank et al., 2007; Stewart & Roth, 2007). Finally, the different configurations obtained in fsQCA that can define a high level of entrepreneurial intention are in line with previous studies on entrepreneurial intention that have applied this technique (Nowinski & Haddoud, 2019; Sahin et al., 2019; Santos et al., 2021; Laouiti et al., 2022). By jointly using PLS and fsQCA (Rasoolimanesh et al., 2021), we identify and explore more fine-grained insights into variable relationships and heterogeneity in our outcome variable.

7.1 Theoretical Implications

Our results provide several insights. First, we show that greater social network size is important vis-à-vis obtaining more entrepreneurial information in social networks. When individuals need information related to the process of starting a new firm or need to discuss an entrepreneurial idea, a greater number of contacts helps these individuals to obtain this relevant information, since they have more possibilities among their social contacts (Anderson, 2008; Burt, 1992). This result allows us to differentiate between social networks in terms of network structure and content (Gedajlovic et al., 2013; Hoang

& Antoncic, 2003), as we find that the structure of the relationships (i.e., size) enables individuals to obtain different resources, such as entrepreneurial information (Anderson, 2008).

Second, our findings support the notion that the entrepreneurial information obtained from social networks helps to develop entrepreneurial intention. This result is reinforced by configuration 2, which shows that obtaining a large amount of entrepreneurial information in social networks may be sufficient for individuals to develop higher entrepreneurial intention. Therefore, the information which individuals can obtain from their social networks helps them to see entrepreneurship as more attractive, since it provides a perception of greater control over the entrepreneurial process (De Carolis et al., 2009), and ultimately helps them to secure the expected outcomes of entrepreneurship (De Carolis & Saparito, 2006). Our study thus helps to understand the specific mechanisms through which social networks exert their effects (Anderson, 2008), particularly on entrepreneurial intention.

Third, our finding regarding the partial mediation of entrepreneurial information suggests the possibility that large social networks allow individuals to obtain other resources - such as financial and human resources - beyond the entrepreneurial information required for entrepreneurship (Dubini & Aldrich, 1991). We reinforce this result with configurations six and seven that consider the presence of larger network size and employment experience as the main causal condition for developing higher entrepreneurial intention. Configuration six also confirms asymmetry in our findings because the presence of a large network size may lead to entrepreneurial intention even in situations of low entrepreneurial information obtained in social networks. In sum, social network size helps to obtain entrepreneurial information (and perhaps other types of resources) which, in turn, positively influences entrepreneurial intention. Configuration eight, which shows

the combination of both social network size and entrepreneurial information, leads to high entrepreneurial intention and supports the direct relationships of both social network size and information on entrepreneurial intention at the same time. These results suggest the direct influence of social environment in the early cognitive stages of entrepreneurship, beyond the indirect effects proposed in previous literature (e.g. Santos et al., 2016; Zapkau et al., 2015; Pfeifer et al., 2016).

Fourth, beyond the main direct effects, we hypothesized that need for achievement is activated in the context of social networks, thus intensifying the effect of these networks based on trait activation theory. On the one hand, our findings show no significant moderating effect of need for achievement in the relationship between social network size and entrepreneurial information obtained in social networks. Previous research has already found that need for cognition moderates the relationship between social network size and social network information gathering for managers (Anderson, 2008). In the case of potential entrepreneurs, the need for cognition rather than the need for achievement is also likely to be activated to obtain more entrepreneurial information from social networks. Nevertheless, configuration nine suggests that the simultaneous presence of need for achievement and social network size can be relevant for obtaining other resources apart from information in social networks, which would also have positive consequences for entrepreneurial intention. Furthermore, not only the size of social networks, but also who forms part of those networks may be important in terms of obtaining useful information related to entrepreneurship in social networks. In this sense, individuals with high need for achievement might relate more to other individuals with similar levels of need for achievement, obtaining a great amount of entrepreneurial information in social networks even though their social networks might be smaller.

We also find that need for achievement is activated to increase individuals' entrepreneurial intention through entrepreneurial information obtained in social networks. This finding is reinforced by configurations three and five because these configurations leading to high entrepreneurial intention combine the presence of a great amount of entrepreneurial information obtained in social networks with the presence of need for achievement. Based on trait activation theory (Tett & Burnett, 2003), entrepreneurial information from social networks thus allows higher need for achievement individuals to manifest this particular trait in order to take advantage of this information (Burt, 1992; 1998) and so develop greater entrepreneurial intention. This result is in line with previous research reporting the importance of the interaction between need for achievement and social environment for entrepreneurship (Wainer & Rubin, 1969; Decker et al., 2012).

Furthermore, our findings show the validity of trait activation theory to understand the link between social environment and personality traits in entrepreneurship, evidence for which has been especially scarce in entrepreneurial intention research (Foo et al., 2016). Our finding also connects with the cognitive models widely used in entrepreneurship research to explain the formation of entrepreneurial intention (Shapero & Sokol, 1982; Ajzen, 1991). Previous research has found that social networks positively impact individuals' estimation of their skills, abilities, and knowledge for entrepreneurship (i.e., perceived feasibility) (De Carolis et al., 2009) and that need for achievement positively influences perceived desirability (Tan, Pham, & Bui, 2021). Our findings that show an interaction effect between need for achievement and social networks are also in line with previous research which suggests the interaction of both perceived desirability and feasibility when explaining entrepreneurial intention (Fitzsimmons & Douglas, 2011; Krueger et al., 2000). Additionally, we extend previous evidence that potential

entrepreneurs, compared to other individuals, exhibit a greater need for achievement (Stewart & Roth, 2007). It is this likely that these individuals also have higher levels of conscientiousness (Zhao & Seibert, 2006). From a broader perspective, our finding could have implications when identifying opportunities, which has previously been linked to the interaction of social networks, information, and personality traits (Ardichvili et al., 2003). Specifically, this link could be explained as a consequence of activating individuals' different personality traits that allow them to take advantage of the information obtained in social networks, which will in turn play a key role in identifying entrepreneurial opportunities.

7.2 Practical implications

Our research offers certain practical implications. First, universities, as guides to future students' careers, must encourage training courses related to social abilities among university students that allow them to enhance their social networks. More specifically, universities can implement workshops and seminars (Bonesso et al., 2018) where students learn to focus on increasing their social networks, which would in turn improve the entrepreneurial information they might then access and obtain. By developing such social skills, university students should grasp the relevance of both the structure and the content of social networks. Second, our research points to the importance of combining social environment and personality trait vis-à-vis developing entrepreneurial intention. Under favorable social circumstances, individuals who are high in need for achievement are particularly interested in starting up. Companies that are keen to promote corporate entrepreneurship should therefore - through social networks - activate the need for achievement of these individuals in order to boost their entrepreneurial intention. From a broader perspective, institutions should create a social environment that favors the

interchange of entrepreneurial information, specifically for individuals high in need for achievement. Finally, our finding concerning need for achievement is particularly important given that this personality trait is activated when turning entrepreneurial information derived from social networks into entrepreneurial intention. For instance, when individuals seek funds to create a new firm, funders can capture individuals' need for achievement to help select entrepreneurial projects.

7.3 Future research

Our findings point to other lines of research. First, entrepreneurship scholars could extend our entrepreneurial intention model to include other social environmental variables beyond social networks, such as social comparison, which is the desire to participate in activities with others in order to compare one's performance (Hill, 1987). Previous research has suggested that entrepreneurs would need to compare themselves socially so as to have a basis from which to attain their achievements (Decker et al., 2012). Future research might thus explore whether social comparison between individuals - particularly university students - activates the need for achievement in order to develop greater entrepreneurial intention.

Second, following trait activation theory (Tett & Burnett, 2003), research might consider other traits that can be activated through social networks; for example, dependability, defined as the extent to which individuals are organized, deliberate, and methodical and can be relied on to fulfill their duties and responsibilities (Zhao & Seibert, 2006). Dependability is very valuable in an entrepreneur because this trait has an important role in the discretionary and self-directed environment in which entrepreneurs operate. In addition, other stakeholders will be more likely to select entrepreneurs whom they judge

to be dependable. Future research should thus consider whether dependability is activated in different social environments, such that it is able to influence entrepreneurial processes. Beyond this specific trait, which is the other component of conscientiousness together with need for achievement, future research may analyze whether social environment activates other big five personality traits such as extraversion and openness to experience, which have previously been related to entrepreneurship (Zhao & Seibert, 2006). Finally, as previously commented, the nexus between social networks and personality may also be important vis-à-vis pinpointing opportunities (Ardichvili et al., 2003). Future research may study which personality traits and which social networks are more important in the three stages of opportunity identification, i.e., in the recognition, development and evaluation of entrepreneurial opportunities and whether both personality traits and social networks are likely to vary in importance at these different stages. For example, future research may explore whether need for achievement might be more important in the recognition phase, whereas other personality traits that are relevant for entrepreneurship - such as internal locus of control and risk propensity (Chell, 2008) - might be more important in the development phase and in the evaluation phase, respectively.

7.4 Limitations

This research is not without its limitations. First, the cross-sectional sample only allows the causal direction of the relationships to be proposed. Although our theoretical arguments support these relationships, future research may assess them through longitudinal analysis. The linkage between social networks and entrepreneurial activities may be reciprocal in nature, in as much as social capital is both a logical antecedent and the result of entrepreneurship (Carney & Gedajlovic, 2002). Additionally, the activation of need for achievement in social networks also occurs over time, such that longitudinal

research would allow us to understand how this activation occurs. Second, our sample based on university students has the advantage of evaluating individuals of comparable age and competences, thus favoring homogeneity in the sample. However, we are unable to determine whether our results would also be applicable to the broader population. Finally, social networks are a complex construct (Gedajlovic et al., 2013) and, as such, it is very difficult to find a measure that can fully reflect their nature (Adler & Kwon, 2002). We specifically consider entrepreneurial information obtained in social networks as the amount of information. However, we recognize that as well as the amount, the quality of this entrepreneurial information is also important because excess information does not necessarily mean that such information is constructive and/or favors entrepreneurship. Furthermore, we have not considered whether the entrepreneurial information was presented directly to individuals or whether they found it among all the information to which they were exposed. We therefore suggest that other measures of entrepreneurial information obtained in social networks, and which consider these issues of information quality, might better capture the complex nature of social network content.

8. Conclusion

Entrepreneurship plays a key role as a promoter of economic activity and as an innovation factor. It is therefore necessary to understand how to promote entrepreneurial intention among individuals. Previous research has mainly considered personality trait and cognitive approaches when studying entrepreneurial intention, and has given a less important role to social environment. However, based on trait activation theory, we shed light on this issue by considering that the social environment is a crucial factor for activating personality in order to boost entrepreneurship. More specifically, we have proven the relevance of both social network size and information obtained in social

networks for entrepreneurial intention as well as the interplay of this information and need for achievement when developing entrepreneurial intention among individuals. This research extends our knowledge on the joint influence of social environment and personality traits on the development of entrepreneurial intention (Foo et al., 2016; Liguori et al., 2018; Pfeifer et al., 2016).

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Table 1. Sample characteristics

Gender	N	% of total	Age	N	% of total
			19	10	1.7
			20	92	15.2
			21	201	33.7
Male	248	41.5	22	126	21.1
Female	349	58.5	23	72	12.1
			24	28	4.7
			>24	68	11.5
TOTAL	597	100.00		597	100.00
Experience as self-employed			**Experience as employee**		
Yes	30	5.0	Yes	302	50.6
No	567	95.0	No	295	49.4
TOTAL	597	100.00		597	100.00

Table 2. Measurement scales and psychometric properties

Measurement items	Mean (S.D.)	Factor loadings
Entrepreneurial Intention[a] (α = 0.941, AVE = 0.813, CR = 0.956)		
Grade the following statements:		
I am ready to do whatever it takes to become an entrepreneur	3.99 (1.51)	0.854**
My professional goal is to become an entrepreneur	3.85 (1.57)	0.923**
I will make every effort to set up and run my own company	3.99 (1.70)	0.928**
I am determined to set up a firm in the future	3.81 (1.69)	0.933**
I have seriously thought about starting a business in the future	3.81 (1.92)	0.868**
Social network size [b] (α = 0.859, AVE = 0.878, CR = 0.935)		
Answer the following questions about your social relationships:		
With how many people do you consider you have a social relationship?	4.06 (2.65)	0.963**
How many of these people do you maintain frequent contact with?	2.68 (1.85)	0.910**
Entrepreneurial information obtained in social networks[a] (α = 0.819, AVE = 0.727, CR = 0.889)		
Indicate the degree to which your participation in social relationships…		
Would make it easier for you to start a new company	5.13 (1.42)	0.866**
Provides you with a forum to discuss new business ideas	4.82 (1.50)	0.816**
Affords you greater access to business information	4.88 (1.51)	0.874**
Need for achievement[a] (α = 0.698, AVE = 0.576, CR = 0.799)		
Indicate agreement:		
I will not be satisfied unless I have reached the desired level of results	5.73 (1.11)	0.621**
Even though people tell me 'it cannot be done', I will persist	5.92 (1.05)	0.820**
I look upon my work as simply a way to achieve my goals	6.18 (0.96)	0.854**
Age		
Number of years	22.27(3.46)	-
Gender[c]		
Male or female	0.59 (0.53)	-
Experience as employee[d]		
If the student has (or does not have) work experience	0.51 (0.50)	-
Experience as self-employed[d]		
If the student has (or has not) previously been an entrepreneur	0.05 (0.22)	-

[a] Likert scale ranging from 1= strongly disagree to 7= strongly agree.

[b] (<10; 11–15; 16-20; 21-25; 26-30; 31-35; 36-40; 41-45; 46-50; >50). <10 corresponds to a 1 on the scale and >50 corresponds to 10.

[c] 0 = male; 1 = female. [d] 0 = no; 1= yes.

α = Cronbach's alpha. CR = composite reliability. AVE = average variance extracted. ** $p < 0.01$. * $p < 0.05$.

Table 3. Zero-order correlations and discriminant validity

	1	2	3	4	5	6	7	8
1. Entrepreneurial intention	**0.902**	0.191	0.218	0.100	0.100	0.159	0.206	0.141
2. Social network size	0.165	**0.887**	0.133	0.050	0.029	0.217	0.026	0.069
3. Entrepreneurial information obtained in social networks	0.201	0.121	**0.817**	0.163	0.068	0.049	0.051	0.041
4. Need for achievement	0.077	0.043	0.131	**0.759**	0.076	0.130	0.105	0.140
5. Age	0.097	0.023	0.068	0.060	**n.a.**	0.020	0.233	0.063
6. Gender	-0.092	-0.204	0.040	0.108	-0.020	**n.a.**	0.066	0.092
7. Experience as employee	0.200	0.002	0.004	0.085	0.233	-0.092	**n.a.**	0.209
8. Experience as self-employed	0.136	0.065	0.036	0.107	0.063	-0.066	0.209	**n.a.**

Note: The diagonal elements are the values of the square root of the AVE. The values below the diagonal are the zero-order correlation coefficients. The elements above the diagonal are the values of the HTMT ratio. n.a. = not applicable.

Table 4. Standardized regression coefficients of the testing model

	Model 1	Model 2	Model 3
Control relationships			
Age	0.052	0.035	0.036
Gender	-0.136**	-0.118**	-0.149**
Experience as employee	0.160**	0.166**	0.166**
Experience as self-employed	0.087*	0.073*	0.073*
Social network size → Entrepreneurial intention		0.123**	0.119**
Hypothesized relationships			
Social network size → Entrepreneurial information from social networks (H1)		0.115**	0.109*
Entrepreneurial information obtained in social networks → Entrepreneurial intention (H2)		0.181**	0.178**
Need for achievement*Social network size → Entrepreneurial information from social networks (H3)			0.023
Need for achievement*Entrepreneurial information from social networks → Entrepreneurial intention (H4)			0.073*
R^2 Entrepreneurial intention	0.070	0.120	0.127
R^2 Entrepreneurial information obtained in social networks	-	0.015	0.029

Note: * p<0.05, ** p<0.01.

Table 5. Descriptive statistics and calibration values for causal conditions and outcome.

	Descriptive statistics		Calibration criteria		
Outcome/Conditions	Min	Max	95%	50%	5%
Entrepreneurial intention	-1.931	2.072	1.787	-0.072	-1.646
Size of social networks	-1.608	3.167	2.209	-0.177	-1.131
Information from social networks	-3.159	1.614	1.614	0.023	-1.658
Need for achievement	-6.214	1.227	1.227	-0.013	-1.834
Gender	-1.121	0.764	0.764	-	-1.121
Experience as employee	-1.014	0.987	0.987	-	-1.014
Experience as self-employed	-0.227	4.410	4.410	-	-0.227

Notes: Age has not been included in the calibration because most of the participants in the sample have similar ages and, therefore, it does not make sense to determine full membership and non-membership given that similarity. Furthermore, age is the only control variable with no significant effect on entrepreneurial intention.

The standardized PLS latent variable scores have a mean and an SD of 0 and 1, respectively.

Table 6. Analysis of the necessary conditions

	Presence		Absence	
Condition	Consistency	Coverage	Consistency	Coverage
SN Size	0.61	0.69	0.57	0.64
~SN Size	0.68	0.62	0.73	0.65
Information SN	0.70	0.69	0.63	0.61
~Information SN	0.61	0.63	0.68	0.70
Nach	0.72	0.64	0.69	0.61
~Nach	0.57	0.65	0.60	0.68
Gender	0.58	0.51	0.68	0.58
~Gender	0.52	0.62	0.42	0.50
Employee	0.62	0.62	0.49	0.48
~Employee	0.48	0.49	0.61	0.61
Self-Employed	0.15	0.83	0.13	0.69
~Self-Employed	0.94	0.52	0.97	0.53

Note: The tilde symbol (~) indicates the absence of a condition.
Gender = female; ~Gender = male.

Table 7. Configurations for high levels of entrepreneurial intention.

Configurations	SN Size	Information SN	Nach	Gender	Employee	Self-Employed	Consistency	Raw coverage	Unique coverage
1		◯	◯		●	○	0.84	0.27	0.03
2		●		◯	◯	○	0.81	0.22	0.05
3		●	●		●	◯	0.82	0.32	0.06
4	◯	◯	•	○	●		0.89	0.16	0.02
5	•	•	•	○	•		0.93	0.17	0.01
6	●	◯			●	◯	0.84	0.26	0.01
7	•			○	•	○	0.83	0.23	0.01
8	●	●		◯		○	0.84	0.26	0.00
9	•		•		•	○	0.83	0.28	0.01

Overall solution consistency: 0.75, overall solution coverage: 0.61

Note: Black circles indicate the presence of a causal condition, and open circles indicate its absence. Large open circles indicate core conditions and small circles peripheral ones. Blank spaces indicate "don't care" conditions.

Presence of gender = female; Absence of gender = male.

Figure 1. A model of social networks, need for achievement and entrepreneurial intention.